Save energy. it pays.



Hotel Management Trends 2020

AUTHOR: JOHN ATTALA

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In recent years, the hotel industry has faced a number of new challenges and opportunities alike increased competition from Airbnb, rising energy costs, and the Internet-of-Things, to name just a few.

And insofar as necessity is the mother invention, hotel operators have adopted a range of new practices and technologies to overcome these challenges and seize these opportunities. From operations to guest experience, moreover, these practices and technologies have changed how hotels are managed.

IoT Hotel Operations

The Internet of Things (IoT) is making it a very exciting time to be alive.

From smartphones to smart homes, as IoT-enabled devices become more and more commonplace, they are rapidly changing everything from the <u>homes we</u> <u>live in ¹</u> to how our <u>cities are managed</u>. ²

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 twothirds 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, the <u>hospitality</u>

industry is leading the charge in the adoption of IoT business technologies in many ways. ⁴

After all, from energy management to maintenance to guest experience, IoT offers hotel operators a variety of cost savings and new revenue opportunities, and is helping hotels to reach new levels of service and profitability.

² Smart city: <u>https://en.wikipedia.org/wiki/Smart_city</u>

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

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ENERGY MANAGEMENT

In the hotel industry, energy consumption is the largest utility cost of all. Indeed, the 2015 edition of Trends[®] in the Hotel Industry <u>found that</u> "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 So it comes as no surprise that "<u>energy use</u> is eating up 6-10% of your property's revenues," and is one of the fastest growing operating costs for the hotel industry. ⁶



U.S. Lodging Industry Mix of Utility Expenses - 2014



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 an improved guest experience as well.

⁶ Consumption and Pricing Influence Hotel Utility Costs: https://www.hospitalitynet.org/opinion/107166.html
⁶ Hospitality Industry Focus, Optimising Hotel Energy Management. https://www.dexma.com/hotel-energy-management-hospitality

HVAC ENERGY MANAGEMENT SYSTEMS

Climate control is an essential energy cost for any hotel or motel. Whether it's air conditioning or heating, every hotel property has a need for some kind of 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 <u>smart thermostats</u> and <u>occupancy sensors</u> monitor and respond to fluctuations in occupancy, <u>smart energy management systems like</u> <u>Verdant El</u> 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.

Ibid

SMART LIGHTING

IoT energy management systems 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 <u>cut energy costs by up to 75%</u> by converting to a smart LED lighting system, ⁸ some hotels have seen even greater savings.

When the Radisson Blu Dubai Media City replaced 95% of its lights with LEDs in 2009, <u>it</u> <u>reduced its energy usage by</u> 81%. 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. ⁹ The savings have been similarly significant stateside, as well. When the Chatwal Hotel in New York City <u>retrofitted approximately 1,300</u> <u>lamps</u>, 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. ¹⁰

Essentially, just as smart HVAC systems 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.

Indeed, both of <u>Verdant's ZX</u> and <u>VX smart thermostats</u> integrate with external third party lighting systems, turning lights on/off according to whether or not a room is occupied.

This allows hotel operators to use the <u>Verdant El</u> energy management system to optimize lighting energy consumption year-round, as well.

New study shows smart lighting drastically cuts energy costs: http://www.businessinsider.com/new-study-shows-smart-lighting-drastically-cuts-energy-costs-2016-7
 Why hotels across the Middle East are embracing LED: http://www.greenlodgingnews.com/why-hotels-are-witching-should-be-led-lighting/
 Why Hotels are Switching for Should Be to LED Lighting: http://www.greenlodgingnews.com/why-hotels-are-witching-should-be-led-lighting/

CASE STUDY: ENERGY MANAGEMENT

The energy savings offered by IoT infrastructure, moreover, is not just wild speculation drunk on futurism. Indeed, smart energy management systems (such as <u>Verdant EI</u>) can <u>reduce hotel energy costs by up to</u> <u>20%</u>, ¹¹ and generate some of the <u>fastest payback periods in the industry</u> (between 12-24 months). ¹²

Type of Technology	Estimated Payback Period (Years)
Verdant Energy ManagementThermostarts	1-2 years
Lighting	4 years
Machinery	5 years
Other HVAC devices	6 years
Water consumption	4 years
Control devices	5 years
Buidling envelope	8 years

Take the <u>Holiday Inn Bridgeport Connecticut</u>, for instance. The property recouped their investment in only 1 year. Specifically, the property saved over \$45,000 in energy costs in the 12 months following

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. ¹³





¹¹ Learn how Verdant thermostats can cut your energy bills by up to 20% <u>https://www.verdant.co/how-it-works/</u>
²² Energy Management Thermostat Payback/Breakeven Periods: <u>https://www.verdant.co/blog/energy-management-thermostat-payback-breakeven-periods/</u>
³³ Case Study: Holiday Inn Bridgeport, CT: <u>https://www.verdant.co/case-studies/</u>

CASE STUDY: HOTEL RESALE VALUE

Smart energy management cannot just reduce energy costs in the short term; it can also increase the resale value of a property in just a few years.

<u>Consider a REIT</u> ¹⁴ that installs <u>Verdant's smart IoT energy management thermostats</u> in one of their typical limited-service hotels, with the intent of selling that property three years later.

In the first year, the REIT will invest approximately \$22,000 in the purchase and installation of Verdant's system (including a cash rebate of approximately \$50 per room from the hotel's utility company). **The savings after year one will be about 20% of the overall electric bill, which translates to \$14,500 annually.**

In second and third years of using Verdant's smart energy management system, the property will continue to cut energy costs at the same pace, creating additional savings of \$14,500 per year. **So by the end of year 3, the system has saved hotel owners \$43,200** in operating expenses, at a cost of \$27,000 in capital expenditure (including 3 years of <u>Verdant El</u>) – for a simple payback of 1.7 years. ¹⁵

Now recall that this REIT is determined to sell its limited service hotel property after 3 years.

Since the \$14,400 in annualized savings is a direct increase in annual EBITDA financial statements, we can multiply \$14,400 by the <u>EV-to-EBITDA multiplier</u> (10.60 as of today), and see that Verdant's IoT energy management system has created over \$152,000 in additional property resale value. Indeed, energy management systems can mean Return on Invested Capital (ROIC) increases of almost 9 times, with Internal Rate of Return (IRR) of 137%.For investors, this is an incredibly attractive opportunity, especially when these numbers are generated over the course of just three years. ¹⁶

Add in those 3 years of actual energy cost reductions, and Verdant's energy management system has generated over \$195,000 in additional value for the property -- all for a total investment of only \$27,000.

* Are REITs a Good Investment in 2018? <u>https://www.verdant.po/blog/are-reits-good-investment/</u> * How Verdant Hotel Thermostats Increase the Resale Value of Your Hotel: <u>https://www.verdant.co/blog/how-verdants-hotel-thermostats-increase-the-resale-value-of-your-hotel</u> * Comparing Hotel KPIs: GOPPAR vs ADR vs RevPar: <u>https://www.verdant.co/blog/hotel-kpis-goppar-vs-adr-vs-revpar/</u>

WATER MANAGEMENT

Water is a precondition for life as we know it, and the hotel industry is no exception. 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 water just to keep afloat that, according to the EPA, hotel water usage <u>accounts for</u> <u>about 15% of all US commercial and</u> <u>institutional water use</u>.

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. ¹⁷

It's no surprise, then, that many hotels have employed IoT-enabled technologies to conserve water. Just consider how a single <u>leaky toilet</u> can cost as much as \$840/year. ¹⁸

Add the costs of any additional water damage, and it's remarkable just how quickly that water consumption can become and lead to unnecessary costs.

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. ¹⁹

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⁹ Hotel Water Üse, Are You Flushing Money Down the Drain? <u>https://www.environmen</u> * Toilet Leaks Cost You S840 per Year <u>http://www.isustainableearth.com/water.cons</u> * Energy Management Thermostat Payback/Breakeven Periods. <u>http://www.isustaina</u> * Energy Management Thermostat Payback/Breakeven Periods. <u>http://www.isustaina</u>

PREDICTIVE MAINTENANCE

Water isn't the only area of operational cost that can inflate from wear-and-tear, and just as smart IoT energy management systems allow hotels to monitor and optimize hotel energy consumption, <u>predictive</u> <u>maintenance</u>²⁰ technology 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.

<u>Verdant's online management platform</u>, for instance, continuously collects data related to HVAC runtimes for each unique room and assigns them efficiency ratings. ²¹

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.

²⁰ Predictive maintenance: <u>https://en.wikipedia.org/wiki/Predictive_maintenance</u> ²¹ How it Works: <u>https://www.verdant.co/how-it-works/</u>

Smart Guesting Experience

The potential of IoT technologies to increase hotel profitability aren't limited to energy management, water management, or predict. IoT can also help personalize guest experience in ways that reduce operating costs and <u>create new sales opportunities</u>.²²

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. In other words, IoT technologies have made it possible for hotels to predict and personalize a number of guest services based on both previous visits and aggregate guest data.



SMART CHECK-IN / CHECK-OUT

Hotels are now using IoT to enrich guest experience even before a guest's arrival. By allowing guests to check-in remotely through their mobile device, hotel managers can better predict/manage their staffing needs and save considerably on labor costs.

For example, when guests can check-in remotely using a smartphone app, staff spend less time on the welcoming process. And using location services, hotel apps can also alert hotel staff when guests arrive on the premises, 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.

IoT also allows hotels to offer a more personalized check-out experience. Through self check-out features, hotel apps allow guests to arrange for their preferred transportation to their next destination (whether it be taxi, airport shuttle, or rideshare service of choice). Smart check-out services also allow hotels to save on associated labour costs -- such as manually processing the check-out and/or making travel arrangements for departing guests.

²² Engineering the Service Economy: <u>https://www.appdirect.com/blog/engineering-the-service-economy</u>

SMART RESERVED PARKING

Hotels are also using 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 is not only saving hotels on the labour costs of manually managing parking inventory, but it will also offer guests a smoother experience from the moment they pull-in.

ROOM SERVICE

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

LAUNDRY SERVICES

Similar to room service notifications, hotels are using IoT enabled 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.

MOBILE ROOM KEYS

Finally, guests are beginning to access their room, and lock and unlock their room door, via the hotel's smartphone app. This is saving hotels the expense and hassle of managing a key card inventory that is prone to loss and demagnetization.









Big Data & Big Data Protection

With IoT comes a lot of data.

Indeed, from occupancy sensors to guests' smartphone apps, IoT means that hotels will constantly be collecting both operational and guest data. And with big data comes big responsibility.

As Cloudbeds puts it:

Big data is great when you can use it to take action – whether that's tackling a new market segment or adjusting your rate plans to compete against your competitors. However, the biggest concern around big data and the necessary data harboring is the safety around it. Every data harborer's goal is to keep their customers' data safe, but that's easier said than done. In recent years, we've seen massive data breaches that have literally put hundreds of millions of consumers at risk – <u>like Equifax and Target</u>.²³



23 Hospitality Industry Trends: https://www.cloudbeds.com/trends/

As the price-point of smart technology makes it more accessible to different segments of the hotel industry, more and more property owners are adopting and investing in it to remain competitive and profitable.

Indeed, from energy management to booking platforms, there are no shortage of smart tech solutions available to hotels. But there's more to choosing the right platform than just features or price-point. Choosing the right (i.e. secure) tech for keeping operational and guest data secure remains a challenge.

After all, data breaches are becoming increasingly sophisticated, and many incumbent technologies have not yet been fully tested against hackers' latest tactics. Consequently, we can expect big data solution providers who can guarantee data protection to dominate their market segments.

Smart Financial Management

IoT isn't just changing how hotels operate in the day-to-day and how guests experience their stay. It is also revolutionizing how hotels approach financial forecasting and longterm profitability.

Indeed, the big data hotel operators collect through their energy management systems, guest apps, and occupancy sensors offer invaluable insight into their operations, allowing them to identify hidden costs, increase margins, and steadily improve their financial performance in perpetuity.

From operations to finance to guest experience, there are a lot of key performance indicators that hotel owners and managers can track and monitor to cut costs and increase revenue. Of the <u>dozen or so KPIs</u> <u>that hotel owners and managers rely on</u>, ²⁴ however, arguably none is as important as <u>GOPPAR</u> (Gross Operating Profit Per Available Room). Why? Because it factors in both operational costs and revenue.

Essentially, because GOPPAR factors in operational inputs (such as energy consumption), it provides critical insight into a hotel's profitability. Consequently, it also helps hotel managers create stronger revenue forecasts and more efficient management strategies. <u>As Olivier Harnisch put it when writing for Hospitality</u> <u>Net</u>:

A GOPPAR maximization strategy is more sophisticated [than a RevPar one] as it encompasses a broader scope of hotel success criteria. Since GOPPAR is calculated by dividing a property or company GOP by the number of room nights available, all factors impacting GOP are included. Therefore cost items are taken into account as well as revenue factors. For one, selling below variable cost is avoided as this will lead to an immediate GOPPAR decrease. A GOPPAR focus [also] considers the

²⁴ 12 Essential KPIs for the Hospitality Industry: <u>https://www.org/ant.co/blog/12-essential-kpis-informativ-industry/</u> ²⁵ GOPPAR: The Underrated Yalue: <u>https://www.hospitalitynet.org/opinion/4037296.html</u> variable costs generated by an occupied room (such as housekeeping, laundry, energy ...), additional profit induced by a room sale (F&B, laundry, telephone ...), but also the cost of generating revenue, such as channel cost. ²⁵

In other words, ADR and RevPar are useful for setting pricing and measuring gross revenue, GOPPAR offers insight into a property's profitability because it compares room revenue against the actual costs incurred over the same period of time. Indeed, by

taking into account operational costs, GOPPAR can help hotel operators calculate how much it costs to operate any given room or, botol'o t

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GOPPAR is calculated by subtracting your total operating costs from the hotel's total revenue, and then dividing that number by the number of rooms that were available in that time period.

Of course, once you have a comprehensive picture of a property's performance, it's time to look at ways to increase those margins by optimizing your operating costs.

Sustainable Hotel Management Practices

We only need to turn on the news to be reminded just how important climate change and the environment have become for governments, businesses, and the average consumer.

And the hotel industry is moving to embrace more sustainable practices to both reduce costs and appeal to environmentally conscious guests.

Indeed, a "recent E.ON survey of 2,000 guests found that 50% [of guests] actually prefer a sustainable stay." ²⁶



ENERGY CONSERVATION

Recall that "electricity [comprises] 60 percent of total [hotel] expenditures." ²⁷ It's unsurprising, then, that <u>energy</u> <u>consumption also comprises</u> "60% of [a] hotel's carbon footprint." ²⁸ So reducing energy consumption cannot <u>only reduce</u> <u>costs and increase GOPPAR</u> ²⁹, but also appeal to a rising consumer demand for more sustainable guest experiences.

Of course, energy consumption extends beyond implementing smart energy management systems. It also includes eliminating superfluous, energy consuming amenities, such as replacing "the mini-fridge and coffee machine in each room with a communal amenities area in an open guest space." ³⁰

PHYSICAL WASTE REDUCTION

Energy isn't the only area where hotels are reducing their consumption and carbon footprint. Indeed, some of the most immediately available sustainable practices that hotels are implementing pertain to their consumption and waste of physical goods and resources.

- ²⁸ Hospitality Industry Focus: Optimising Hotel Energy Management: <u>https://www.dexma.com/hotel-energy-management-hospitality/</u>
- ²⁷ Consumption and Pricing Influence Hotel Utility Costs: <u>https://www.hospitalitynet.org/opinion/4071456.html</u>
- ²⁸ Hospitality Industry Focus: Optimising Hotel Energy Management: https://www.dexma.com/hotel-energy-management-hospitality/
- ²⁸ How Energy Consumption Impacts Goppar: <u>https://www.verdant.co/blog/how-energy-consumption-impacts-goppar/</u>
- 30 Sustainable Hospitality: Eco-Friendly Industry Trends and Tips for Hotels: https://businessblog.trivago.com/sustainable-hospitality-trends-eco-friendly-hotel-tips/

FOOD WASTE

There might be some truth to the adage that 'you are what you eat', but when it comes to our carbon footprint, we're also as wasteful as everything that we don't eat.

As the Washington Post recently pointed out:

According to the U.N. Food and Agriculture Organization, 30 percent of food is wasted globally across the supply chain, contributing 8 percent of total global greenhouse gas emissions. If food waste were a country, it would come in third after the United States and China in terms of impact on global warming.³¹

And the hotel industry contributes significantly to global food waste. Indeed, <u>it's</u> <u>estimated that hotels</u> produce "79,000 tonnes of food waste (9% total food waste [...])." ³²

Consequently, the hospitality industry has started to tackle food waste in a number of ways, including "growing food onsite, sourcing food locally, and shifting social norms to ensure that 'plate waste' is no longer considered acceptable." ³³

Many hotel properties are also moving to reduce the carbon footprint of the food they serve by sourcing more "organic produce, hormone-free meats and dairy, and other natural products that offer guests healthier food selections." ³⁴

Not only are they doing this to reduce waste, moreover; they're also doing it to cater to modern travelers (particularly millennials) with a sensibility for environmental sustainability.

WATER WASTE

Just as with energy management, hotels are beginning to implement water conservation efforts that go beyond mere cost saving.

"In addition to encouraging guests to be mindful of their water and towel usage, some properties are turning to innovations such as showers that filter their own water." ³⁵

The result is that hotels are involving guests in reducing their water consumption, creating an overall more sustainable and rewarding guest experience.

³¹ The climate impact of the food in the back of your fridge: <u>https://www.washingtonpost.com/news/theworldpost/wp/2018/07/31/food-waste/</u>

²² The hospitality industry's relationship with waste. <u>https://www.openaccessgovernment.org/hospitality-industry-waste/51174/</u> ²³ Sustainable Hospitality. Eco-Friendly Industry Trends and Tips for Hotels: <u>https://businessblog.trivago.com/sustainable-hospitality-trends-eco-friendly-hotel-tips/</u> <u>tips/</u>

³⁶ The Most Common Sustainability and Eco-Friendly Hotel Initiatives: <u>https://www.thebalancesmb.com/sustainability-and-eco-friendly-hotel-initiatives-1223545</u>
³⁵ Sustainable Hospitality: Eco-Friendly Industry Trends and Tips for Hotels: <u>https://businessblog.trivago.com/sustainable-hospitality-trends-eco-friendly-hotel-tips/</u>



PLASTIC WASTE

The <u>facts and figures around plastic pollution are frightening</u>, ³⁶ and the hotel industry is making efforts to curb their plastic waste. Some of these efforts include:



Eco Room Keys:

The plastic key cards commonly used by hotels is made from "PVC (polyvinyl chloride) based <u>plastic</u> which is part of a highly toxic manufacturing process. Many hotel companies are shifting to card options made from paper, wood, and bioplastic that are better for the environment but equally as durable." **37**

Bottle Water Alternatives:

Many hotels are also moving away from bottled water, opting instead for "conveniently located filtered water dispensers, complimentary refillable bottles, and other options designed to offer guests convenient and palatable alternatives to water in plastic bottles." ³⁸

Plastic Straw Alternatives:

Another measure being implemented by international hotel groups is the phasing out of plastic straws. While some hotels are offering paper-based alternative, others offer reusable straws (sometimes branded), while others still are doing away with straws altogether.

CARBON FOOTPRINT MEASUREMENT

Of course, just as hotels are using IoT technology monitor and track their energy consumption, financial performance, and guest experiences, they've also begun using similar technologies to measure their carbon footprint.

As Gourmet Marketing explains:

23 global hotel organizations including Marriott and Hilton have been establishing a streamlined methodology – called Hotel Carbon Measurement Initiative – for measuring the carbon footprint of individual hotel locations. Over 15,000 hotels have already adopted this approach to reporting.

More travelers are looking to book stays with hotels that have green-friendly programs in place. If you don't adopt a similar initiative, some of your prospects may pass you up for more transparent, environmentally-friendly options.

The Hospitality Sustainable Purchasing Consortium is another program that's similar to the HCMI, and we may see similar initiatives being established moving forward.³⁹

Essentially, implementing sustainable hotel management practices has its costs. And as with any other operational cost, hotels are beginning to ensure that they can measure the impact of that investment.

³⁸ Ibid.

³⁸ Plastic Pollution - Facts and Figures: <u>https://www.sas.org.uk/our-work/plastic-pollution/plastic-pollution-facts-figures/</u>

³⁷ The Most Common Sustainability and Eco-Friendly Hotel Initiatives: https://www.thebalancesmb.com/sustainability-and-eco-friendly-hotel-initiatives-1223545

^{38 7} Hotel Sustainability Trends You Should Consider: https://www.gourmetmarketing.net/7-hotel-sustainability-trends-consider/

FORECASTING THE FUTURE

The hotel industry is in a creative state of flux. Increased competition from Airbnb, rising energy costs, and O climate change all promise to bring with them new challenges. But many hotel operators are using technology to embrace these changes, and turn business challenges into business opportunities.

From operations to guest experience to ecological footprint, hotels are using data to build reliable forecasts of their performance and profitability. And it's the operators who approach hotel management with a data-driven approach who will shape and dominate the industry in the coming years.