



## SMARTER HOTELS

*How the Internet of Things  
is Impacting Hospitality*



### What's Next?

As technology expands, we've begun to enter an entirely new realm, one in which remaining connected all of the time is the norm. We are seeing the maturation of a generation of complete digital natives who have never known a world without the availability of Internet connectivity or mobile devices.

This has led to greater demands on businesses as they attempt to position their brands to be more agile and better able to keep up with modern technological developments. Businesses that fail to take advantage of digital conveniences can become at a competitive disadvantage.

With so many new devices and technologies being developed at a rapid rate, many wonder what will be the 'next big thing.' In reality, it could be more than just one thing in itself.

## A Brief Intro to the Internet of Things

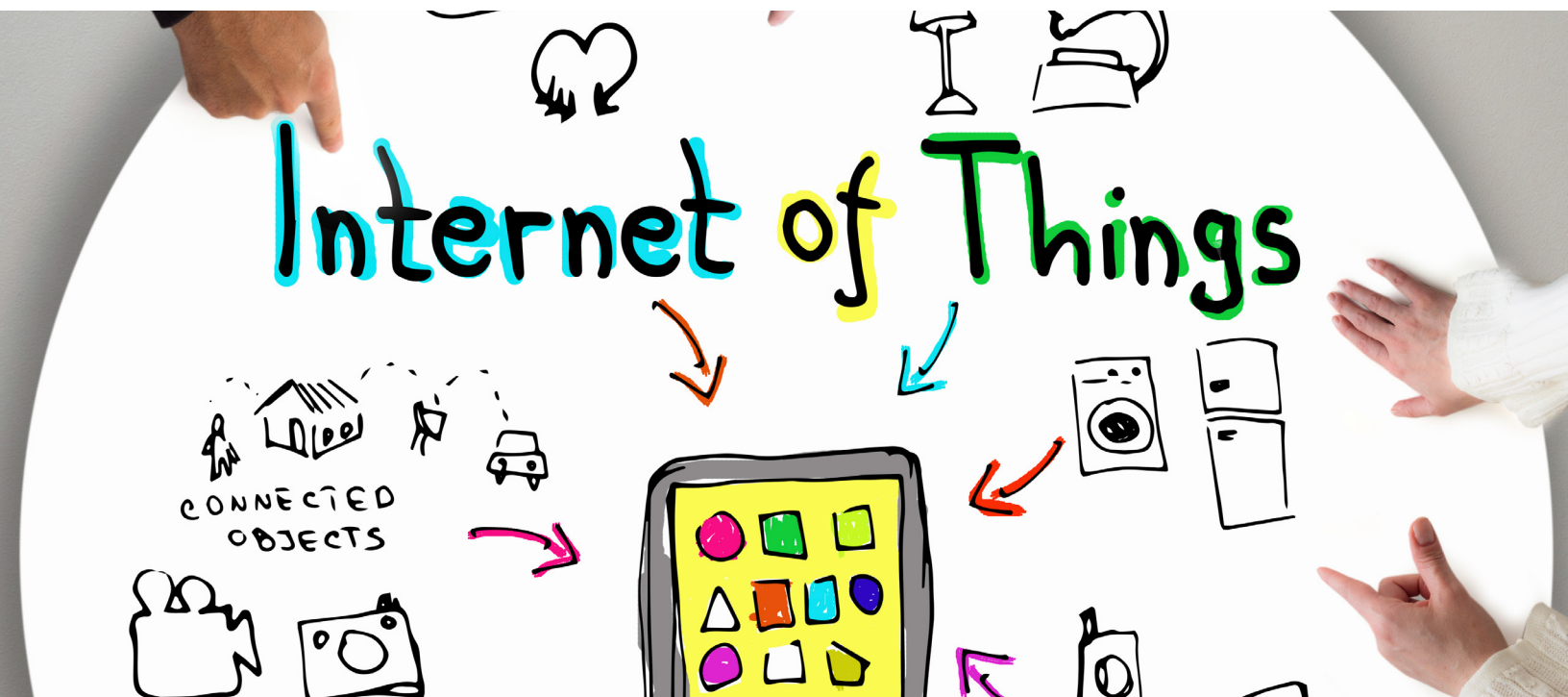
The Internet of Things (IoT), also known as the Internet of Everything, is a new term that has been coined to define this new connected world, with a multitude of devices and objects set up over a vast network communicating information. It goes beyond the fairly common smartphone and extends to the recent rise in so-called “smart devices,” from watches to refrigerators to cars.

And even if it isn't yet a familiar term among the general public, IoT is already here and growing vivaciously. The IoT market is [projected](#) to triple from its value of \$655.8 billion in 2014 to \$1.7 trillion by 2020, according to International Data Corporation (IDC), with a compound annual growth rate of 16.9%.

From 2013 to 2014, IoT (measured in machine-to-machine connections) [grew](#) 88% within only the hospitality and retail industries, according to Verizon.

The momentum is only estimated to increase. For instance, both Apple and Google have released technology that enables smartphone users to integrate mobile devices with their cars to provide heightened functionality through a car's system, such as step-by-step navigation and voice activated commands. By 2020, IHS Automotive [predicts](#) that Android Auto and Apple CarPlay apps will be integrated in nearly 70 million cars.

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A close-up photograph of a hand holding a smartphone. The phone is white with a dark grey or black back. The screen is on, showing a bright, slightly blurred image. The background is a soft, out-of-focus green, suggesting an outdoor setting with foliage. The lighting is natural, coming from the side, creating a slight shadow on the phone's edge.

## The Mobile Gateway

Mobile is the hub of IoT. The widespread adoption of mobile devices and technologies was a pivotal factor within hospitality for the acceptance of new, robust attitudes toward digital.

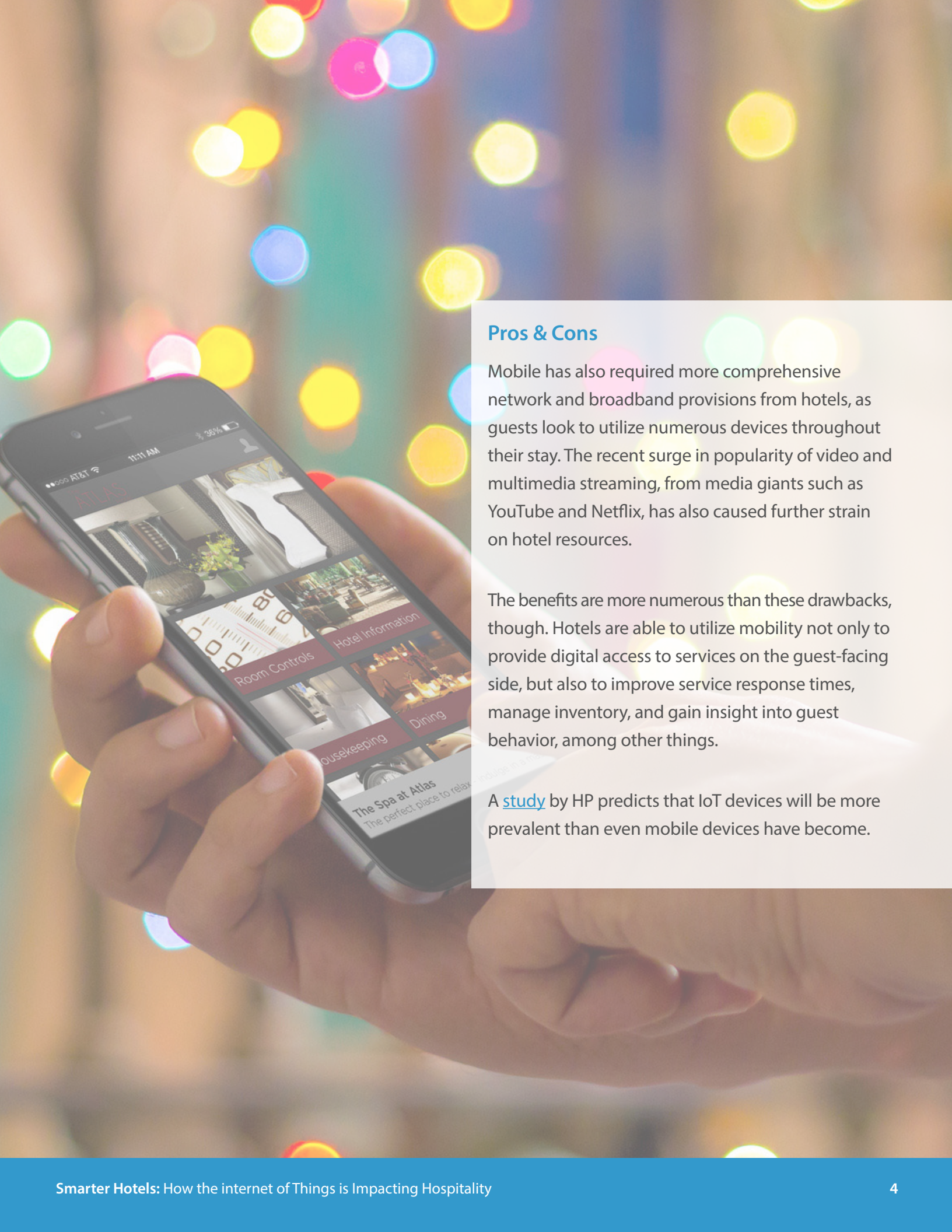
Smartphones and tablets provide convenient access to the Internet and can perform a variety of functions through the countless applications that are available for download.

Now travelers are showing more interest in using mobile to control the guest experience and the guestroom environment. According to a survey by Magnani Caruso Dutton, travelers are enthusiastic to use mobile for a variety of functions:

- Automated check-in (73%)
- Order room service and amenities (62%)
- Pay the hotel bill (61%)
- Sync with the in-room TV (43%)

Unlocking guest room doors with a mobile device is another technological innovation that [some predict](#) will soon become an industry standard. Further use of mobility within the hospitality industry will bring new opportunities to increase guest engagement and satisfaction.





## Pros & Cons

Mobile has also required more comprehensive network and broadband provisions from hotels, as guests look to utilize numerous devices throughout their stay. The recent surge in popularity of video and multimedia streaming, from media giants such as YouTube and Netflix, has also caused further strain on hotel resources.

The benefits are more numerous than these drawbacks, though. Hotels are able to utilize mobility not only to provide digital access to services on the guest-facing side, but also to improve service response times, manage inventory, and gain insight into guest behavior, among other things.

A [study](#) by HP predicts that IoT devices will be more prevalent than even mobile devices have become.

## Wearables: The Next Wave

The introduction of wearable devices, such as RFID wristbands and smart watches, has initiated the arrival of a new kind of mobile, connected technology to hotels. Research firm Canalys [predicts](#) the shipment of more than 43.2 million wearable bands in 2015, with Apple having the largest impact on this 129% increase from the year before. It's an additional component to the bring-your-own-device (BYOD) trend for which hoteliers must be prepared.

At Google I/O 2015, the tech giant announced an even more novel move called [Project Jacquard](#): "smart" clothing or textiles integrated with a micro-sensor that can detect touch and hand gestures. As one possibility, someone could wave their hand, and the connected clothing would sense the movement and perform a function on a smartphone. Technical project lead at Google's Advanced Technologies and Projects (ATAP) group [Ivan Poupyrev](#) called it "a radar in your hand" or clothing "come to life."

Wearables are not only a fashionable trend. They are being explored within numerous sectors, including healthcare, senior living, and human resources. They have been found to effectively assist in monitoring progress among employees and stimulating increased productivity. [A study](#) by Verizon found that a combination of wearables, coaching and gamification increased employee participation by 80%. Wearables are also capable of monitoring an individual's health, such as a new "smart" contact lens being developed that will be able to [detect a person's glucose levels](#).

The hospitality industry is also beginning to explore potential use of these devices. Several brands have announced the current or future release of apps for smart watches that will impact the mobile guest experience. Still others have tested out wearable bands that help streamline guest access to various areas of the hotel, such as keyless entry to guest rooms.





## Tech Giants Are Smarting Off

Imagine arriving to your home and having the garage door immediately open without you pressing a button. The thermostat automatically falls to the temperature you most often set it to while at home, and the lights in the entry way turn on in anticipation of your arrival.



Welcome to what many envision as the smart home of the future. [A projection](#) from Gartner says that homes in 2022 could feature over 500 smart devices in total.

Google [unveiled a bold concept](#) embracing the smart home concept in the past: Android @Home. It gave a glimpse into the future with a fully connected home full of Android driven devices and services that interacted with smartphones and each other to create an actively automated eco-system.

Although Android @Home still isn't a reality, talk about the future of smart homes was revived when Google purchased Nest Labs, Inc. in 2014. The investment in Nest, a home automation innovator and creator of the Learning Thermostat, carried a price tag of \$3.2 billion, a number that suggests the importance placed on this kind of emerging technology and its future potential.

And the Google announcement of [Project Brillo](#), a new operating system that will unify all of a person's connected devices on the Android platform for more seamless communication, also means that smart homes are one step closer to becoming an actuality. Weave is the name of the protocol, or language, that will allow devices running on Brillo, or even other platforms by companies such as Apple or Samsung, to communicate with each other.

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Apple has also made a foray into the smart home market with its [HomeKit](#) initiative offering a variety of [devices and accessories](#) that consumers can use to manipulate the home environment, such as smart thermostats. Individuals control HomeKit-enabled accessories using an iOS mobile device, various apps, and Siri voice commands. Apple TV provides the ability to control HomeKit even while away from home.

Samsung similarly has made a large investment into IoT with the [\\$200 million acquisition](#) of SmartThings, a startup that creates software to control various features in the home.



## Guest Rooms Get Smart

And hotel rooms will likely not lag behind for long. Travelers often expect the benefits they are accustomed to in their homes when they're on the road as well.

One of the benefits of IoT will be the expansion of ability of hotel management and staff to monitor use of resources within guest rooms. Energy consumption can be more strictly controlled with smart appliances, such as lights that detect guest arrival and departure.

Hotels have already begun to implement use of room control systems to assist with basic automation of systems that control lighting, curtains, and temperature. The installation of room control panels provides easy-to-use, accessible capabilities to manage the guestroom environment, and these panels can also integrate with apps for use on complimentary in-room mobile devices or guests' personal devices.

Room controls automation can be extremely convenient for guests and guests. They can set up a 'do not disturb' setting for their room, or adjust various features while still in bed. Triggers can also be set up with strategically placed sensors to further accommodate the guest. When someone enters the guest room, it can trigger an automatic response that includes adjusting the thermostat or opening the blinds. Likewise, when someone exits, a shut down effect can occur to minimize power and energy use. Guests can express their preferences for these triggered settings to hotel staff for a personalized touch.



Possibilities abound.

As new innovations become more readily available, hoteliers should be prepared to leverage them to improve the guest experience. For instance, voice controls could also bring numerous benefits for guests in the future, added convenience being a notable gain. Smart devices throughout a hotel's structure can help detect mechanical or technical failures before they even become an issue. And hotels could even eventually grant their guests limited surveillance of the guest room when away from the property to add a heightened sense of security.



## A Deeper Connection

Aside from being connected, smart devices also are equipped with sensors that allow them to gather invaluable data. This collection of information and its use could be the crux of success for IoT. It carries with it the unique opportunity for enterprises to gain new insight into their own operations and consumer behaviors.

The hospitality industry will have unprecedented access to worldwide travelers looking to share information and preferences to help tailor the desired guest experience. A Magnani Caruso Dutton [survey](#) of travelers revealed that nearly three-quarters wanted a hotel to proactively attempt to enhance or personalize their stay.

Once hoteliers learn how to efficiently mine through the data being provided with the assistance of a strong collection and analysis team, they will be able to leverage this connection to provide an improved level of service and experience personalization to consumers.

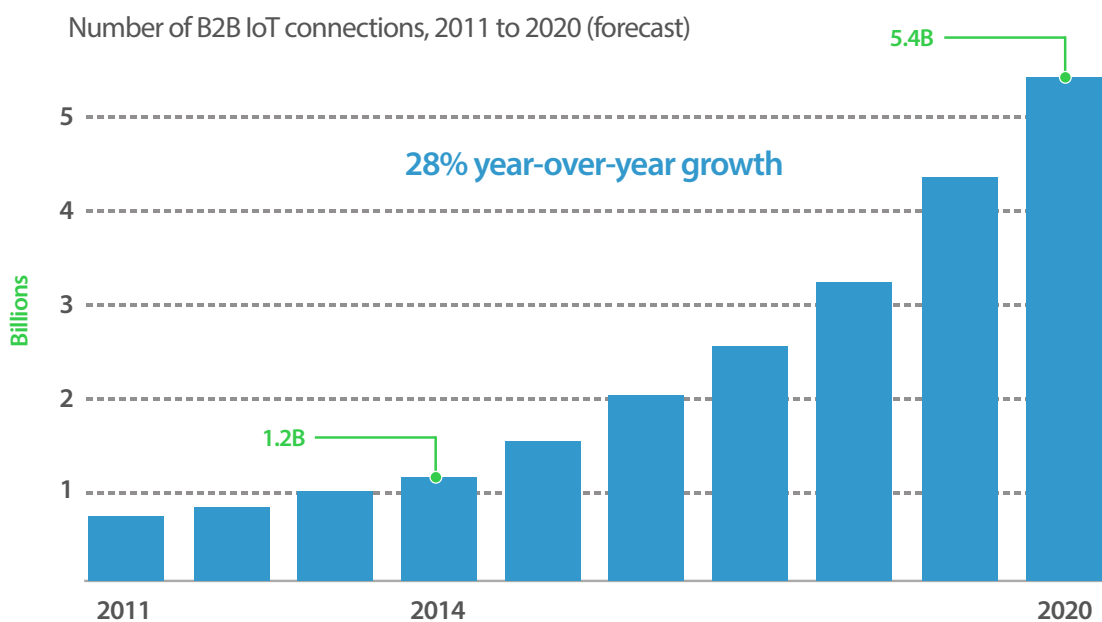


Figure 1: ABI Research for Verizon, 2015





## Preparing for the Future of IoT

The hospitality industry is currently experiencing a technological makeover on multiple levels with nearly all departments being touched.

As a result of the insatiable demand of guests for all things digital, hotel networks are currently overtaxed. Data usage and connectivity requirements among guests continue to rise, necessitating more digital investment and strategic planning by hoteliers. The 2015 [Hotel Lodging Technology survey](#) from Hospitality Technology magazine reported that 29% of respondents felt that guest expectations for technology exceeded the ability of hotels to meet these expectations.

But the potential positive impact is large. About 70% of travelers said the quality of a hotel's digital tools, including its mobile app, [impact booking decisions](#), according to a survey by Magnani Caruso Dutton.

Reinforcing wireless technology will be a crucial first step for hotels as guests begin to carry an increasing number of connected devices with them during travel. A growing number of hotels are beginning to strengthen their WiFi networks and broaden access to meet the desire for constant connectivity among guests. Free, unlimited access to fast WiFi was ranked the most valuable hotel amenity in a [survey](#) by Hotels.com. It was also identified as the top consideration for travelers when selecting lodging, per [a survey](#) of 1,000 travelers in the United Kingdom by four-star hotel chain Amba Hotels.





Leading tech companies, Google, Facebook, and Apple among them, have moved to evolve more highly efficient data centers to manage data usage. Hoteliers would do well to follow in the example of such innovators when it comes to looking for ways to increase efficiency in monitoring and improving data usage and regulation.

A hotel's architecture, layout, location, occupancy and employee needs are all factors that must be considered as IoT continues to gain ground. In addition, security and privacy measures will need to be implemented to protect the integrity of the digital guest experience. [A report](#) by HP revealed that 80% of connected IoT devices "raised privacy concerns."

Hotel staff will need to expand to include individuals who are knowledgeable about secure management of networks and extensive data stores. Having professionals readily available to address any technical issues that might arise on site could avert or limit crises and maintain adequate levels of guest satisfaction.

Hoteliers should be actively monitoring new developments and announcements related to IoT in order to think of inventive ways to incorporate them into existing structures as the movement matures. The adoption of a proactive, forward-thinking attitude toward technological innovation can have long-term impact on creating opportunities that generate revenue, streamline operations, and improve guest satisfaction.