Increasing Hotel Profitability with IoT Technology

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Overview

The Internet of Things (IoT) has made it a very exciting time to be alive. As more IoT devices hit the market and enter into everyday use, they are rapidly changing the way we do business and interact with the world around us. Indeed, IoT is changing everything from the homes we live in[1] to how our cities are managed[2].

"The IoT is big news because it ups the ante: 'Reach out and touch somebody' is becoming 'reach out and touch everything'."

Source: Aria Systems[3]

But IoT isn't only changing where and how we live. It's also changing the way we do business. Indeed, a recent study by Forbes Insights and Hitachi Vantara[3] found that "Almost two-thirds of companies believe the IoT is important to their current business, and over 90% believe the IoT will be important to the future of their business."

And the hospitality industry is no exception. In fact, in many ways, the hospitality industry is leading the charge in the adoption of IoT business technologies. After all, from energy management to maintenance to guest experience, IoT offers a variety of both cost savings and a number of revenue opportunities, and has allowed hotels to reach new levels of profitability.

[1] How Smart Homes Work: https://home.howstuffworks.com/smart-home.htm

[2] Smart city: https://en.wikipedia.org/wiki/Smart_city

[3] The 'Reach Out and Touch Everything' Era: https://www.ariasystems.com/blog/reach-touch-everything-era/

[4] The Internet of Things: From Theory to Reality -- How Companies Are Leveraging the IoT to Move Their Businesses Forward: https://www.forbes.com/forbes-insights/hitachi-vantara/internet-of-things/

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Energy Management

In business, "keeping the lights on" describes expenditures that are absolutely necessary just for maintaining operations. And in the hospitality industry, the term is quite literal, as energy consumption is the largest utility cost of all. Indeed, the 2015 edition of Trends® in the Hotel Industry found that "electricity is the largest utility expense comprising 60 percent of total expenditures. Water/service is the next largest utility cost (23.8%) followed by gas/fuel (10.6%), and steam (2.3%)[5].

U.S. Lodging Industry

Mix of Utility Expenses - 2014

Gas/Fuel
10.6%

Steam
2.3%

Water Sewer
23.8%

Electricity
60.0%

Other
3.3%
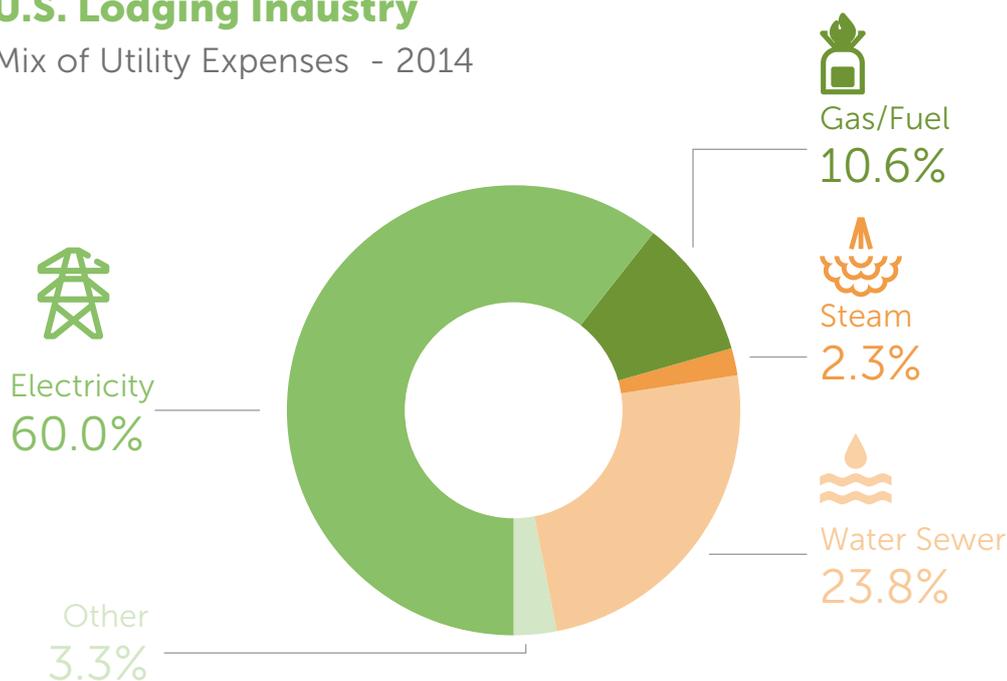
Source: PKF Hospitality Research, a CBRE Company, *Trends® in the Hotel Instustry*

Fortunately, IoT technology is helping hotels manage and reduce their energy costs in a variety of ways. And the result is not just reduced costs, but improved guest experiences well.

[5] Consumption and Pricing Influence Hotel Utility Costs: https://www.hospitalitynet.org/opinion/4071456.html

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HVAC Energy Management Systems

Climate control is an essential energy cost for any hotel or motel. Whether it's air conditioning or heating, every property has a need for some kind of dedicated HVAC system. And IoT devices are helping hotels both use their HVAC systems more efficiently and save significantly on their energy consumption and costs.

While smart thermostats and occupancy sensors monitor and respond to fluctuations in occupancy, smart energy management systems like Verdant EI use sophisticated machine learning algorithms to continuously analyze historical thermodynamics, local weather patterns, and peak demand loads to optimize energy consumption in real-time, all year round.

Energy Savings Case Study

IoT energy savings, moreover, are not just wild speculation drunk on futurism. Indeed, smart energy management systems (such as Verdant EI) can reduce hotel energy costs by up to 20%[6], and generate some of the fastest payback periods in the industry (between 12-24 months)[7].

Type of Technology	Estimated Payroll Period (Years)
Verdant Energy Management Thermostats	1-2 years
Lightning	4 years
Machinery	5 years
Other HVAC devices	6 years
Water consumption	4 years
Control Devices	5 years
Building Envelope	8 years
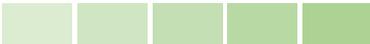
[6] Learn how Verdant thermostats can cut your energy bills by up to 20%: https://www.verdant.co/how-it-works/

[7] Energy Management Thermostat Payback/Breakeven Periods: https://www.verdant.co/blog/energy-management-thermostat-payback-breakeven-periods/

The Holiday Inn Bridgeport Connecticut, for instance, more than recouped their investment in only 1 year. Specifically, the property saved over $45,000 in energy costs in the 12 months following the installation of Verdant EMS thermostats, and is expected to generate a 700% ROI over 8 years[8].

Annual Savings - No adjustment ($)	$45,759
Annual Savings - degree day & utility cost adjustments ($)	$34,637.3
Annual Savings, adjusted (%)	11.1
Estimated Payback Period (months)	12
Estimated ROI - Lifetime of system (%)	700%

Increasing Hotel Resale Value

IoT energy management technology can not only reduce hotel energy costs by up to 20% and increase profitability, it can also significantly increase the resale value of a hotel.

Let's consider the example of a REIT that installs Verdant's smart IoT energy management thermostats in one of their typical limited-service hotels, with the intent of selling that property three years later.

In year one, the purchase of Verdant's system will cost the ownership group approximately $22,000. This includes a cash rebate of approximately $50 per room from the hotel's utility company. The savings after year one are about 20% of the overall electric bill, which translates to $14,500 annually.

In years two and three, the system continues to save energy at the same pace, creating additional savings of $14,500 per year. By the end of year 3, the system has saved ownership $43,200 in operating expenses, at a cost of $27,000 in capital expenditure (including 3 years of Verdant EI™) — for a simple payback of 1.7 years.
Now recall, in this example, the REIT which owns this limited-service hotel is determined to sell this property after 3 years.

8 Case Study: Holiday Inn Bridgeport, CT: https://www.verdant.co/case-studies/

Since the $14,400 in annualized savings is a direct increase in annual EBITDA financial statements, we can multiply $14,400 by the EV-to-EBITDA multiplier (13.37 as of today), and see that Verdant's IoT energy management system has created over $192,000 in additional property resale value. Add in the 3 years' worth of actual electricity cost reductions, and Verdant's energy management system has generated over $235,000 in additional value for this hotel in just 3 years time, while requiring a total investment of only $27,000.

Smart Lighting

IoT energy management systems and the savings they offer are not limited only to HVAC systems. Smart Lighting technology also allows hotels to better understand their energy needs, automate their consumption, and adapt to real-time changes in occupancy.

Where some companies have cut energy costs by up to 75% by converting to a smart LED lighting system,[9] some hotels have seen even greater savings. Indeed, when the Radisson Blu Dubai Media City replaced 95% of its lights with LEDs in 2009, it reduced its energy usage by 81%. And when, in 2014, the Grosvenor House Hotel in Dubai Marina replaced over 24,000 halogen lamps in its guest rooms and common areas with smart LED lamps, it saved around 80% on its lighting energy consumption, and recouped its investment in about 18 months[10].

[9] New study shows smart lighting drastically cuts energy costs: http://www.businessinsider.com/new-study-shows-smart-lighting-drastically-cuts-energy-costs-2016-7

[10] Why hotels across the Middle East are embracing LED: http://luxreview.com/article/2015/06/why-these-8-middle-east-hotels-are-upgrading-their-lighting-
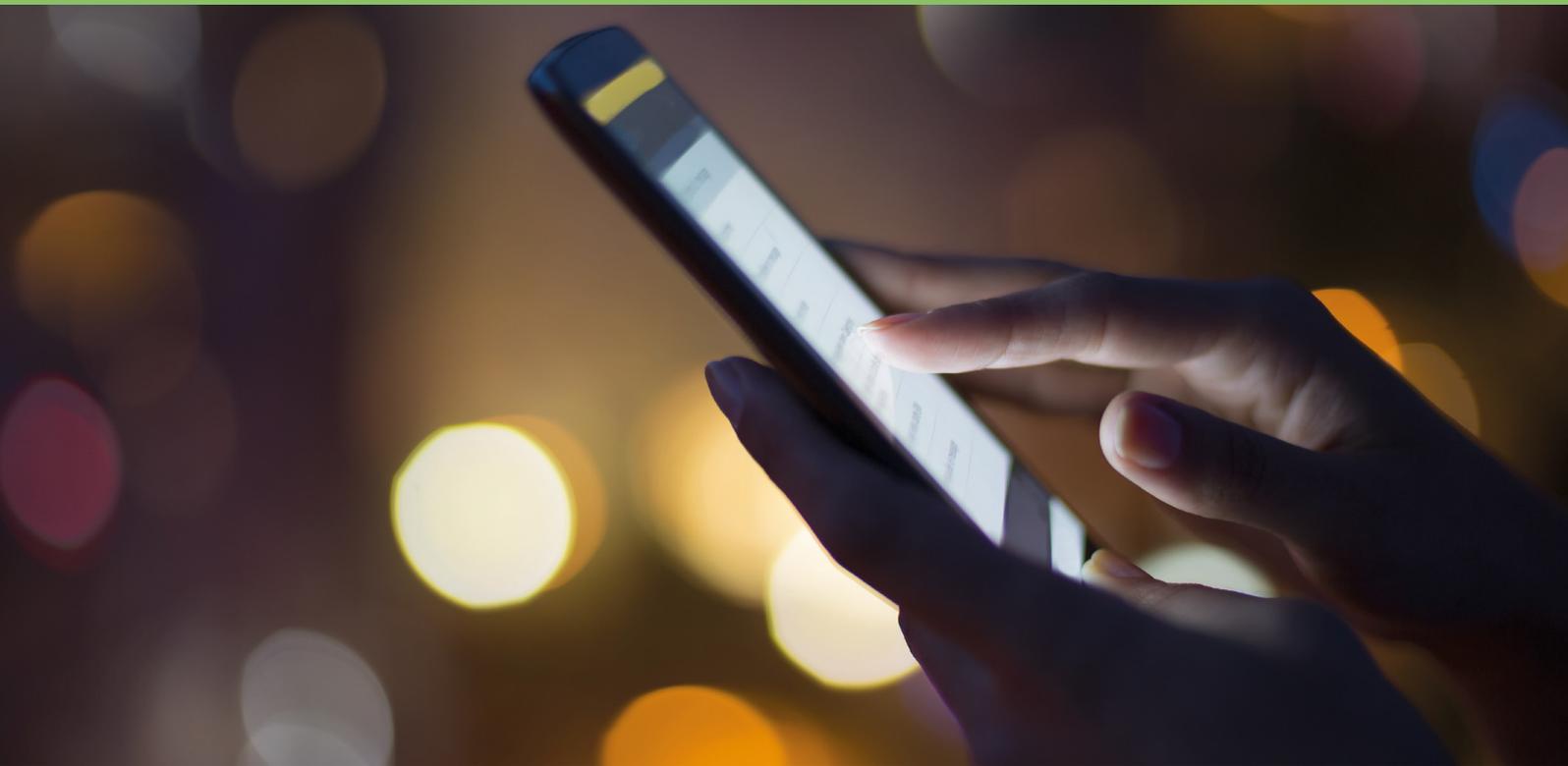
The savings have been similarly significant stateside, as well. When the Chatwal Hotel in New York City retrofitted approximately 1,300 lamps, in the hallways, common areas, and 80 rooms, it saved more than 410,000 annual kilowatt-hours, equating to a 90% reduction in lighting energy consumption. Indeed, the Chatwal Hotel saved around $124,255 in the first year alone[11].

Essentially, just as smart HVAC systems such as Verdant EI use occupancy sensors and machine learning algorithms to continuously analyze demand load patterns and optimize HVAC energy consumption, smart lighting systems similarly allow hotels to set preferred lighting times, track occupancy patterns, and improve overall lighting energy consumption throughout the year.

[11] Why Hotels are Switching (or Should Be) to LED Lighti nghttp://www.greenlodgingnews.com/why-hotels-are-switching-should-be-led-lighting/

Predictive Maintenance

Just as smart IoT energy management systems allow businesses to monitor, track, and optimize hotel energy consumption, Predictive Maintenance allows them to use sensor data to identify wasteful or hazardous trends and alert maintenance staff before a given issue escalates into a much more costly one.

For example, as an HVAC system fluctuates through different levels of performance based around occupancy needs, the components will incur wear-and-tear on its different physical components. So rather than waiting for a component to break down before being maintenanced or replaced, IoT technologies allow engineering staff to predict maintenance needs based on system usage, prevent system failures, and reduce the costs of operating a faulty system.

Verdant's online management platform, for instance, continuously collects data related to HVAC runtimes for each unique room and assigns them efficiency ratings. This rating is an indicator of how quickly a room can be heated or cooled back down to the guest's preferred temperature and provides engineering teams with critical alerts when HVAC equipment is in need of attention.

Water Management

Whether it's for guest rooms, pools, landscaping, laundry, sanitation, or food/beverage service, water is an unavoidable cost of doing business in the hospitality industry. Indeed, the hospitality industry relies so much on it just to keep afloat that, according to the EPA, hotel water usage accounts for about 15% of all US commercial and institutional water use. And some estimates suggest that implementing smart water management systems in commercial buildings can decrease operating costs by approximately 11%, as well as decrease energy and water use by 10% and 15% respectively[12].

For this reason, many hotels are already using IoT-enabled predictive maintenance technologies to conserve water and prevent water-related damage[13]. Just consider how a single leaky toilet can cost as much as $840/year. Add the costs of any additional water damage , and it's easy to see how water can become an unnecessarily expensive business expense. By monitoring water lines with smart, low-cost IoT-enabled water meters, however, hotels can see an ROI on their water consumption in about 4 years[14].

[12] Hotel Water Use: Are You Flushing Money Down the Drain? https://www.environmentalleader.com/2016/07/hotel-water-use-are-you-flushing-money-down-the-drain/

[13] Toilet Leaks Cost You $840 per Year: http://www.isustainableearth.com/water-conservation/toilet-leaks-cost-you-840-per-year

[14] Energy Management Thermostat Payback/Breakeven Periods: http://www.isustainableearth.com/water-conservation/toilet-leaks-cost-you-840-per-year

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Guest Experience

The ways in which IoT technologies can increase hotel profitability aren't limited to energy management, predictive maintenance, or water management. IoT can also help personalize guest experience in ways that reduce operating costs and create new sales opportunities.[15]

Essentially, not only can guest data be used to help better accommodate guest'' needs, but' in conjunction with occupancy sensors, it can also be used to automate guest interactions throughout their stay, reducing both friction points and labor costs. [16]

Remote Check-In / Check-Out

By allowing guests to check-in remotely through their mobile device, hotel owners can better predict/manage their staffing needs and save considerably on labor costs. For example, when guests can check-in remotely from their smartphones, staff will can spend less time on the welcoming process. This technology can also alert hotel staff when guests arrive, allowing them to greet the guest by name, offer appropriate upgrades/upsells, and provide them with a more personalized guest experience -- even on their first visit.

Then, at the end of the their stay, guests can enjoy a seamless self check-out experience that also allows them to arrange for their preferred transportation to their next destination (whether it be taxi, airport shuttle, or popular ride-sharing service such as Uber or Lyft). And this allows hotels to save on the labour costs associated with both the check-out process and making travel arrangements for guests.

[15] The Smart Hotel: https://iot.telus.com/en/business/on/campaign/hospitality?CMP=VID_sYUT_cIoT_cdHospitalityYT_ad
[16] Engineering the Service Economy: https://www.appdirect.com/blog/engineering-the-service-economy

Smart Guest Services

IoT technologies also make it possible for hotels to predict and personalize a number of guest services based on both previous visits and aggregated guest data.

Room Service

IoT and occupancy sensors can help hotels push menu notifications to smartphones at optimal times when the guests are in their room. These notifications can even include personalized suggestions based on past orders. Indeed, many home food delivery apps (such as JustEat) already offer a similar experience, sending push notifications to frequent users at their preferred ordering times on their preferred days.

Laundry Services

Hotels can also use IoT apps to send push notifications at appropriate times of the day to remind guests of available laundry services and turnaround times. This way, guests can ensure that their items are ready for pick-up in time to be cleaned and pressed for when they're needed.

Smart Reserved Parking

Hotels also have the opportunity to use IoT sensors and hotel apps to allow guests to reserve parking spots in advance of their visit, and to have their space assigned upon arrival. This will not only save hotels

Mobile Room Keys

Finally, guests will also be able to access their room, and lock and unlock their room door, via their smartphone app. This will save hotels the expense and hassle of managing a key card inventory that is prone to loss and demagnetization.

The IoT of Profitability

The Internet of Things is connecting us to each other and the world around us in ways never before imagined. And for businesses, that means more opportunities to understand their infrastructure, manage their resources, and engage with their customers.

For the hospitality industry, this translates into increased profitability across a number of line items. From smart energy and water management to ensuring that all systems are operating at 100% efficiency to a more personalized guest experience, IoT sensors and machine learning algorithms are helping hotels reduce their overhead, save on labor costs, and create new sales opportunities.

Indeed, the only thing necessary for hotels to profit from IoT technologies is the will to implement them. And with some of these technologies yielding a return in as little as 1-2 years, there is an overwhelming case for hotels to embrace IoT and the new levels of profitability that they offer.

To learn more about how
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to 20% on your energy costs, visit our
website or call 1 (888) 440 0991.

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