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Vice President and Chief Architecture Officer
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Jigar Patel
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Ash Patel
Principal Owner
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Peter Klebanof
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Thoughtful Discussion and Discovery of Today's Tech Trends
An introduction from the HITEC 2016 Advisory Council Chair
By Richard Tudgay

2016 Hall of Fame Inductees
Profiles for the 2016 International Hospitality Technology Hall of Fame Inductees: Michael Levie, CHTP and Prakash Shukla.

Millennials: Changing Loyalty Programs, Design and Brand Standards
The younger generation brings refreshing change that adds new excitement to the industry and can enhance the travel experience for all generations.
By John Bowen, Ph.D. and Elizabeth Ann Whalen

Tailoring Your Guest Experience to Newer Generations
Meeting the expectations of everyone, from Baby Boomers to a new generation of technically savvy travelers calls for new and traditional amenities.
By Monica Compton

The Digital Customer Journey: From Virtual Experience to Physical Stay
Make the transition from digital experience to the physical stay as seamless as possible, and understand that the sum is greater than its parts.
By Lisa Apolinski

The Future of IoT in Hospitality
When consumers perceive value from using the Internet of Things devices and applications, the trend will quickly create a new market.
By Ajay ‘AJ’ Aluri, Ph.D.

Connected Entertainment Experience
From big-ticket concerts to high-profile sporting events, entertainment venues depend on technology partners to create memorable guest experiences.
By Monica Compton

Airbnb: A Disruptive Innovative Platform With Rippling Effects
The business model redefined and expanded room capacity throughout the world, resulting in a shift in the economic models for the lodging and travel industries and tourism destinations.
By Galen Collins, Ph.D.

Moving From Analog to Digital
The digital world calls for a new infrastructure and innovative methods for tackling the revenue generation functions in hotels.
By Cindy Estis Green

Leveraging Social Media to Improve Your Revenue Management Effort
Use data sets from social media sites such as price to value feedback to make better, more optimal revenue management decisions.
By Bonnie Buckhiester

New Search Methods Help Travelers Reach Relevant Answers Quickly
Increasingly voice search and interconnected media provide a progressive, seamless interaction.
By Loren Gray, CHDM

3 Things You Shouldn’t Compromise When Adding Mobile Points of Sale
Consider security, connectivity and future-proofing as “must-haves” rather than simply “nice-to-haves” when researching and deciding on an mPOS solution.
By Jeremy Fried

Business Continuity Planning
A strong plan can provide a framework for the hotel’s leadership to evaluate an event, have a response mechanism in place and people, processes and equipment to address the vast majority of events, foreseeable or unimaginable.
By Mark Haley, CHTP, ISHC and Michael Duffy, CHTP

Today’s Hospitality IT Professional
Survey results identify characteristics, including compensation, supervisory responsibilities and average time in position.
By Tanya Venegas, MBA, MHM, CHIA

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The **HITEC Special Report** provides thoughtful analysis on many of the technology issues on our minds.

In the past year we have been gifted with a wealth of innovation and promise for the future of the hospitality technology industry. I, along with the members of the HITEC Advisory Council, am pleased to welcome you to the much-anticipated HITEC 2016 where we will engage in thoughtful discussion and discovery of today’s trends and tomorrow’s opportunities.

The HITEC Special Report, which you are reading now, is an easily digestible compilation of the biggest topics at HITEC 2016. Experts from varying fields weigh in on everything from the broad concepts to the subtle nuances that confront us at work each day. Discussed is the much buzzed about IoT to the ongoing conundrum of how to manage customer data. Take this report home to keep as a reference and share it with your colleagues knowing that you have taken advantage of all the knowledge that HITEC has to offer.

It is because of the hard work and determination of the article authors and HITEC Advisory Council that the HITEC Special Report is possible. Thank you to the readers and the past, present and future HITEC attendees for continuing to engage in this open forum of ideas and knowledge exchange.

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Richard Tudgay is vice president of IT services and delivery for Highgate Hotels.
Levie's commitment and creativity have made him one of the most important figures in the world of hospitality.

A true innovator, Michael Levie, CHTP saw opportunities to take guest experience to a new level through the use of technology. The risk associated with stepping out of a recognized brand to establish a new hotel experience did not hold him back. Today, Levie is in charge of CitizenM Hotels, of which he was a founding partner, and is a director on the HFTP Global Board. His CitizenM hotels, with seven open and 14 in development, are revolutionizing the way technology is used in the hospitality industry.

Levie spent 18 years working for Sonesta inhabiting a variety of roles and working at locations across the globe. Levie's years working for Sonesta provided him the knowledge and experience to streamline every aspect of the hotel industry. Levie focused on improving guest experience, and technology was the medium that allowed for this revolutionary overhaul to occur.

"Being recognized by my peers is a truly humbling experience and encourages me to step up my game to enlarge my contribution in the future. Our industry is dealing with some large issues, HFTP is well positioned to support and lead towards solutions," said Levie.

Prakash Shukla has made a name for himself as a trendsetter in technology implementation.

For over 25 years, Prakash Shukla has been one of the most influential and inventive minds in IT. In his early career, he served as senior vice president and chief information officer for the Taj Hotel Group, where he was tasked with overseeing and applying technology services into the entire guest experience. This role suited his skills perfectly and the Taj Hotel Group quickly became one of India's most technologically advanced.

Now he has shifted his career to help promote technology innovation. As a managing partner for Solarex, LLC, he manages a $45 million seed fund for early stage tech startups. Previously, as a partner at HGM Asset Management, Prakash helped execute over $1.7 billion in mergers and acquisitions. He also promoted a $300 million growth capital vehicle in partnership with the Tata Group.

"It is truly an honor to be associated with such accomplished professionals and a great organization," said Shukla.
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Millennials: Changing Loyalty Programs, Design and Brand Standards

By John Bowen, Ph.D. and Elizabeth Ann Whalen

The younger generation brings refreshing change that adds new excitement to the industry and can enhance the travel experience for all generations.

Just by the size of their numbers Millennials will have a significant effect on the hotel and hospitality industry. Although definitions of the millennial generation vary, the consensus is they were born between 1980 and 2000.

In the U.S., there are over 90 million Millennials, making them the largest generational segment with a spending power of over $200 billion. In terms of travel consumption, Millennials will account for over half of all travel spending by 2020 (Walsh, 2014). The following discussion of Millennials will help provide an understanding of their consumer behavior and how they are changing the lodging industry.

To understand Millennials, hoteliers need to understand the events that shaped Millennials’ lives. Some of the older Millennials remember the Challenger explosion in 1986, the death of 80 people in the Branch Davidian compound fire in Texas in 1993, the 9/11 terrorist attacks in 2001, the 2004 Indian Ocean tsunami and Hurricane Katrina in 2005. They also remember the Columbine High School shooting in 1999, the first of a string of mass murders of both innocent and random people at schools, universities, theaters and other public venues. They have witnessed random acts of violence instantly, as the Internet connected this generation with these events in real time.

John Bowen (jtbowen@Central.UH.EDU) is a professor and former dean of the Conrad N. Hilton College, University of Houston in Houston, Texas. He is also the co-author of Marketing for Hospitality and Tourism. Elizabeth Ann Whalen (eawhalen@Central.UH.EDU) is a lecturer at the Conrad N. Hilton College, University of Houston in Houston, Texas.
Events outside of the United States have included wars and terrorism in the Middle East; the sinking of the MV Sewol ferry in South Korea, with the loss of over 400 people, mostly children, in 2014; and the sinking of the ferry MS Estonia in 1994, with the loss of 852 lives (Parment, 2012). Millennials also have witnessed economic uncertainty and the collapse of the Internet bubble, followed by the worst global recession since the Great Depression (Bolton et al., 2013). Finally, they have witnessed their parents working long hours, sometimes resulting in dysfunctional families and divorce. Some watched, as companies that employed their parents did not always appreciate the sacrifices they made for their careers (Ng et al., 2010). Their parents lost their jobs due to downsizing or when the company they worked for was part of an acquisition. These formative events help explain why as a cohort, they want to work to live and not live to work.

Another influence on Millennials is technology. They were the first generational cohort to grow up with the Internet and are sometimes referred to as digital natives. They grew up with cell phones and social media sites, including MySpace and Facebook. They are now moving from expensive subscription cable TV to using Wi-Fi to gain access to last week’s cable shows through Netflix, Hulu or other online providers of stored content. If they are interested in a news item, they look it up online. Most spend little time reading print media. In their cars, they are often listening to their own music — that is, when they happen to be in a car. Those living in urban areas prefer not to own a car, using public transportation, Uber and Zipcar when they need to get somewhere. This is why print and broadcast media are not as effective as social media for reaching Millennials. Their desire to use public transportation was crystallized in a study by Chase Card Services, which found that almost one-fifth of Millennials said they will not stay at a hotel that does not have easy access to public transportation (Strutner, 2014).

When marketing to Millennials, it is important to understand that from a consumer-behavior standpoint, there are different segments. They are not one homogeneous group. Thus, like any other guest, it is important to understand the guests’ individual preferences. Like other consumers, Millennials will behave differently, depending on the role they are playing. For example, when traveling for leisure, they may compare prices for lodging and airline choices. When traveling on business, they will note the maximum they can spend and use as much of their budgets as possible.
Three Major Trends

There are three major trends fueled by Millennials that are affecting the lodging industry.

**FIRST**, although they are brand-loyal, they expect immediate recognition from brands. They do not want to stay in a basic room 35 times before they become a gold member of the hotel’s loyalty program and start to get upgrades. They want to be recognized as being important the first time they walk through the door. A challenge for hotel brands is how do they maintain their legacy loyalty programs that have been effective with baby boomers, while providing instant benefits for Millennials? New brands catering to Millennials can design loyalty programs for Millennials. For example, citizenM’s loyalty program has a one-level "citizen" designation. When you join, you instantly get 15 percent off room rates, plus a more liberal cancellation policy.

**A SECOND** trend is the changing design of hotels. Millennials seek hotel designs that enhance social interaction. The new concepts — such as Moxy, citizenM and Radisson RED — all have public areas that invite social interaction. Because Millennials use these public areas, their rooms can be smaller. Millennials also seek flexibility in the functionality of their rooms. The Hospitality Innovation Lab at the University of Houston designed hotel rooms by Millennials for Millennials. One common feature of the designs is furniture that can be stored and set up as needed, such as a table and chairs for a business meeting, or a couch and casual chairs for a social gathering. Moxy Hotels uses this feature by having chairs and a table that can be hung on the wall when they are not in use. Other hotel brands have incorporated more features that will attract Millennials, while retaining some of the aspects of a conventional hotel, including Andaz Hotels by Hyatt, AC Hotels by Marriott and Tru by Hilton. These hybrid hotels expand their reach across multiple generations.

**THE THIRD** trend is that Millennials are changing hotel policies. Moxy Hotels has a YouTube video titled Welcome #AtTheMoxy. The video features a party atmosphere in the hotel — people dancing on a bathroom vanity, someone on a scooter going down a hotel hallway, and multiple people entering a guest room to party. Some of these behaviors would not fly in conventional hotels, but in a millennial hotel, they are promoted. Radisson RED has several recruitment videos showing opportunities for employees with tattoos and unique hairstyles, while other hospitality brands have polices against visible tattoos, facial hair, body-piercing and/or unique hairstyles. With the growing trend of Millennials exhibiting individual expression through physical body changes, considerations about hiring polices have come to the forefront. Radisson RED realizes these features are common traits among Millennials and seeks employees who represent this generation. Some current hotel policies will not survive if hospitality firms want to focus on Millennials. Another factor that Millennials consider when making purchases or choosing employers is if companies have a higher purpose. They are attracted to brands that give back to society, including local communities.

These are exciting times in the lodging industry. Although Millennials are changing the design of hotels, the format of loyalty programs and hotel policies, many of the changes they are bringing about are refreshing and will bring new excitement to the industry. These changes can enhance the travel experience not only for Millennials, but also for all generations.

Sources

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When creating a guest experience in a hotel or entertainment venue, it is important to recognize that technology and social platforms shape the lives of people differently, no matter what the age. And herein lies the challenge for the hospitality industry: how can hotel owners and solution providers deliver an experience that meets the expectations of everyone, from Baby Boomers to a new generation of technically savvy travelers? While the older end of the spectrum is familiar with technology and uses it because of their work needs or to be aware of what their kids are doing, the younger end of the spectrum was brought up on technology and therefore depends on it.

**Millennials: A History Defined**

While history clearly defines the years and characteristics of the generation that fought and died in World War II (“The Greatest Generation”) and the generation after World War II (Baby Boomers), it’s only this latter period from 1946 to 1964 that is defined by the U.S. Census Bureau. After this period and up until now, the Digital Revolution has created a high-tech global economy and a dependence on technological devices for both work and leisure.

Some experts say we are now in a “New Media Age,” where the computer screen has replaced a...
book and images have replaced writing as the dominant mediums of communication. However, trying to classify the people sitting at the screen or viewing the image is not as decisive as it was 50 years ago. While the name “Generation X” is often given to the 20-year span after the Baby Boomers, this is more of a transitional period when traditional media was still very strong and the Internet was in the developmental stages. Once the World Wide Web was introduced to the public in 1991, the generation after the Baby Boomers, and up until now, can all be termed the “New Generation.” More frequently, the generation is broken out and further defined by social platforms as “Millennials.”

**Understanding Buying Habits**

The Center for Generational Kinetics in Austin, Texas, has researched and interviewed Millennials regarding their purchasing habits. Jason Dorsey, chief strategy officer at The Center, said this generation prefers “to spend money on experiences rather than stuff.” That is, unless “this stuff” is technology-based. They will then spend money not out of a sense of luxury, but because they consider technology be a necessity of daily living.

And what does that mean for the in-room entertainment experience? Peter Klebanoff is a hospitality industry veteran and consultant for ADB, a digital convergence solutions and services provider and partner of Cox Business. He believes that “everyone, especially Millennials, are ‘cord-cutting’ and watching everything streaming.”

But that doesn’t mean an end to the need for in-room cable television. Klebanoff performed a survey of 2,000 travelers for ADB and found that Millennials valued broadcast TV the most compared to guests of limited-services properties and those of full-service properties. “This is especially important to Millennials in the child-bearing years,” Klebanoff said. “They need their kids to be entertained while they are showering and getting ready [in the hotel room].” The television then becomes “the world’s greatest babysitter.”

A customer of Cox Business’ Wi-Fi and data services in Louisiana, Ash Patel is the owner of family-run, second generation hotels and a construction company in the Baton Rouge, Louisiana area. He is working with Cox Business to revamp the bandwidth at his properties to better accommodate this new generation. “We need to put the technology at their fingertips, at the click of a button,” Patel said. “They don’t want to go downstairs to the lobby to rent a DVD anymore; they want it now.”

**Still the Need for Customer Service**

But while there’s a focus on technology, the human element and the need for great customer service is still very relevant to members of this new generation. According to the 2016 Oracle Hospitality Study, “Millennials and Hospitality: The Redefinition of Service,” Millennials want personalized service tailored to their likes and dislikes. In fact, the study of 9,799 Millennials in the U.S. and seven other countries, revealed that 52 percent will use their mobile devices to capitalize on loyalty programs offered by restaurants, bars and coffee shops. And better yet, the study indicates they are willing to share data in return for personalization and acknowledgment. This is a great opportunity for hotels and food and beverage outlets to gather information on this generation’s behavior and target promotions to increase value and deliver a guest experience that is catered to the individual.

Scot Campbell, vice president and chief architectural officer of Caesars Entertainment Corporation, sees the value in making sure this generation — and all generations — receive this personalized guest experience. “Our industry focus must be to maintain great customer service levels,” Campbell said. “As society changes, keeping up with technology to delight the millennial is one of the most fascinating challenges our industry faces today.”
The Digital Customer Journey: From Virtual Experience to Physical Stay

By Lisa Apolinski

Make the transition from digital experience to the physical stay as seamless as possible, and understand that the sum is greater than its parts.

With the prevalence of online booking portals, meta-searches to get the best rate, and use of social platforms and online reviews to find the perfect property, the digital customer journey has become that much more prevalent, and important. But what about the combination of digital and physical experiences? I was recently at a conference, with several key hotel chains represented in a panel discussion. When I posed the question of how they are beefing up their customer engagement, they exclusively talked about digital components. And yes, it is true, that predictions say by 2020, 85 percent of all customer engagement will happen online. So, that 15 percent of face-to-face engagement can be used to push your guest’s digital journey from good to awesome. I know what you might be thinking: a digital strategist talking about better face-to-face guest engagement?

The key is making the transition from digital experience to the physical stay as seamless as possible, and understanding that the sum is greater than the parts. There are several things to consider as your guest goes from front door to fantastic destination.

Wanting to ‘Know Before They Go’
The average guest will want to review; on average, 10 hotel sites for best price and experience. Meta-searches like Trivago (one of

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my favorites) make this incredibly easy. This is much more than looking for the best price. Factoring in reviews and comments are key in a guest’s decision to book with your hotel. Many, in fact, will consider paying a higher price on a room if the reviews are stellar.

With so many scams easily done via the Web, guests want to make sure they are choosing wisely. If they know before they go, they have an expectation of how the stay, and experience, will be. This is where reputation management plays in, and goes beyond addressing negative comments. Are you doing any kind of data analysis on the type of guest coming to your property? Going back to Trivago, this website can help you drill down on your hotel by type of guest who typically books a room, including family friendly, pet friendly, couples retreat, etc. Align your staff and their customer engagement with these expectations, and be sure to share information relative to this audience. If you are struggling with what the engagement should be, research other properties that service this group, and are doing it well, and see what the guest comments are. That will be a great indicator of the type of experience the guest enjoys and raves about.

Moving Your Guest From Digital to Physical and Back Again While Onsite

There is a movement right now with adult coloring books. The idea is simple: by unplugging from technology and using the creative side of your brain, your productivity and brain power increase, plus we all know the simple pleasure of coloring. I would argue the same could be applied to guests on your property. While many of them will need to plug in, helping them leave their technology behind in the room, even if only for a short while, might be beneficial.

There is a combination effort that needs to happen. First, you need to have an infrastructure that can support their technology use, so they can quickly get items done, and get on with their lives. Second, your staff can help your property tip the balance. Encourage staff to do things like look up from their computer, smile, greet guests and make an effort to talk with guests about their stay. If you can, have some sort of happy hour or short mixer in the hotel lobby so that guests can congregate, mingle and chat. And if you do have digital engagement in the mix, make it worthwhile for your guest. Proximity marketing can keep track of individual interests, hone in on what that particular guest prefers, and then use their physical location to help guide them to new experiences that are of value.

Keeping In Touch: Digital Engagement Once Your Guest Leaves

So, your guest had a great stay, and is headed home. I have often seen digital engagement at this stage that seems over the top, and sent far too soon. Your guest does not need an e-mail from you the second they have checked out asking if they want to book again. Yes, follow up needs to be timed properly, but timed with when they are open to the communication, not when they are just trying to get home.

You also need to consider post-vacation blues: the reality that hits the second you start unpacking and you remember the work that waits for you at the office on Monday. Digital engagement during this phase needs to be subtle and a property reminder, not a hard sell. Again, proximity marketing can certainly help to develop targeting messaging around areas of the property the guest visited. Even without, if you have property highlights that you know are showstoppers, like a fantastic swim up bar and a famous Mai Tai, be sure to share those memories. Video is a great way to engage and capture your property, and can be housed on your website (so you can track number of visits, if they watch all the way through, and if they share it with others). Have a teaser photo in the e-mail, and encourage the guest to watch the video. Promotions for reduced room rates can be shared in a subsequent communication, but use the first two weeks the guest is back home to remind them of their fantastic experience on your property.

If you do get any complaints, timing is critical. Be sure to address anything that is being shared via social channels immediately, and while the guest is on the property, so you can make it right, and do it in person. A face-to-face meeting with the guest can go a long way in making a bad guest experience turn into a good one.

This is a balancing act, and is worth perfecting. The property who can combine the digital guest journey with their onsite stay and make it flow as one will be the one to reap the benefits.
TECH TRENDS  Connectivity

The Future of IoT in Hospitality

By Ajay "AJ" Aluri, Ph.D.

When consumers perceive value from using the Internet of Things devices and applications, the trend will quickly create a new market.

The term Internet of Things or simply IoT first appeared on the Web around 2004, but reached the height of its popularity by the end of 2013 (Google Trends, 2016). Recently, these search terms have declined in popularity on the general Web, but gained more momentum among businesses and consumers. Oxford Dictionaries even included the definition of IoT as "the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data." The idea and concept behind IoT is not a new thing; it evolved from the Machine to Machine (M2M) systems and what a few companies called the Industrial Internet (Lopez, 2015). Currently, IoT applications are everywhere, from smart homes, smart connected cars and smart cities, to smart businesses and environments. IoT is not only about new technological devices or platforms, such as sensors, integrated systems and embedded systems, but according to IBM Watson (2016), it is the ability to "collect data from things and make value from it" for both businesses and consumers. What is the future of IoT? Is there any new market? If any, what is the impact of IoT in the hospitality industry?

Is IoT Still a Buzz Word?
A study conducted among consumers by The Acquity Group found that 87 percent of consumers have
not heard of the term "Internet of Things" (Accenture, 2014). In contrast, in the business world, Gartner’s (2015a) Hype Cycle for Emerging Technologies specified that IoT is at the top of the curve when it comes to business expectations, at the peak of inflated expectations and high levels of interest, and will soon reach the disillusionment stage, with a potential for significant impact on the future of business in the next five to 10 years. Therefore, there is clearly a discrepancy between businesses and consumers regarding the future of IoT. According to Cisco, the number of things connected to the Internet exceeded the number of people on earth during 2008, and is projected to reach 50 billion things by 2020 (Evans, 2011). Alternatively, Gartner’s (2015b) research forecasted that there would be 6.4 billion connected things in 2016 and that number will reach 20.8 billion devices by 2020. Whether it’s 50 or 20 billion, these connected things will not only simplify the number of devices individuals will need to use in the future, but also enhance the way one device can work with the network of interconnected things. Furthermore, a study conducted by the Pew Research Center stated that the Internet of Things will thrive by 2025 and will be part of the digital life of most consumers (Anderson & Rainie, 2014). Hence, IoT platforms can revolutionize the way businesses connect with customers and collect data to create experiences and value, and provide new ways for customers to configure their devices and communicate with businesses and the world around them.

What is the Future of IoT?
Before we explore the future of IoT, we need to examine current business trends. Cearley (2016) of Gartner Research identified two technology trends: the Digital Business (DB), self-described as "merging real and virtual worlds to deliver new and advanced services to internal users and customers," and Algorithmic Business (AB), "an extended version of DB, using algorithms to encapsulate knowledge and analysis of data." IBM researchers identified another trend Gartner did not mention, what they call Cognitive Business (CB), the ability to "create new customer experiences, reinventing operations and transforming business" (IBM Watson, 2016). While CB focuses more on the relationship between man and machine, there is a final critical trend sector that is missing, one that I would call the Behavioral Business (BB), the ability to interpret consumer behavior in society and with the environment in both human-human (HHI) and human-computer (HCI) interactions. In fact, BB would bridge the gap and bring insights into current and future consumer behavior that is enhanced through the data provided by digital, algorithmic, and cognitive business. It has the potential to create unique customer value apart from experiences. In summary, all four quadrants of business (AB, BB, CB and DB) are necessary to foresee the success of IoT in the future.

The research on IoT is still in its infancy; however, there are a couple of major studies regarding consumer intentions to purchase IoT devices and industry projections in the IoT market. According to The Acquity Group, the top three IoT devices consumers are expected to purchase include smart thermostats, connected security systems and smart refrigerators (Accenture, 2014). The other connected devices mentioned in this study, as they appear, include wearable fitness devices, smartwatches, self-driving vacuum cleaners, wearable heads-up displays and smart clothing. As wearable fitness devices and smart watches are catching on among the mainstream consumers, these other IoT devices are expected to be completely adopted in the next five to 10 years. In the wearable market in the next two years, Bluetooth headsets, smartwatches and wristbands are projected to sell more units in the market (Gartner, 2016). Other devices that are expected to sell successively include sports watches, other fitness monitors, chest straps, head-mounted displays, smart garments and body-worn cameras. Most of these devices for both consumers and businesses are designed to either integrate with mobile smart phones or just connect to individ-
IoT in the Hospitality Industry

In the hospitality industry, IoT applications should be embraced among businesses, and building this platform is necessary for innovators and early explorers of IoT devices to adopt them. Using the data from the early adopters, hospitality businesses can create value from it by offering unique experiences through the IoT services and products. The first step to the future of IoT among businesses is to embrace the Internet and Wi-Fi as the source of valuable consumer data for creating new customer experiences, no longer just for customer personal use. Using IoT devices requires reinventing operations and transforming business processes to customize and personalize products and services to individual customers. In the next two years, most smart phones will be capable of accessing Super Wi-Fi, that is, the TV white space network which uses unused TV broadcast frequencies. It is important that hospitality businesses embrace Super Wi-Fi, which is more affordable and offers big bandwidth, a 1,400 foot range, four times the distance, and 16 times the coverage area when compared to regular Wi-Fi (Belcher, 2016). Also, Super Wi-Fi offers up to a five mile range at a higher power, with signals that effectively navigate physical obstructions and provide in-building penetration. This Super Wi-Fi platform will change the way hotels, restaurants, theme-parks and tourism destinations offer free Wi-Fi, collect user data and create value-added experiences.

According to a study conducted by the Pew Research Center, "the internet will become like electricity that is less visible, yet more deeply embedded in people's lives for good and ill" (Anderson & Rainie, 2014). Wearables have the capability to change the way we compute — a solution to integration of multiple devices in a Super Wi-Fi platform. This Super Wi-Fi platform will enable every connected device in the IoT platform to access everything from one wearable device without the need to change devices or networks, and will be able to seamlessly embed and integrate multiple devices and applications, and connect with other IoT devices to send, receive and share information. Consequently, users will be able to use stand-alone wearable devices driven by a neuroscience interface, connect with IoT devices that are built-in with artificial intelligence, and integrate devices seamlessly for value added experiences. On the other hand, hospitality businesses will be able to use data from IoT devices to create new customer experiences, reinvent operations by merging real and virtual data, and use algorithms to encapsulate knowledge and analysis of data to deliver new and advanced services to both employees and customers (Cearley, 2016; IBM Watson, 2016). In fact, the IoT platform is the answer to scientific management in the digital life — a "shortcut" to get things done efficiently and effectively for both consumers and businesses.

Imagine this scenario: guests will access devices in a connected smart home, and as they near the hotel, their connected smart car will share personal information with the guest services. Then guest services will use this data to offer personalized services, share room information and access, and allow guests access to the room seamlessly with their personal wearable device and customize their experience with the guest room and IoT devices. Furthermore, depending on the guest’s personal settings and updates from the calendar, an
alarm clock will be set to the right time simultaneously. When the guest wakes up in the morning, the blinds will open automatically, when the guest completes their shower, the coffee maker starts automatically, and when the coffee is picked up, the television starts with the guest’s favorite news channel (if television sets are still around). The term multi-tasking was first used in the ’90s for the Windows computer, but perhaps in the world of the IoT platform, computers and applications will do the multi-tasking while the humans fulfill their purpose on this earth. When consumers perceive value from using IoT devices and applications, and when the prices of these devices drop, this IoT trend will quickly create a new market made up of mainstream consumers who are generally willing to choose convenience over concerns about privacy. 

**Sources**

When visitors think of an arena, a stadium, an entertainment venue, most are focused on the game, the artist, the live action they paid to see. Depending on the generation, a passive viewing might be their sole focus. Then there are guests whose viewing is paired with a social media element — messaging a photo of the UFC fighter’s best kick or tagging friends on Facebook while the band plays onstage behind them.

The ability to use smart phones, tablets and other devices while texting and accessing various sports stats and news websites has become integral to the activity of watching live entertainment. While baseball is still called “America’s pastime,” viewers depend on technology to pass the time while watching the game.

All this makes the technological infrastructure of a venue one of the first considerations when developing a new entertainment facility. Venue owners, architects and contractors must live up to their guests’ technology needs or the facility might not meet with long-term success. In the case of T-Mobile Arena, which opened in April on the Las Vegas Strip, owner MGM Resorts International knew it was essential to provide an integrated technology platform that includes more than just high-capacity Wi-Fi, but also a...
unique interactive video and cable channel experience.

Arena owners, AEG and MGM, enlisted venue founding partner, Cox Business, to provide this integrated telecommunications experience. Cox Business/Hospitality Network worked with Cisco’s Connected Stadium Wi-Fi to provide more than 550 access points inside the arena with targeted download speeds of up to 20 Mbps to guest devices.

“We are extremely pleased with the broadband Wi-Fi connectivity at T-Mobile Arena, along with the overall network Cox Business deployed throughout the venue,” said John Bollen, senior vice president and chief digital officer for MGM Resorts International.

Cox Business/Hospitality Network used Cisco’s StadiumVision to centrally manage over 60 channels of high-definition news, sports and entertainment content from the Cox cable channel lineup. And here’s where technology extends the live action from the arena floor to all areas of the building: the system provides live, in-house feeds from the floor to 650 digital displays located in the concession and public areas, and in the premium-package seating areas which include 54 luxury, party and event-level suites, and over 24 private loge boxes.

“The combination of the robust Wi-Fi network and interactive digital signage delivers an immersive guest experience,” Bollen said. “It provides guests with the opportunity to use their devices or our screens to discover venue information and act on it.”

The solution uses 4K video, the highest resolution video available, and provides the arena with the necessary flexibility to create unique themed content and promotions. With an expected 100 events per year, including performances by Garth Brooks, Coldplay, Drake and the UFC 200 mixed-martial arts match, the arena’s broadband experience will be used by up to 20,000 people per event.

In addition to Cox Business, the arena has partnered with other companies such as Coca-Cola, Toshiba and Schneider Electric, as the venues first “Founding Partners.” These companies will introduce fan initiatives, displays and interactive spaces such as Toshiba Plaza, a two-acre entertainment space next to the arena.

“We’re delighted to be the Founding Technology Partner at T-Mobile Arena,” said Derrick Hill, vice president of Cox Business/Hospitality Network. “Together with MGM and AEG, we focused on creating the best fan experience possible, from opening day on April 6, and for many years to come.”
Airbnb: A Disruptive Innovative Platform With Rippling Effects

By Galen Collins, Ph.D.

The business model redefined and expanded room capacity throughout the world, resulting in a shift in the economic models for the lodging and travel industries and tourism destinations.

What is disruptive innovation? Harvard business professor Clayton Christensen in his book *The Innovator’s Dilemma* used the term to describe innovations that create new markets by discovering new categories of customers. Airbnb, a website for people to list, find and rent lodging, has become a disruptive innovator in the lodging industry via its Internet network platform, forcing all lodging-related stakeholders to rethink their business models and challenge fundamental assumptions about their markets: who their customers are, what they want, and how to create products and services they value.

The Airbnb business model creates and shares value through its scalable exchange or marketplace platform by facilitating interactions between hosts and travelers. According to Metcalfe’s law, coined by Ethernet inventor Robert Metcalfe, the value of a network or platform grows exponentially with each additional user connected to the system.

Airbnb has become an exponential organization, a term first introduced and defined in 2014 by Ismail, Michael S. Malone and Yuri van Geest in their book *Exponential Organizations: Why New Organizations Are Ten Times Better, Faster, Cheaper Than Yours (and What to Do About It)*. In linear organizations, like Hyatt Corpora-
gation, growth proceeds slowly and deliberately because of resource constraints. Conversely, Airbnb’s rapid growth is fueled by its easily scalable and non-capital intensive business model with minimally rising variable costs and the ability to leverage underused space in homes (e.g., empty second home or spare bedroom) for affordable guest accommodations. Airbnb does not own any property, but it has over two million listings in more than 34,000 cities and 190 countries since its inception in 2008. Airbnb now offers more rooms than any other hotel chain in the world.

How are lodging-related stakeholders responding to Airbnb? According to Sangeet Choudary, director of Platform Thinking Labs, “The hotel industry dismissed Airbnb when it launched. The new sources of supply did not match up to the hotel industry’s standards, which has traditionally innovated by constantly improving the quality of its rooms and its service.” Hoteliers just did not anticipate the popularity of this new marketplace and the changes in guest behavior through curation and scalable matchmaking.

A 2015 study found that lower-priced hotels and those not catering to business travelers were most affected. Just 10 percent of Airbnb bookings are currently used for business travel. While some hotels may lower prices to stay competitive, others are using the Airbnb platform as a distribution channel because the reservation fee is only 3 percent, much less expensive than the 10 to 25 percent booking fee charged by Priceline and Expedia. Expedia, in response to concerns that travelers as well as hotels are increasingly using the more affordable sharing-economy alternatives, like Airbnb, bought short-term rental site HomeAway for $3.9 billion in 2015.

The sharing-economy trend may open up strategic opportunities for hotel chains to monetize existing platforms. For example, they could leverage their central reservation/distribution and training platforms (e.g., online customer service training) by opening it up to third-party hotels and short-term rentals. AccorHotels, a French hotel group operating in 94 countries, opened up its distribution platform in 2015 to independent properties, guaranteeing access to their customer data and competitive commission rates. In 2016, Choice Hotels International announced plans to expand its vacation rentals platform. Sharing economy/alternative accommodations are a distinct possibility for the company according to CEO Steve Choice.

Hilton CEO Christopher Nassetta maintains that Airbnb cannot match the amenities that its hotel rooms come with. Best Western CEO David Kong in a recent blog wrote, “You can’t mingle with staff and fellow guests in a lobby. Need a document printed? Want your room cleaned at 11 p.m.? A wake up call with a friendly voice followed by a fresh, well-done
complimentary breakfast? Need a suit pressed before your business meeting? You’re on your own with Airbnb.”

In some markets, Airbnb is forcing some hotels to reassess their competitive advantage along every level that creates value, such as time saved, recreational activities, loyalty programs, unique dining experiences, free breakfast or pricing. A report by HVS Consulting & Valuation, commissioned by the Hotel Association of New York City, found that the New York lodging market had a loss of $451.4 million from September 2014 to August 2015 due to Airbnb. However, destinations can benefit from scalable exchange platforms. Airbnb, for example, enables a destination to quickly ramp up the supply of affordable rooms for special events (e.g., Super Bowl) and peak travel seasons without the need to build new hotels. It also ensures that visitors are not priced out, growing the overall pie and allowing a variety of business to benefit from the increased visitor traffic. One study found that 400,000 Airbnb guests who visited New York City between 2012 and 2013 spent $632 million and stayed two days longer and spent $200 more at local businesses during their visit as compared to hotel guests.

The growth rate of exchange platforms may be tempered by regulatory issues and challenges. The housing and taxing laws are often unclear for Airbnb hosts, quasi-professionals monetizing excess capacity in their own assets. State and local officials must consider how their actions will affect their economies and constituencies. The state of Arizona is working on legislation that will block local governments from restricting the ability of property owners to rent out their homes — or even their couches — for short-term or vacation rentals. Arizona Governor Doug Ducey in his 2016 State of the State address said, “Arizona should be to the sharing economy what Texas is to oil and what Silicon Valley used to be to the tech industry.”

Airbnb’s business model redefined and expanded room capacity throughout the world, resulting in a shift in the economic models for the lodging and travel industries and tourism destinations. Airbnb’s exchange platform made it possible to quickly tap this dormant or latent capacity through a recombination of existing technologies and features served up in a disruptive way. Traditional corporate competitors were blindsided by Airbnb because their platform business models (interactions enabled by infrastructure) were based on an outdated room-capacity metric. Hospitality and travel companies must continuously look for ways to create and capture value from their platforms. Competitive upheavals in the hospitality and travel industry will continue as disruptive innovations become increasingly exponential according to original research conducted by Cisco and the International Institute of Management Development, through the Global Center for Digital Business Transformation.

Read multiple perspectives on this year’s show:

Dr. Katerina Berezina is an assistant professor at the University of South Florida Sarasota-Manatee (USFSM), where her areas of focus are on IT in hospitality and tourism, electronic distribution and revenue management.

Having experience in hospitality technology on both the vendor and property side, Jennifer Jones is now president of J Hospitality Solutions, where she focuses on providing clients insights into a variety of technology offerings to best suit their needs and roadmaps.

After a long IT-centered career working on property, including at Omni Hotels, consultant James Lingle assists with interim CIO and CIO advisory services, as well as provides project management and information security work.
Moving From Analog to Digital

By Cindy Estis Green

The digital world calls for a new infrastructure and innovative methods for tackling the revenue generation functions in hotels.

Success in today’s digital world calls for a shift from the traditional analog approach to revenue generation. Facing new challenges in managing hotels in a marketplace dominated by third party aggregators, hoteliers are finding new ways to operate. Planning strategies and deploying new tactics requires a different infrastructure and a new toolkit to succeed. Much of the change has been externally driven by consumer adoption of the new technology companies entering the sale and fulfillment of hotel services. There are great opportunities triggered by the same technology environment that challenges the hotel industry. Big data and the increased transparency of markets may prove to be a great boon to hotel owners and operators in finding sustainable profit in a more complex and demanding market.

Revenue Management is Evolving Into Revenue Strategy

For 20 years, the work of revenue managers was largely focused on pricing decisions. Answering the question of how much to charge for any given room on any given day was the first order of business. Due to the complexity of the mix of room types and sources of business, pricing can no longer be isolated to achieve maximum revenue. Pricing is now baked into the process of assessing many rev-
Revenue Management

**New Data, New Management**

**Revenue Strategy:** Pricing is now baked into the process of assessing many revenue dials including those driving digital, group sales, call center, and corporate and leisure demand. The days of a revenue manager focused on pricing independent of control of the revenue levers are fading fast. It’s all about omni-channel strategies with a holistic view of the revenue, the margins and a tightly managed set of tactics built on share shifting.

**NetRevPAR Metrics:** Managing the costs that may dynamically change requires a new set of metrics such as revenue net of acquisition costs (including commissions) and ways to gauge how efficiently a hotel spends its sales and marketing funds.

**Channel and Segment Optimization:** In the quest to find a hotel’s optimal channel and segment mix, knowing when they over- or under-index for each channel or segment type can be crucial intelligence to manage tactical plans by learning how to increase one at the expense of another and effectively achieve the mix that optimizes profit contribution.

**Forecasting with New Data Points:** Flight arrival patterns into a destination, weather forecasts, holidays, special events, local meeting activity, cancellation rates, lost business/regrets and search engine activity are all variables that are more readily available in a digital format that can be incorporated into machine learning algorithms to improve predictive models for demand.

**Update on Direct Sales:** Data to make market share accessible by account or industry type can provide tremendous value to a hotel looking to refine their mix of group or corporate accounts. New platforms to enable full search and booking capability for groups and meetings are on the horizon. The hotels’ organizational structure, its costs, as well as the intelligence brought to bear on this business are due for a fresh review.

decisions needed to cap those costs at a reasonable amount and provide for optimal net revenue and profit contribution.

**Channel and Segment Optimization is an Emerging New Science**

It’s not enough to target a net revenue goal. With so many channels and segments, each with its own behavior and cost structure, hotel operators are now learning about the full range of demand drivers in its market. Each hotel has an optimal channel and segment mix that takes into account the cost of sales. Given that demand in most markets is fairly inelastic (not highly responsive to rate changes) and the patterns don’t change dramatically, it’s a “zero sum game” in which hotels in a market may shift demand between each other, but it’s a rare channel partner that creates new incremental demand. In the quest to find a hotel’s optimal channel and segment mix, knowing when they over- or under-index for each channel or segment type can be crucial intelligence to manage tactical plans by learning how to increase one at the expense of another and effectively achieve the mix that optimizes profit contribution.

**Forecasting Takes Into Account Many New Data Points**

At the essence of pricing and inventory allocation decisions is the forecast. Getting it right can help a hotel target just the right rates to the types of customers that are coming at any given time. The traditional approach to the hotel demand forecast was looking at historical trends and projecting them forward. Today, the world of big data enables many other variables to inform the forecast. Flight arrival patterns into a destination, weather forecasts, holidays, spe-
cial events, local meeting activity, cancellation rates, lost business/regrets and search engine activity are all variables that are more readily available in a digital format that can be incorporated into machine learning algorithms to improve predictive models for demand. Looking at future business on the books is good to know; netting out the cancellations and accounting for the various costs of that business is far more valuable.

Direct Sales is Due For a Deep Review on Skill Sets and Tools
An executive from a major hotel company in a recent conference was quoted as saying that the group sales operation for hotels is still optimized for 1985. Little has changed other than the introduction of a computer to capture the bookings which has been in widespread use since the early 1990s. The entrance of third party meeting planners has aggregated the demand for groups and meetings and the business travel market has long been aggregated by travel management companies. The processes have not been made particularly more efficient; they have largely moved traditional functions to digital platforms, like the RFP system for groups, for instance. The digital world should open up many new opportunities. Unmanaged corporate accounts may be well-served by apps that seamlessly integrate air, hotel, car, dining and other services. Data to make market share accessible by account or industry type can provide tremendous value to a hotel looking to refine their mix of group or corporate accounts. New platforms to enable full search and booking capability for groups and meetings are on the horizon. The hotels’ organizational structure, its costs, as well as the intelligence brought to bear on this business are due for a fresh review.

Tackling Revenue Generation Today
The digital world calls for a new infrastructure and innovative methods for tackling the revenue generation functions in hotels. Big data is much more readily available and key to the complex decisions being made today. When much of the demand is aggregated outside the control of the hotel, owners and operators are more driven to tap the intelligence available to them to make the necessary trade off and resource allocation decisions.

Functions like forecasting and predicting performance; predictive models for merchandising; price optimization modeling; segmented consumer targeting; sensitivity analysis on channel and segment mix and digital marketing all depend on new data inputs. In a world of big data, the hotel industry can benefit, and while that may look different at the enterprise and the hotel level, learning what is available and building it into the daily routines of a hotel will benefit any owner or operator seeking sustainable profit.
Leveraging Social Media to Improve Your Revenue Management Effort

By Bonnie Buckhiester

Use data sets from social media sites such as price to value feedback to make better, more optimal revenue management decisions.

In recent months I’ve had the privilege of addressing revenue management professionals in seven major North American markets (Chicago, Orlando, Washington DC, Toronto, Seattle, San Francisco and Los Angeles). On each of these occasions the discussions were interesting, varied, even illuminating. It seemed as if we touched upon every conceivable issue — workload overload, technology integration, big data analytics, OTAs, decision support tools, owner relations, etc. But one area surprised me in its absence, and that was the extent to which revenue managers and directors were using social media analytics to drive and shape their revenue management efforts.

When it came to social media, participant feedback in these sessions ranged from disinterest to complete “disconnect.”

I asked questions like: How often do you visit your reputation management dashboard? How frequently do you check the number of visitors to your TripAdvisor page? What is your value score? How does that score compare to your competitive set, to your primary competitor? Do you set rating, ranking, number of reviews and value score goals? What is your value index?

In virtually all cases, these questions were met with quizzical looks and few hands going up to confirm that these best practices were a vital part of their compre-
"What brings the HFTP network together are the variety of services and activities provided by the association; but the real benefit lies in the outlook of the members and their communication with each other. This network shares knowledge and experiences and this stands central to HFTP’s value."

**Michael Levie, CHTP**
Chief Executive Officer
CitizenM Hotels
The Netherlands

*Career Specialty: Hotel Technology*

**HFTP Member since 2006**

**2016 Inductee to the HFTP International Hospitality Technology Hall of Fame**
hensive revenue management effort. Perhaps some of this “disconnect” is due to the sheer workload of a revenue director today — after all there are only so many hours in a day, and social media is often in the realm of a different discipline, and not sufficiently an integral part of revenue management.

However, what is clearly unfortunate is the missed opportunity to use some of this data to make better, more optimal revenue management decisions. And the data sets that are most important are those that relate to the price/value proposition. That is, what is the guest saying about value? And what kind of customer feedback might support or reshape revenue management strategies?

### Value Indexes

Most hotels today subscribe to some form of reputation management software, and even those that do not, can access a review site dashboard (like TripAdvisor) and glean valuable information. However, review site dashboards are not going to provide the in-depth analytics of a good reputation management platform. And the piece of the social media “puzzle” that revenue managers must examine is the value score.

Virtually all review sites pose a question that specifically addresses value. Whether the score is based on a scale of 1 to 5 or 1 to 10, the guest is being asked whether they feel they received value for money. Using a reputation management platform, the user can isolate this score and assess it in any number of ways. Comparisons can be made by period (month, year over year, season, day of week), by an aggregate competitive set or by individual competitors. So how does the revenue manager leverage this information to make better decisions?

If the score is low, the hotel has a major problem. On a scale of 1 to 5, any score below 4 is an issue; on a scale of 1 to 10, scores below 8 must be reviewed. A low score simply means the guest is questioning the value proposition; perhaps price points are misaligned or product quality is questionable. In either case, the revenue manager has an opportunity to adjust pricing or make a case to ownership for capital dollars and/or increased staffing levels.

If the value score is high, the property may very well have pricing power. Just how much power would naturally vary from market to market; but consider this. In the initial research done by Cornell University on the impact of review scores, their study found that significant improvement in a hotel’s review score raised the probability of being booked by as much as 13.5 percent, with the added opportunity to push prices by as much as 8 percent without the loss of share. This is clearly the type of actionable data that can be leveraged by a good revenue manager.

But let’s take this a step further. What if the value score was expressed as an index? Creating a “value index” is a simple matter of math — in the example below the subject hotel scores a 4.2 in value and when compared to the competitive sets’ score of 4.075, results in a value index of 103.2 (4.2 ÷ 4.075 × 100). Using identical math with each individual competitor’s value score, the subject hotel can identify competitor-specific value indexes. If, for example, the hotel’s value score against a top competitor is strong, the hotel has the confidence to push pricing. If the index is low, the hotel should exercise caution.

### Analyzing Value Indexes

Creating a “value index” is simple: Your Hotel ÷ Competitor x 100. Using the identical formula with each competitor’s value score, the subject hotel can identify competitor-specific value indexes.

<table>
<thead>
<tr>
<th>Your Hotel</th>
<th>Comp Set</th>
<th>Competitor 1</th>
<th>Competitor 2</th>
<th>Competitor 3</th>
<th>Competitor 4</th>
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<tr>
<td>Value Score</td>
<td>4.2</td>
<td>4.075</td>
<td>3.8</td>
<td>4.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Value Index</td>
<td>103.2</td>
<td>110.5</td>
<td>93.3</td>
<td>102.4</td>
<td>107.7</td>
</tr>
</tbody>
</table>

Factoring Time of Year

Value indexes of course are only part of the picture when it comes to pricing. The perception of value is going to fluctuate depending on the market segment, the time of year and the unique circumstances of demand patterns. When interpreting value scores and indexes it’s best first to examine over a longer time horizon to blend anomalies. But once done, there
are advantages to looking at scores by month, by weekday and weekend, by day of week. Each period provides clues to pricing opportunities, as well as the need to adjust prices. In the example above, one would logically question why the hotel’s performance produces such strong indexes in some months but comparatively weak indexes in other months.

Value indexes as a mainstay metric are relatively new to the hospitality industry. And there isn’t consensus as to what a good index is. But what we tell our clients is to strive for value indexes in the 95 to 105 range. In this regard, the hotel is taking a balanced approach to market conditions, not leaving money on the table by pricing beyond the guest’s value expectation, or setting price points below what the guest is willing to pay.

**Establish Goals for Value Scores**
At the end of the day, revenue directors should establish goals for their hotel’s number of reviews, ranking, rating, value score and value index. Track progress religiously. Set up incentives to drive positioning. Be alert to changes in the value score/index over time. What are these changes telling you about your guest? About your competition? And given that TripAdvisor is the Goliath of review sites, be sure to follow their five “golden rules:”

- Create custom reminder cards
- Make use of the reminder flyer (available in many languages)
- Use review express
- Use the write-a-review widget on your website
- Use the TripAdvisor app for Facebook

The more data that can be gathered about your guests’ perception of value, the more you can leverage price and make better revenue management decisions. After all, if your hotel has a value index of 4.8, you should be charging more.

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Built by: **INTERACTIVESITES**
New Search Methods Help Travelers Reach Relevant Answers Quickly

By Loren Gray, CHDM

Increasingly, voice search and interconnected media provide a progressive, seamless interaction.

Peace, tempo and cadence. It feels at times as if Google is the impatient parent waiting for us to catch up to the lessons that need learning in the world of consumer behavior. Now it's micro moments. This in itself is no revelation. It is, in fact, more akin to common sense — one only has to reflect on our own search needs to know how they are driven by situations. But with all lessons, there are subtleties to the complete picture. The deeper understanding to grasp is how to translate the lesson into an actionable market plan.

Ever since our first SERP, (Search Engines Results Page), there has been a cat and mouse game between their creators, (Google, Bing, Yahoo, etc.) and those that want to unlock its secrets to exploit the business it could drive. And to that end we have watched as the information provided by Google has been changed from keywords to attribution tracking to behavioral tracking and an ever expanding use of artificial intelligence (AI). The latter being the unbreakable of unbreakables, since it relies on data only it has to make decisions that cannot be predicted in a way to get ahead of its decisions.

Google's famous motto: "Don't be evil" might be slightly over-used, but it has become refined over the years to "provide access to the world's information in one
click.” Or better yet, to become the ultimate personal assistant, similar to the envisioned Star Trek computer. This will be accomplished by the use of more and more items becoming connected to the Internet. Smart homes and cars, wearables, TVs and the list continues to grow so much so that it’s easier to simply say the Internet of Things (IoT).

**New Ways to Search — Voice**

So how will we find what we are looking for if we no longer have to type in our terms in the perennial search box? One increasingly popular method is via voice commands.

With the advent of semantic search, where it is more important to understand the intent of the query, not simply the words used, you can draw closer to getting a single answer to a specific question. To step back a pace, SEO (Search Engine Optimization), brought on the challenge of interpreting how Google and other search engines determined the relevance of content to a specific query and have it show on the first SERP. The need to show several results for a single question was the best Google and the others could do with just interpreting the words used, more specifically the keywords used.

Now Google has so much more information available, with the prolific use of schema, including your location, history, e-mails and pictures, that it can offer a specific answer to your query in that micro moment. And what better way to ask and answer than by saying it. Welcome to the world of Google Now, Siri, Alexa and Cortana.

Some other key points about the growth of voice search:
- Voice search is currently growing faster than typed search.
- There are many times where voice is the best way to interact (walking, driving, cooking).
- It is becoming more and more acceptable to talk to a phone or a room, even in groups.

With Google already acknowledging that mobile represents over half of all current search traffic at the beginning of 2016, one can see the value of a voice-driven, no typing, interface. Here are some other benefits to the search environment via mobile media:
- Knowledge about the world,
- Knowledge about you and your world,
- Knowledge about your current context, and
- Ability to perform payment.

And with the increasing reliance on our mobile devices, we start to consider them as assistants. These tools need to be there:
- Whenever you need,
- Wherever you are, and
- To help you get things done.

**Interconnected Environments**

Looking to the ever-expanding IoT, as we have discussed, a progressive, seamless interaction is beginning to develop between devices. Your smart TV helps you to discover places of interest, which may be shared with your smart phone and displayed on your wearable. As you move through your day, you may be given notifications of shops and items of interest related to your travel preferences, items that you may need or have indicated you may have wanted, all in proximity to your location that has been shared between beacons and shared data to retailers. You may be notified that a trip of interest has a favorable change based on price or availability and you can simply tell your watch or phone to “book it” and it will handle the transaction with nothing more needed from you.

When it comes time to travel, your boarding pass, rental car identifier, hotel room key and itinerary are all on the device most suited to use it, be it a wearable or handheld device. As you adventure, you will be reminded of things around you that might be of interest to you and will even augment your knowledge of your surroundings through VR (Virtual Reality) or AR (Augmented Reality). Your devices will translate signs and speak in the area’s native language to those you need to communicate with. All the while speaking with you, and you with your devices in that micro-moment. It may sound like science fiction, but in fact all of this exists today, it’s the connecting of all the ‘dots’ that is still getting processed, at a very fast pace.

Especially in marketing, or the first financial frontier. Already in existence are methods like meta-search, which offers real time rates and inventory with dynamic content ads based on your search preference and platform of use. Now coming into market is the use of the same interface for social platforms and all that they know about you, to better tailor the exact message to you, the user. Always striving for that goal, for each question, a single best answer.
3 Things You Shouldn’t Compromise When Adding Mobile Points of Sale

By Jeremy Fried

Consider security, connectivity and future-proofing as “must-haves” rather than simply “nice-to-haves” when researching and deciding on an mPOS solution.

The introduction of the mobile point of sale (mPOS) has forced all of us in the payment space to adjust our mindsets. Limitations of when and where merchants can process transactions for their customers have all but faded away. The hospitality industry has been eager to jump on board because of the short and long term supplemental revenue streams. Hoteliers can set up a temporary kiosk or food stand for single-day events, or dedicate a tablet or smart phone as a permanent point-of-sale at the pool or front desk.

However, despite all the benefits that it brings to the hospitality payment processing environments, mobile is still the new kid in town. A balance needs to be struck before this new technology can earn a place at the table and sit comfortably side-by-side with the established payment technologies that hoteliers are used to.

Learning Curve of New Technology
The challenge arises when it comes time for a hotelier to pick an mPOS solution that meets all their criteria. There’s a problem, though; many hoteliers don’t know what they should be looking for and end up implementing a mobile solution that doesn’t quite fit their business like they thought it would, leading to unexpected hiccups. Not surprisingly, a no-frills...
payment solution designed for the street corner merchant may not fit seamlessly into your complex resort environment.

If you are a hotelier looking to add an mPOS, my advice to you is to thoroughly evaluate your environment before making any big decisions about which solution is right for you. Consult with the members of your staff that know the workflow and practices of your business backward and forward. The people who are immersed in serving your guests day in and day out will be your greatest resources while you are doing your research. Otherwise, you will be left guessing — and trust me, you don’t want to guess wrong on this one.

The Three Necessities
As we’ve kept our ears to the ground in the hospitality industry, we’ve noticed some recurring factors when hoteliers are adding an mPOS solution: security, connectivity and future-proofing. Each of these is monumentally important when incorporating mobile into your payment environment and should never be compromised. There are a lot of bells and whistles that are nice to have, but these make up the core criteria that can determine whether or not adding an mPOS will be a success for you.

SECURITY should always be top of mind for any hotelier. One data breach can cost millions and do immeasurable damage to the brand and customer trust that you spent years building and cultivating. It would be tragic to see all of that come crashing down just because you adopted a sub-par mobile solution. Make sure that adding an mPOS into the mix doesn’t add any new vulnerabilities that weren’t there before, such as reintroducing unsecured card data into your networks or PMS. When considering an mPOS solution, you should employ one that is as reliable and secure as the rest of your payment system.

It is equally as important to consider CONNECTIVITY when it comes to mPOS solutions. There are two components to this. First, you must be set up with the wireless infrastructure and bandwidth to cover everywhere you may potentially use your mPOS. Prepping for a parking-lot party or poolside drink service, for example, may require additional wireless-networking hardware. When evaluating your environment, be realistic in how many mPOS devices your staff can actually support. Second-ly, wireless connections are more prone to outages than their wired counterparts, so you should adopt an mPOS solution that has protocols in place to handle these. For example, may require additional wireless-networking hardware. When evaluating your environment, be realistic in how many mPOS devices your staff can actually support. Secondly, wireless connections are more prone to outages than their wired counterparts, so you should adopt an mPOS solution that has protocols in place to handle these.

FUTURE-PROOFING should always be top of mind for any hotelier. One data breach can cost millions and do immeasurable damage to the brand and customer trust that you spent years building and cultivating. It would be tragic to see all of that come crashing down just because you adopted a sub-par mobile solution. Make sure that adding an mPOS into the mix doesn’t add any new vulnerabilities that weren’t there before, such as reintroducing unsecured card data into your networks or PMS. When considering an mPOS solution, you should employ one that is as reliable and secure as the rest of your payment system.

Don’t Be the Mistake That Others Learn From
If you rely on guesswork or quick decisions, you run the risk of becoming the example of how not to set up an mPOS. Instead, consider security, connectivity and future-proofing as “must-haves” rather than simply “nice-to-haves” when researching and deciding on an mPOS solution. Taking the time to learn the ins and outs of your environment and work with your staff to learn how your business functions on the front lines can help you incorporate an mPOS into your hospitality payment ecosystem the right way.

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Introducing Mobile Payment Technology

**SECURITY:** Employ a system that is as reliable and secure as the rest of your payment system.

**CONNECTIVITY:** Set up a wireless infrastructure and bandwidth to cover everywhere you may use your mPOS. Also, since wireless connections are more prone to outages, adopt a solution that has protocols in case of outages.

**FUTURE-PROOFING:** Be aware of whether or not their mobile payment devices, accessories and functionalities can be upgraded when new technologies and services become available.
A strong plan can provide a framework for the hotel’s leadership to evaluate an event, have a response mechanism in place and people, processes and equipment to address the vast majority of events, foreseeable or unimaginable.

Business continuity planning for most businesses is about keeping the lights on and preserving the ability to resume normal operations after some form of business disruption. But for hotels, business continuity planning (BCP) takes on additional color given the special roles of hotels in their communities and the unique obligations of the innkeeper to provide safety and security to the guest. People live, sleep and eat in hotels and have an expectation of shelter and safety, an expectation enshrined by tradition, common law and case law.

Plan’s Objectives
Using the example of natural disasters such as Hurricane Katrina or Super Storm Sandy, let’s begin by discussing the objectives of a BCP for a hotel or hotel company:

First and foremost, the BCP is intended to protect people from harm in the event of a disruption, including guests, hotel employees and the public at large. During Super Storm Sandy, the New Yorker Hotel in Manhattan opened their public spaces to the community and provided complementary Internet access and device charging.

A secondary objective is to maintain the security of physical, data and brand assets during the event. Every hotel in hurricane territory has as the first item in their hurricane plan, “Remove and secure pool furniture, decorations..."
or anything else that could become flying debris.”

An effective BCP will provide for maintaining some semblance of baseline operations during the event if possible. During Hurricane Bob, the Sheraton Boston Hotel & Towers converted the three-meal dining room to buffet service only and closed the other outlets as a more effective way to serve food to a large number of people while short-staffed with heavy demand due to the storm.

The final objective is to be able to restore normal operations after the event has passed. If the storm has brought in some walk-in guests and also knocked out power to the front desk (should have been on the generator!), you need to keep good manual records to record who is in what room.

What are some types of potential disruptive events? A severe storm, earthquake or other natural disaster are obvious examples, as used above. Recognize that the initial event often brings secondary events: power outages, natural gas service cutoffs or, as reported in the wake of Hurricane Katrina, looting. The BCP must deal with these other conditions as well. An extended power outage caused by a grid failure (think New York in August 2002) is a disruptive event in its own right.

**Defense against Criminal Attacks**

More tragically, terrorist attacks such as 9/11 or the Boston Marathon bombing meet any definition of a major disruption, and hotels are often considered high-value “soft targets” by terrorists, filled with the wealthy and the foreign. We learned this in the Taj Mumbai attack and others aimed squarely at hotels in their roles as hosts to the world. A credit card breach that requires disconnecting the affected devices from all networks is another, smaller example that pales in comparison to a terrorist event.

For a succinct definition of a disruptive business event, we propose simply:

*Any event that prevents the normal operations of the hotel, whether due to a local event (small fire in a hotel data center), natural disaster or unexpected human behavior on a larger scale.*

The objectives, examples and definition above demonstrate that business continuity planning is a business issue, not just an IT or a finance issue. Ownership of BCP processes needs to be a top down effort from corporate through GMs, and include finance and IT leadership in the planning and response processes.

No BCP is likely to address every single contingency that may occur as a result of a business disruption event. But a strong plan can provide a framework for the hotel’s leadership to evaluate an event, have a response mechanism in place and people, processes and equipment to address the vast majority of events, foreseeable or unimaginable.
Today's Hospitality IT Professional

By Tanya Venegas, MBA, MHM, CHIA

Survey results identify characteristics, including compensation, supervisory responsibilities and average time in position.

In 2002, the HFTP Americas Research Center was established at the University of Houston Conrad N. Hilton College of Hotel and Restaurant Management and began gathering compensation and benefits information on hospitality technology and financial professionals on a biennial basis. The technology landscape has changed dramatically from the time of that first survey; but, IT professionals are still facing the same challenges: data security, network security, electronic payments and in-room technologies were all recurring topics in industry publications over a decade ago and remain relevant today.

The 2016 HFTP Compensation and Benefits Survey was distributed in February 2016 to the HFTP membership and other industry professionals working in hospitality financial and technology disciplines. Overall, there were 483 responses to the survey with 10.8 percent of these responses coming from those with the primary job function of IT or information systems. In addition, most of the responses were from individuals who worked at the corporate office (42.9 percent) for their organization in the lodging industry (70.6 percent). These respondents provided information on property type and price category for the properties they oversee as well. The portfolio of properties managed by those with technol-
ogy titles consisted primarily of full-service luxury properties.

Nearly two-thirds of the responses came from individuals based in the United States (67.3 percent), with the remaining third residing in Canada (9.6 percent) and various other countries (23.1 percent). Those included in the other category hailed from all of the major continents: North America, South America, Europe, Africa, Asia and Australia. This supports the fact that HFTP is truly a global association servicing the hospitality industry in locales all around the world.

To further delve into the demographics of technology respondents, analyses were done by gender and age range. An overwhelming majority of responses came from male respondents (95 percent) and those in the 35 to 54 age range (72.5 percent). The Pew Research Center defines Generation X by individuals currently in the 36 to 51 age range and Baby Boomers in the 52 to 70 age range (Fry, 2016). This indicates that the majority of respondents to this survey would be categorized as Generation X with some overlap with Baby Boomers (15 percent) between the ages of 52 and 54. Millennials, ages 19 to 35, made up 12.5 percent of responses for technology positions in this survey.

**Current Position and Previous Job Experience**

Consistent with the survey conducted in 2002, the majority of responses in the 2016 survey were from individuals with the title of IT director or manager of IT (40 percent). Other responses in the 2016 survey came from those with C-level or corporate job titles (16 percent), regional/area IT managers (8 percent), and IT project managers (8 percent). Responses
were also received from individuals with the following titles: MIS manager, IT support or product specialists, systems engineers, consultants and area managers (28 percent).

Overall, technology respondents have been in their current position for 8.2 years. This timeframe is slightly shorter than their accounting and finance counterparts who have held their positions for an average of 10.4 years. When analyzed by age range, there is a significant jump in longevity in current positions between those who are under the age of 45 (5 years) and those 45 or older (11.1 years). Some would say this disparity can be contributed to the Millennials in the 19 to 35 age range because they are job hoppers and move from one job to next more than generations in the past. When compared to previous HFTP compensation and benefits surveys, this stereotype does not hold up. Over the years, those in the younger age groups (34 or younger) averaged approximately 3 to 3.5 years in their current position. Most individuals in entry-level positions tend to change jobs frequently to expedite their climb up the corporate ladder. The true test will be to track Millennials as they move into more senior level positions and determine if they continue the trend of changing jobs every few years or stabilize like past generations.

When questioned about prior experience, half of the individuals responding to this survey indicated that they spent their entire career in the hospitality industry (50.4 percent). Technology professionals who started their career outside of the hospitality industry stated they previously worked in other industries such as construction and manufacturing, retail, banking and finance, insurance, and education. The most popular previous positions included IT director (33.3 percent) and regional/area IT manager (21.4 percent).

Responsibilities
Those responding to the 2016 HFTP Compensation and Benefits Survey were asked to provide information on their job responsibilities. By gathering information on specific job responsibilities such as number of employees, properties and departments supervised; it provides for better salary comparability between organizations. Those working at the property level and overseeing a single property tended to either have no supervisory responsibility (30.4 percent) or supervised 3 to 5 employees (34.8 percent). For individuals overseeing multiple properties at the regional/corporate level, most respondents did not have any supervisory responsibility (30.8 percent) or they supervised 3 to 5 employees (23.0 percent). At the regional/corporate level managers indicated they supervised a wide range of properties (3 to 400+ properties) and employees (30 to 20,000+ employees).

Individuals responding to this survey also provided information on the departments they supervised as well as information on their participation on the executive committee. Nearly 80 percent (78.9 percent) of respondents indicated they supervised the technology department. In addition to technology, several individuals stated they are responsible for the marketing department (7.7 percent) and security (7.7 percent) at their property or within their organization, depending on their level within the company. It is interesting to note that 36.2 percent of individuals who indicated they have the primary job function of accounting and finance also supervised technology at their property/company. There is certainly some overlap with accounting and finance employees, especially in the club environment where there typically is not a dedicated IT manager.

Salary Information
Overall, those with technology positions ($103,822) averaged slightly higher salaries than their accounting and finance counterparts ($102,172). The contrary is true when analyzing overall bonuses, with accounting and finance personnel ($16,520) edging out their technology counterparts ($15,059). This averaged to a net difference of $189, with techies barely beating out those with accounting and finance jobs.

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