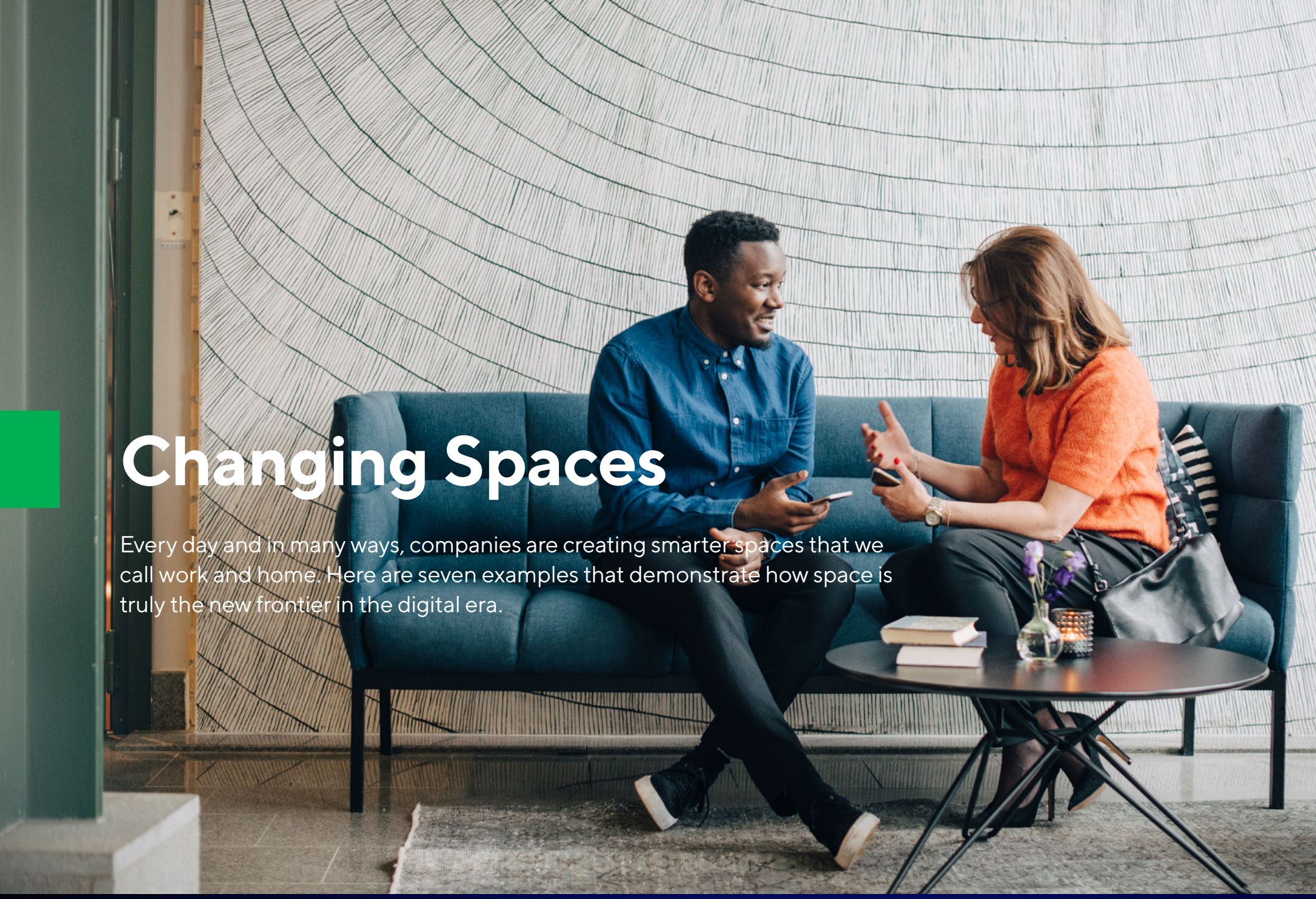

Changing Spaces

Every day and in many ways, companies are creating smarter spaces that we call work and home. Here are seven examples that demonstrate how space is truly the new frontier in the digital era.

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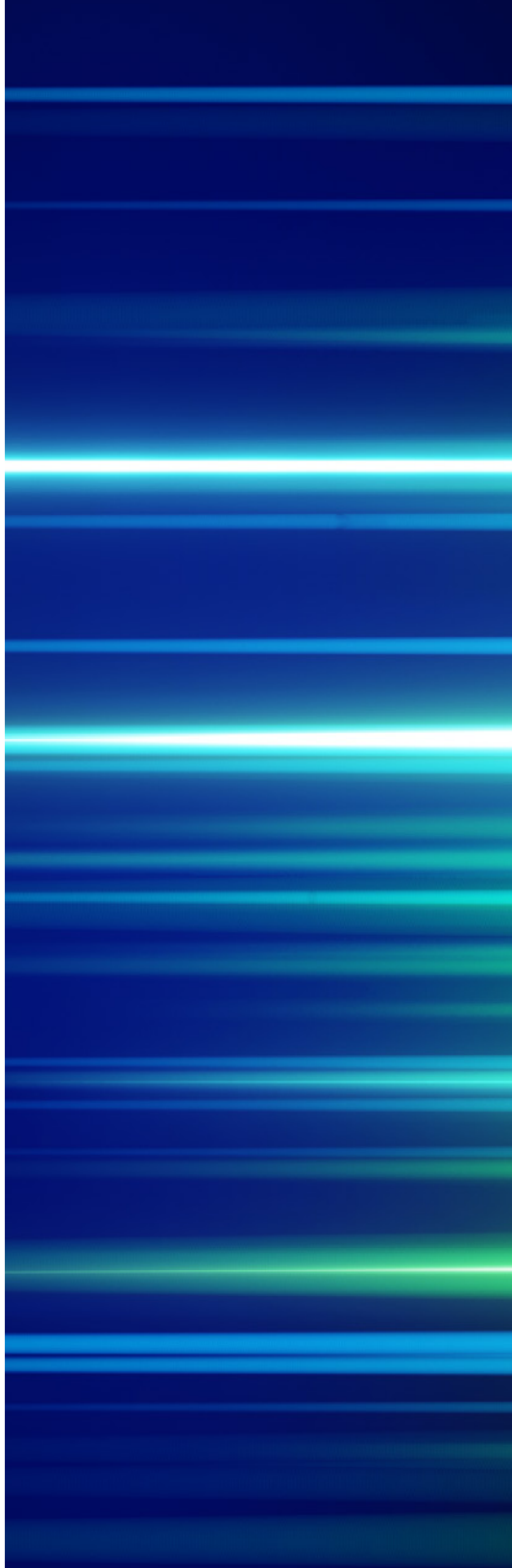

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Introduction

Owning, managing or leasing real estate is the common thread that connects virtually every organization. Global corporations manage a massive commercial real estate footprint, which is both an asset and a liability. Residential and commercial real estate might have thousands of units under management and must balance between providing improved amenities and controlling costs. Industrial buildings present unique challenges and specific demands based on the tenant, sector and use.

With the rise of smart technologies, these and other organizations are exploring new, yet practical ways to better monitor key systems, manage costs, optimize and upgrade legacy systems, reduce risk and improve regulatory compliance. The goal is to create a dynamic, evolving working or living environment — within budget.

Any smart-space decision requires a deep understanding of how the Internet of Things (IoT), software platforms and other technologies can come together to improve the places where we work and live — and do so with strong operating results. Facilities owners should have a clear vision and strategy for what can be achieved by applying digital to their physical assets.

With new intelligence, spaces can now think — and return greater value to owners and operators — while better accommodating tenants and the people inside.

This e-book describes how seven global companies are implementing IoT solutions and building management systems (BMS) that reduce costs, improve efficiency, bolster security, enhance the environment, provide actionable intelligence to management, and boost profitability. We'll share examples from sectors including financial services, residential real estate, quick-service restaurants, food transportation and logistics, personal care products, professional services, and corporate-serviced offices.

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Getting smart:
The new space stations

The challenge

Technology now allows employees to work from virtually anywhere, making flexible arrangements the norm. The shift to remote working has diminished the need to provide space and has reduced the need to own, improve and run this costly overhead.

A global financial institution sought to upgrade its corporate office-assignment process, which was managed through spreadsheets for each location. The company was creating more flexible workspaces that improved efficiency. Its growing cadre of professionals who travel globally created a fluctuating demand for office space. A new, more efficient process was needed to accommodate and assign these remote workers a timely in-office environment.

The solution

We implemented an IoT- and cloud-based space-optimization system that provided for real-time data and algorithmic processing to make desk assignments. As a result, desk occupancy rates and workspace utilization improved across the more than 500 U.S. locations. This helped the company shed $1.2 billion in facilities and energy costs in the first year.

Our approach

We recognized that the function required central administration to gain insight into employee work habits, lessen its real estate footprint, and monitor security and compliance. We deployed a platform-based IT architecture with the capability to scale with large volumes of data ingestion. We integrated the IoT solution, which comprised device management tools, reporting features, dashboards and workflows. The solution essentially captured space-usage data to improve demand forecasting and the user-scheduling experience. Desk locations and users' devices are now mapped to track use rates with the aid of occupancy sensors and workstation usage analytics, which provide intelligence on productivity rates. The system also ensures compliance and provides insights that inform global real-estate planning.

Results

- Boosted space utilization rates in corporate hubs from 65% to 80%.
- Reduced the full real-estate footprint by more than 20%.
- Saved $1.2 billion annually and an expected $3 billion or more over three years.

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Waste not, want not
Retrofit extends asset value

The challenge

Food waste is a massive global supply chain issue, resulting in billions of dollars lost. Poor temperature control in storage equipment can cause spoilage. Additionally, inefficient equipment can drive up energy costs and their upkeep is costly and labor intensive.

A grocery retailer with locations on five continents was losing more than $750 million a year to food spoilage. Each store relied on multiple refrigerator and freezer units, ovens, and HVAC and lighting systems. Work orders were placed and handled manually, burning thousands of hours annually. Also, 60% of work orders involve third-party service technicians, requiring further manual administration.

The solution

We implemented an enterprise IoT platform to monitor and manage the thousands of refrigerators, freezers and food-service ovens, along with store temperature controls. Each store, on average, now has 1,500 sensors and various systems that generate more than 100 million alerts yearly to adjust refrigerator temperatures, close doors, change HVAC settings (based on external temperatures), and dim or turn off lights.

Our approach

The IoT platform aggregates and analyzes data at the edge and then standardizes device data to allow for monitoring and automatic remote control using algorithmic decision-making. The analytic algorithms also automatically triage service alerts, classify device data and inform preventative maintenance, as they account for conditions such as temperature, workload, food type and changing energy costs.

Results

- Proof of concept deployed in 200 stores with plans to roll out to 5,000 stores by 2020.
- Forecast 40% reduction in food waste costs in 2019, with an estimated $18 million cost savings at project completion.
- Automated 87% of work orders, reducing service response times from 36 hours to less than 4 hours.

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Innovation for renovation: Vision for smart building management

The challenge

Managing real estate portfolios is a mighty challenge, but when you add in century-old residential buildings, the task can be daunting. These property owners need engineers and staff at each facility to service the aging equipment, monitor the varied BMS capabilities, and perform daily maintenance.

A global real estate investment trust (REIT) that owns thousands of individual rental units in more than 75 buildings — most of which have been under management for nearly 80 years — faced high overhead and personnel costs and inefficient performance. It also had multiple resources with similar skill sets managing operations across the portfolio.

The solution

We demonstrated how digital connectivity could optimize operations, lower overhead and maintenance costs, conserve energy, and enhance the tenant experience to make the properties more desirable places to live and work. We provided a roadmap to leverage IoT solutions and produce a higher return on investment (ROI) by better allocating resources and establishing key metrics and scorecards that tracked performance and quantified improvements. We worked with the client team to define the vision for their Smart Building journey and key strategies to deliver at each phase of the program.

Our approach

We assessed improvement opportunities along three axes: asset management, community experience, and energy use monitoring and management. Our multiphase plan incorporated auditing building operations, which included inspecting systems, equipment and amenities; reviewing security and safety; and identifying opportunities to improve energy use and resource allocation. We added sensors to improve coverage, streamlined the BMS, upgraded processes for amenities, implemented intelligent building systems that scaled across the portfolio, and created dashboards to alert management to key issues.

Strategy phase outcomes

- Identified ROI for 75 metro-area properties comprising more than 10,000 units.
- Designed a digital platform to aggregate data from multiple BMS platforms.
- Created a portal for operations and energy monitoring, with metrics to measure the tenant experience.
- Next phase in development identifies various domain areas for transformation utilizing their BMS, to define the target end-state system and foundational architecture.

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Digital never rests
A complaint-free experience

The challenge

Shared restrooms receive near continuous use — and a bad experience, facilities wise, is never acceptable. Hygiene, maintenance and restocking are important elements — yet often overlooked — of washroom facilities management.

A personal care products company with 41 global manufacturing facilities and sales in more than 150 countries asked us to pilot an intelligent restroom solution that it could offer large commercial buyers of its products. The company sought to offer a complaint-free experience of its products, for restroom users, that also reduced servicing costs for the customer.

The solution

We designed a network of connected sensors for smart dispensers that gathered consumption and supply-level data in near real time — from soap, paper towels and tissue to water temperature and supply. Featuring predictive analytics, the system helped monitor supplies and functionality, automate scheduled replenishment and ensure timely service to prevent supply outages.

We deployed an intelligent restroom system that included an application built on top of our 1Facility platform. The solution was initially installed for 30 buildings. Our solution interfaced with sensor-enabled bathroom entrance doors to capture usage patterns and provided quick access to service personnel as needed.

Our approach

We helped the company shape and deploy its innovative approach by creating solution prototypes and pilots.

We redefined the business process by enabling real-time, ground-zero information on the consumables and initiating the customer replenishment cycles. This digital approach eliminated the need for middlemen to manage these operations.

Results

- Reduced dispenser failure complaints by 90% with advance alerts.
- Reduced consumables inventory 33% by predicting stock levels.
- Reduced consumables consumption 20% by lessening premature refilling.
- Reduced operational costs and time spent servicing restrooms by 10%.

Fast food. Fast company. Fast compliance.

The challenge

Global restaurant chains lease vast real estate — often in high-price metropolitan areas. Assessing value and reporting on those assets is a complex financial undertaking, especially considering recent changes in lease accounting standards by the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB).[1]

For one of the largest multinational quick-service restaurant chains with 35,000 locations, we helped rapidly transition the company to a lease reporting platform that could integrate with the enterprise accounting system. The new system would help address the volume of leases and quality of data that enabled the company to comply with new financial reporting standards in a timelier manner.

The solution

We implemented an end-to-end leasing accounting module based on IBM's TRIRIGA, a real estate management platform. Deploying an Agile development approach, we used BURT, Linux and WebLogic with an Oracle database. We customized the platform's data repositories and conformed the company's disparate data — including those for lease agreements and terms, journal entries, borrowing rates and lease treatments.

Our approach

We enhanced IBM's TRIRIGA and designed interfaces to import borrowing-rate and journal-entry data into the enterprise accounting system. We tailored the tracking capability of the asset lease accounting subledger to generate journal entries for ASCs 840 and 842 under U.S. Generally Accepted Accounting Principles (GAAP) as well as for IAS 17 and International Financial Reporting Standards (IFRS) 16. Dedicated teams handled the software upgrade, interface design, data-quality support and development for lease financial reporting. The client can now more readily comply within the regulatory timeframe and further customize lease reporting as needed.

Results

- Reduced trouble tickets by 10% by automating access provisioning.
- Drove greater efficiency with root-cause analysis leading to 35 fixes across functional areas.
- Increased performance of system data runs by 15x and batch integration by 10x.

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Building intelligence yields better performance

The challenge

Offices are becoming smart spaces that can adjust to evolving needs on the fly. Nowhere is this truer than in shared-space incubators, serviced offices and short-term rentals.

One of the world's largest providers of serviced professional spaces to short- and long-term clients sought to centrally manage its widely dispersed portfolio of properties so it could automate billing; monitor revenue and profitability; track services consumption, security and energy use; and gain insight for future planning.

The solution

We developed an enterprise-wide, cloud-based solution that relied on newly installed equipment sensors that gather and process edge-device data, including occupancy rates by zone, parking space usage, temperature and humidity, as well as lighting and energy use. The solution integrated these metrics into the enterprise information systems, allowing for remote management while providing alerts and dashboards to manage emerging issues.

Vendor-agnostic, modular and extensible, our solution created a secure data lake that used intelligent analytics to catalog and analyze data. The network-connected system allowed the company to remotely manage gateways and sensors across its geographic footprint, and provided unified, real-time visibility across its facilities and operations. An adaptable template enabled the onboarding of more than 3,000 properties with more than 70,000 offices and 500,000 monthly users.

Our approach

We conducted site surveys and stakeholder interviews to assess the company's current state, understand its technology and infrastructure challenges, and define a desired future state. We then applied our 1Facility methodology to customize its services and also installed sensors connected via cloud-based telemetry on Microsoft Azure to process the enterprise data.

Results

- Onboarded 3,000 properties, with 70,000 offices to the Smart Building platform.
- Projected 20% top-line growth by 2022.
- Reduced unutilized space at peak times by 40% in year one.
- Increased desk utilization and occupancy by 25% in year one.
- Created 10% more workspace by remodeling based on usage input.

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The grass is greener — on the digital side

The challenge

For organizations that own or lease many facilities, lighting and managing humidity can cost millions of dollars annually. Environmental costs are rising and buildings are a big energy draw consuming 42% of all electricity, 50% of which is wasted.[2]

An owner/operator of a commercial-industry office complex asked us for a solution to lower its costs for lighting and HVAC, which together consumed 17 gigawatts — equivalent to 13,000 tons of CO2 emissions. Management received 750 monthly requests to adjust temperatures and employed full-time staff simply to walk the complex, close blinds and turn off unused lights.

The solution

We implemented an IoT solution based on our 1Facility methodology, creating an office complex that thinks for itself — automatically adjusting temperature and lighting in rooms by sensing whether they're in use. Our solution integrated occupancy sensors, door swipes, power meters, and temperature and lighting sensors and controls into a cloud-based BMS that automates building management based on custom algorithms.

The intelligent platform adjusts to environmental knowns and unknowns in real time to address changing space usage by monitoring occupancy data, comfort and fluctuations in energy consumption. It provides analytics to optimize the space layout and management, monitor and predict equipment maintenance needs, and forecast future usage and costs.

Our approach

Our phased implementation included stakeholder interviews to frame the challenges, identify quick wins and develop a strategy for digital integration. We also evaluated options for sensors, gateways and controller equipment to deploy a fully integrated BMS/IoT solution, then supervised procurement and installation, established baseline values for ROI, and configured hardware and connectivity with customized microservices for energy management.

Results

- Reduced HVAC costs by 12%.
- Lowered lighting costs by 17%.
- Achieved a 200% ROI in three years.

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Make the smart move

Make the smart move for your building portfolio with a solution that addresses the needs of your business and is scalable, secure and future-proof. To begin your smart space journey, contact us at www.cognizant.com/iot.

Endnotes

[1] The U.S.-based Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have since the early 2000s been converging their respective accounting standards: U.S. Generally Accepted Accounting Principles (GAAP) and the International Financial Reporting Standards (IFRS).

[2] Source: The United States National Science and Technology Council.

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Learn More

For more information and to view our full library of client case studies, visit www.cognizant.com/case-studies.

About Cognizant Digital Business/Connected Products

Cognizant Digital Business helps our clients envision and build human-centric digital solutions, fusing strategy, intelligence, experience and software to drive industry-aligned transformative growth. As emerging technologies like IoT extend across the enterprise, factories, supply chains and beyond, as well as in our everyday lives at home, school and work, clients across industries are seeking Cognizant's expertise to advance and implement their IoT strategies. IoT, combined with applied analytics and intelligence, is helping them deliver greater business performance, products, and service offerings, all leading to superior customer experiences. To learn more, please visit www.cognizant.com/iot or join the conversation on LinkedIn.

About Cognizant

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 193 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us @Cognizant.

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