



Maximizing Business Value: Exploring IoT possibilities in FM

Insights to help facility managers and other real estate professionals unlock IoT opportunities for cutting-edge smart building strategies.

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Introduction:

Unleashing the long-awaited potential of IoT

For years, Internet of things (IoT) has consistently made it onto Gartner's [list of top ten technology trends](#). But the true impact of this transformational tech is still unfolding. And while the full potential of IoT has not yet been reached, it has remained at the forefront of business conversations as an exciting technology, poised to fundamentally transform the global economy.

Every year, more and more leading companies in industries that stretch from manufacturing to medicine are embedding IoT into their business plans and infrastructures. Real estate and facility management sectors are no exception.

These sectors are turning to IoT, driven by the ambition to lower costs, digitalize their operations, and enhance their sustainability credentials. Predictions show an astronomical [29.4 billion](#) IoT devices by 2030. That's not to say businesses should adopt IoT projects just for the sake of it. Instead, they would be wise to adopt a holistic and data-driven approach to support corporate goals - both now and well into the future.

The focus is now on how an IoT tech stack can be optimized within the built environment, forming the heart of a comprehensive smart building platform. This approach finally uncovers the long-awaited potential of IoT solutions.

In this e-book, we delve into the opportunities IoT presents for facility managers and real estate professionals. We address the challenges that still need conquering, and lay out the practicalities of implementing IoT and Digital Twin technology in the built environment.



Section 1:

IoT for smart buildings

IoT is no longer a distant future

The fascinating reality is that IoT is no longer a futuristic concept. It has become ingrained in our everyday lives, from consumer products to business operations. Whether it's your home appliances or your office HVAC system, IoT is the underlying force connecting them.

In our digitally-inclined world, employees yearn for their workplace technology to be on par with their personal gadgets. And the Covid-19 pandemic has only intensified this shift, fast-tracking digital transformations globally and breeding a culture of remote collaboration and hybrid work. Amidst this change, IoT projects are flourishing.

IoT's positive impact is evidenced by real results. A study by MIT computer scientist Sandy Pentlan showed that smart badges worn by call center employees resulted in an **18%** increase in employee communication, a **19%** stress reduction, and a **23%** surge in completed calls.

Leaders are embracing IoT technology (and any associated costs) because the advantages are undeniable. Royal Dutch Shell implemented a smart asset monitoring and maintenance solution that delivered a return of **over \$1 million**. Telecom firms have amassed **\$11 billion** in revenue during 2022 alone through cellular IoT connectivity services. As the average cost of IoT sensors falls further (as it has done **over the last two decades**), the business case for IoT projects becomes all the more compelling. In this climate, it's no surprise that the global IoT market is predicted to be worth **\$483 billion** by 2027.

As smart devices become increasingly prevalent, businesses are challenged to modernize their technology infrastructure and harmonize a myriad of tools from diverse vendors. For example, individuals can now monitor their physical activity and potential health risks with smart health monitors. Simultaneously, real estate owners are employing smart building technology to regulate various factors within the built environment, be it lighting, temperature, security systems, cleaning schedules, and more.

At Planon, we resonate with [Gartner's definition](#) of IoT as a network of dedicated physical objects (things) with embedded technology to sense or interact with its internal state or external environment. This holistic IoT ecosystem comprises things, communications, applications, and data analysis.



“Speaking specifically about IoT for building operations, we are referring to the integration of IoT technology within buildings for monitoring and controlling various building assets like space availability, energy management, and the condition of cooling systems.”

- Erik Jaspers, Global Product Strategy Director at Planon

IoT for building operations

By facilitating information exchange between devices and systems, IoT solutions represent a perfect fit for the built environment. They can communicate real-time data without human intervention, integrating information from disparate sources into a unified platform.

After this IoT data has been collected, analytics can be employed to evaluate information and deliver actionable insights via dashboards. IoT offerings can be used to monitor assets remotely, automate system controls and optimize equipment performance.

Firms are implementing IoT platforms to increase the visibility of building operations and realize real estate strategies. Incorporating hardware, software and communication technologies, IoT solutions in the built environment consist of five distinct, but integrated components: Devices, Connectivity, Data, Analytics, and Applications.

Collectively, these components are transforming the management of building stock around the world. In recent times, discussions around how best to employ IoT solutions within a smart building have shifted somewhat, driven by technological and market changes. As such, several trends have emerged. These trends reflect the areas where IoT can add value for facilities and real estate management.



Emerging trends in IoT



Trend: Growing demand for real-time data to streamline building operations

The accelerating need for real-time data insights is presenting new challenges for corporate real estate, facility, and workplace leaders. Understanding how buildings operate and are utilized, while ensuring the needs of workers and occupants are consistently met, has become a top priority. This shift is driven by various factors within the built environment.

Workplace and facility management applications are increasingly reliant on real-time sensor data. These devices need to be accurate, reliable, and resilient, while seamlessly integrating into enterprise IT and operational technology (OT) architectures. Additionally, buyers now prioritize measurable business outcomes delivered by IoT, shifting their value expectations from technology alone. Consequently, the true value of real-time data lies in its application within systems capable of responding to it instantaneously.



Trend: Evolving workplace practices and expectations - health and safety and hybrid working models

The demand for IoT solutions in the built environment is on the rise, propelled by multiple factors. One prominent factor is the heightened emphasis on occupant health and safety that has emerged in the wake of the pandemic. Presently, there is a growing focus on addressing safety and security concerns related to managing occupant health, encompassing areas such as indoor air quality, touchless controls, and density management.



Trend: Rising demand for energy-efficient and sustainable buildings

Sustainability can no longer be ignored. Reduced energy consumption and decarbonization are growing priorities for building owners and occupiers. As such, there is a desire to automate building operations for greater efficiency, resilience, and demonstrable data on sustainability performance.



Trend: Unleashing business growth with IoT

IoT adoption is evolving, shifting its focus from providing business resilience and continuity in the aftermath of the global health crisis. Today, the emphasis is on leveraging IoT to drive business growth. The contribution of IoT to revenue generation is now on par with its renowned operational efficiency benefits.

IoT solutions go beyond risk mitigation and workplace safety. They empower business leaders by harnessing organizational data, unlocking unforeseen value and driving innovative strategies for business growth.

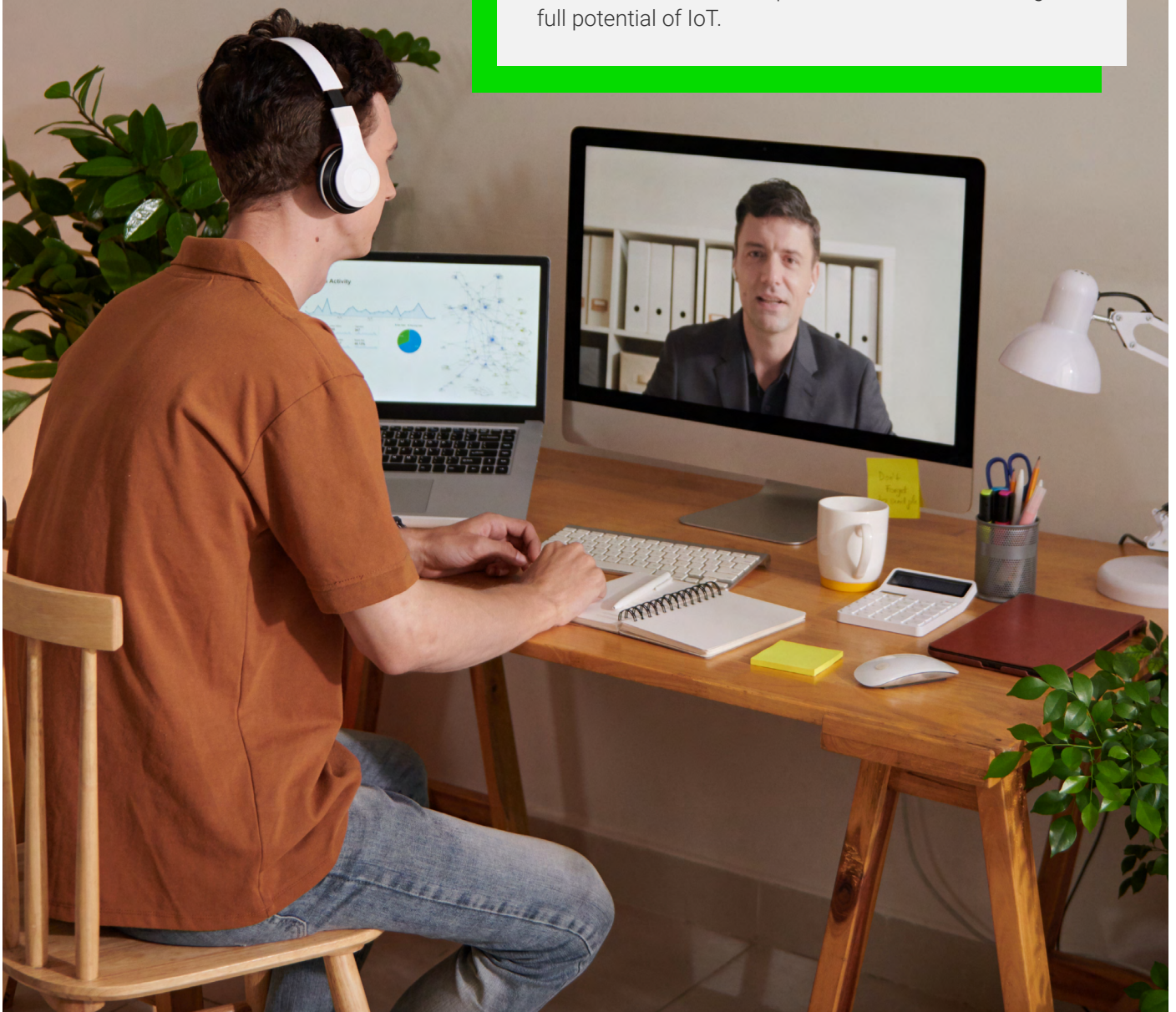


The IoT boom: Culture and technology converge

The demand for IoT solutions is driven by the transformative impact of changing workplace practices. Hybrid and remote work have reshaped the traditional office, necessitating a deeper understanding of behaviors and effective support for flexible arrangements. Future workspaces will be dynamic and analytics-driven.

Alongside evolving workplace practices, a cultural shift is fueling IoT demand. IoT technology is gaining wider recognition and accessibility, with individuals embracing smart devices and services for their benefits. Modern expectations prioritize seamless experiences, which IoT solutions can deliver.

As culture and technology align, the IoT boom reshapes our work and interactions. This convergence revolutionizes various aspects of our lives, unlocking the full potential of IoT.



Section 2:

The business value of IoT for facility & real estate management

The business value of IoT within facility and real estate management is overarching, empowering professionals to better understand how their buildings, workplaces and assets actually operate. Breaking this value down, it's clear that IoT for facility & real estate management can add specific benefits around the following themes:



Cost-saving

IoT can boost efficiency and improve decision-making, leading to cost savings in several areas. For example, smart devices can be used to identify consumption peaks and receive automatic notifications for exceptional energy use to identify cost-saving opportunities. IoT sensors can also enable real estate owners to monitor system performance so predictive maintenance can be carried out, enabling them to avoid costly periods of downtime.



Sustainability

Facility and real estate management professionals are being driven to increase the sustainability of the built environment - by occupants and regulators alike. IoT can support them in this task by decreasing the need for resources, allowing them to reduce their use of space, for example. As well as using resources in the most efficient way possible, IoT can support the sourcing of greener buildings and building assets.



Hyper productivity

There is a growing need to find a balance between personal productivity and optimal space productivity. After all, a high level of underutilization is not sustainable. This is also about maintenance uptime and optimized energy usage of building assets.



Race for talent

IoT can be a competitive advantage when it comes to recruitment and retention. By leveraging IoT technology through the better utilization of space and by providing workers with a frictionless experience (and preventing wasted time), it becomes easier for businesses to present themselves as the employer of choice.



Business growth for service providers

IoT adoption presents service providers with opportunities for business growth, especially in the area of hyper productivity, enabling substantial cost savings. By eliminating manual data entry tasks and streamlining processes, service providers can significantly boost their revenue. Leveraging IoT technology can also help service providers with better management of carbon emission reduction projects, improving asset uptime through just-in-time maintenance, or providing usage-based services which contribute to building user experience.



Exploring the business benefits

The main drivers for implementing IoT projects all lead back to the potential for systems, people productivity, and process improvements. With regard to systems, IoT can enhance data management in terms of an organization's people, smart devices can support improvements to workplace productivity, and concerning improvements, IoT can add automation that can drastically speed up processes and eliminate waste.

But while the underlying drivers may be consistent, the impetus for increasing IoT spend has heightened. For example, EY's [Reimagining Industry Futures Study 2023](#) found that the most important drivers for IoT spend are the creation of new use cases, products, and services (cited by 33% of enterprises), business model overhaul (30%), and adjacent market entry (28%). These factors are increasing in importance.

According to the [Verdantix Buyer's Guide for Smart Building IoT Platforms](#), firms can utilize IoT technology to help them meet their strategic business objectives. In this regard, IoT solutions can help in various ways, including cost reduction, sustainability performance, and employee experience, as well as occupant health.



Today, there are a number of benefits to be gained from using IoT within the context of a smart building, including:

- **Optimizing asset utilization:** By effectively utilizing, deploying, and managing (technical) building assets, real estate costs can be significantly reduced. Facility management teams prioritize cost reduction and operational efficiency, and IoT use cases can support proactive asset and maintenance management. This includes leak and fault detection and monitoring asset conditions.
- **Decarbonizing portfolios:** IoT devices can monitor the environmental, social, and governance (ESG) performance of buildings, helping identify areas for improvement and sustainability initiatives.
- **Enhancing working conditions and employee experience:** IoT contributes to improving the experience of building occupants, as well as promoting workplace well-being and safety. This in turn, leads to increased employee productivity.
- **Space optimization:** Organizations can leverage IoT for people counting and monitoring occupancy levels. The growing trend of hybrid working serves as a driving force for space monitoring software, in addition to the goal of reducing real estate costs.
- **Strengthening compliance:** IoT solutions provide valuable data for ensuring food safety, maintaining water quality (e.g. preventing legionella), and obtaining green building certifications.
- **Cost reduction and operational efficiency:** These have long been focal points in facility management, and investing in building technology continues to be supported by these key elements.

Why now?

Business versus technology

Although some examples of IoT technology have been around for a number of years, there is now a growing urgency among businesses to adopt these solutions. Partly, this is due to technological evolution. Today, the technology exists to harvest, collate and analyze data in a seamless manner and at lower costs. The value stream is now clear.

The increasing relevance of data (combined with rising demand for this data) is driving IoT adoption. Economic factors are also pushing the importance of cost savings higher up the list of corporate priorities. The value that IoT data can create is likely to increase, as technology evolves further to incorporate developments around artificial intelligence and other technologies.



Source: Sustainable Development Goals, United Nations

Legislation is also driving the current impetus around IoT implementation. Cities from New York to Singapore have introduced green building targets to try to lower emissions. Whether sustainability is legally mandated or simply promoted, as with the UN Sustainable Development Goals, the direction of travel is clear. These regulations are requiring more accurate data and a better understanding of how buildings are performing. IoT sensors can help on both fronts.

Section 3:

Harness the power of IoT and Digital Technology

The important technologies surrounding IoT

The primary technologies driving the proliferation of IoT are artificial intelligence, analytics, and industry cloud platforms. Today, there is a shift among vendors from point solutions to comprehensive functionality coverage, as various technologies converge.

However, the true value of IoT solutions does not solely reside in individual sensors or meters but rather in the seamless interaction and integration of devices with building users and business processes. IoT platforms play a vital role in managing the connectivity between devices, acting as the cohesive element that binds the software and hardware of IoT technologies together. Consequently, IoT platform technology is rapidly catching up with other industry-specific software solutions, including IWMS, BMS, and BIM, as well as key software concepts such as Digital Twin.

The IoT ecosystem: defining some surrounding technologies

IWMS: According to [Gartner](#), Integrated Workplace Management Systems (IWMS) are software platforms used for managing the end-to-end life cycle of corporate facilities. An IWMS typically supports business processes in Real Estate Management, Asset & Maintenance Planning and Control, Space & Workplace Management, Services Management, Project Management, and Sustainability Management.

BMS: A [Building Management System](#) (BMS) is a control system that monitors and controls a facility's mechanical and electrical services, such as heating, ventilation, and air conditioning (HVAC), lighting, and power systems.

BIM: [Building Information Modelling](#) (BIM) is a shared data and knowledge platform, providing a basis for decision making during the entire life cycle of a building for all stakeholders involved. BIM software is used to create a realistic model of a building, enabling collaboration on a building's design, construction, and operation.



IoT platforms
play a vital role in
managing connectivity

Key applications: Introducing the concept of Digital Twin

To begin with, it is crucial to grasp the concept of a Digital Twin. Fortunately, the United Kingdom National Digital Twin Programme has provided a clear and easily comprehensible depiction and definition of what a Digital Twin entails, ensuring clarity and understanding.

In this description, the term ‘physical assets’ encompasses a broad range of tangible objects within your building, including individual components such as pumps or ventilators, entire floors, or even entire buildings.

This represents one facet of the ‘twin’ technology. The other aspect is its digital counterpart. For a Digital Twin to exist, there must be a corresponding physical entity in the real world, as it would be impossible to create a Digital Twin of something that lacks a physical existence.

According to their definition, Digital Twins are described as “realistic digital representations of physical assets that can be used to monitor and predict performance, feeding out insights and interventions. These insights lead to better interventions and unlock real-world value from assets through financial savings, improved performance and services, and better outcomes for society.”¹

Thus, a Digital Twin can be defined as a “realistic digital representation of physical assets, utilized for monitoring and predicting performance, offering valuable insights and enabling proactive interventions. These insights unlock tangible benefits from assets, encompassing financial savings, enhanced performance, and positive societal outcomes.”

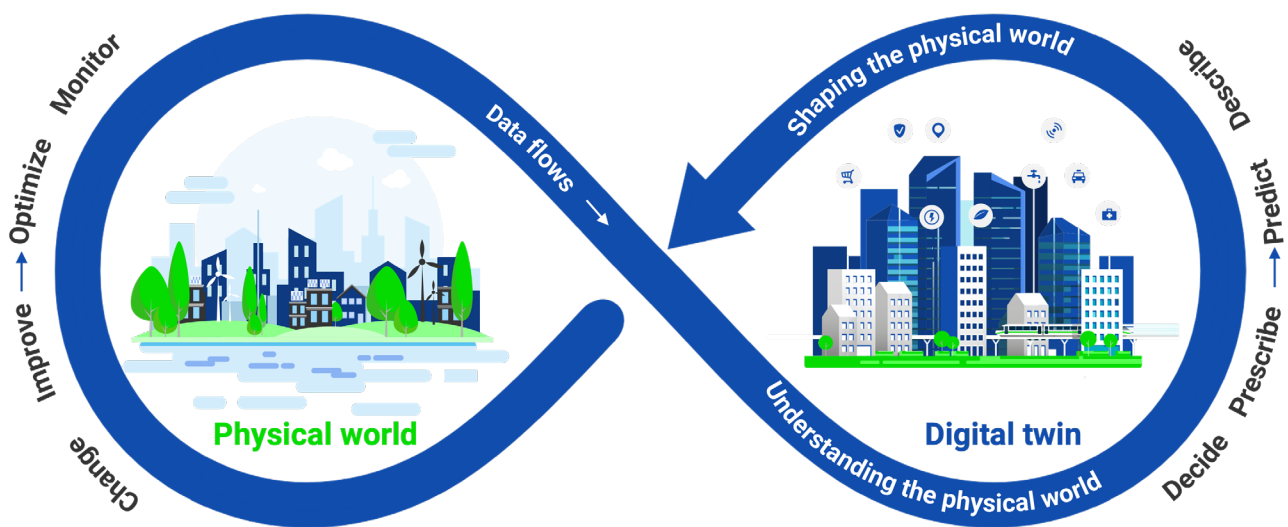


Figure: The principles of the Digital Twin, depicted by the UK National Digital Twin Programme

¹ UK definition as stated at: <https://www.cdbb.cam.ac.uk/research/digital-twins>

How Digital Twins simplify IoT

Digital Twins can be viewed as applications that operate on the IoT data they are connected to. Their purpose does vary substantially depending on their purpose. Even so, they all broadly follow the same principle - to provide an exact mirror of the operating conditions of a physical object. Digital Twins are updated in real time to match changes that occur to that physical object. As such, Digital Twins rely on a constant stream of data being sent from the physical object to ensure that they can continue to be a faithful representation.

This constant stream of data, fed by connected IoT devices, shows that a key area for IoT is in the building operation phase. After all, the purpose of IoT is the continuous monitoring and controlling of various systems in the building.

In this fashion, IoT is an intrinsic component of the Digital Twin for building operations as it interacts with components in the building and acquires data from them. The other part of Digital Twins is the logic that is supporting the decision-making regarding the best way to respond to a particular situation. Digital Twins are often paired with algorithmic software, business rules, and analytics solutions to help businesses derive useful insights. In this way, Digital Twins can be used for more things than just informing organizations of the present performance of an asset.

Why do Digital Twins matter?

Digital Twins can provide insights into the changes being made to physical assets - removing many of the concerns (and much of the risk) felt by asset owners. When we view Digital Twins as applications that can produce an immediate response to IoT data flowing into them, their value is extended. As a result, many digital transformation initiatives involve the creation of Digital Twins of physical assets.

Digital Twins are set for a rapid rise in uptake across 2023 and in the years to come. Evolving from specific applications to holistic management tools, Digital Twins will be used more and more to monitor and improve different aspects of a business. At the same time, real estate stakeholders will be able to enjoy pre-packaged Digital Twin use cases that can be plugged into existing IoT solutions. This allows them to scale as/when needed if they do decide to pursue a full-building Digital Twin.

Research by **McKinsey & Company** highlights just how prominent Digital Twins will become in the business world. An overwhelming 70% of C-suite technology executives in large enterprises are currently exploring and investing in Digital Twins. The technology is there - and so too is the business case.



Digital Twins are set for a rapid rise in uptake



The promise of Digital Twin technology

The role of Digital Twins is highly contingent upon the specific stage of the building life cycle in which they are applied. During the operations phase, for example, Digital Twins primarily serve as a monitoring tool. IoT-based monitoring, facilitated by sensors or connected smart devices, is deployed to track and analyze various metrics.

Digital Twins exhibit remarkable promise as a technology, enabling continuous monitoring of buildings and their components without the need for manual intervention. By leveraging IoT solutions to enable ongoing asset monitoring, coupled with the ability to interpret data and generate automated responses, a self-sustaining and self-correcting system is created. Buildings become capable of identifying issues autonomously and determining appropriate responses to rectify those situations.

When evaluating your IoT solutions and applying Digital Twin technology, it is advisable to prioritize areas that may pose a risk of discontinuation, potential future issues, or those that hold significant value for your workforce. This strategic approach ensures efficient resource allocation and focuses on areas critical to your organization's success.

Examples of Digital Twins in Facility & Real Estate Management

The deployment of Digital Twins is closely related to the primary purpose of the building. Numerous examples demonstrate how this technology is already being leveraged to assist facility and real estate professionals in their work.

Example 1

Space optimization



Digital Twins offer the capability to monitor various types of spaces, including meeting spaces, individual spaces, and manufacturing spaces. They enable the monitoring of environmental conditions within these spaces or the installations within them, ensuring compliance with desired standards. Therefore, Digital Twins serve as a valuable asset management tool, providing substantial benefits in terms of ensuring optimal conditions.

Example 2

Track the carbon footprint of your building



You can incorporate Digital Twins into your utilities management system by integrating them with your electricity, gas, or water meters. By doing so, Digital Twins can effectively monitor and track the carbon footprint of your building, enabling you to make informed sustainability decisions.

Unveiling Planon's Digital Twin vision

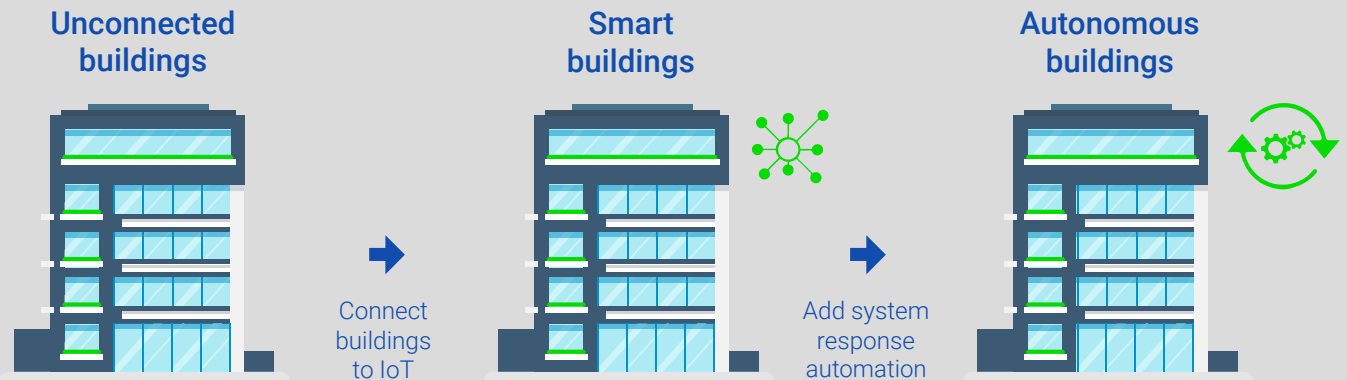
EXPERT INTERVIEW

Within this section of the e-book, we are delighted to present an enlightening interview with **Erik Jaspers**, Global Product Strategy Director at Planon. Dive into this interview to gain deeper insights into the world of Digital Twin technology and its profound potential to deliver added value within the realm of facility and real estate management.

What is the value of Digital Twins?

Erik Jaspers: By their principle and by their promise, Digital Twins represent the automated capability of systems to monitor whatever is in the building and only create a signal to people when an intervention is necessary. This way, buildings are enabled to basically identify what is wrong or what the situation is by themselves and are capable of defining a response to that situation. In this fashion, Digital Twins point the way towards autonomous buildings.

Planon Digital Twin for building operations



By integrating your buildings into an IoT network, you have the ability to transform them into smart buildings. However, when you further implement system response automation, you can elevate them to a new level, creating autonomous buildings; buildings that possess the ability to intelligently detect problems and initiate appropriate actions automatically, without the need for manual intervention.

What is Planon's vision for Digital Twins?

Erik Jaspers: Planon takes a different approach to what you typically see in the market in terms of defining Digital Twins primarily as applications that are connected to IoT and operate on the data flowing into it. This represents our 'Digital Twins for building operations' vision. Planon adopts the definition of a Digital Twin as used by the UK Digital Twin Programme: a digital representation of something physically existing in the real world (asset). Our Digital Twin for building operations combines continuous IoT-based monitoring, Fault Detection & Diagnosis (FDD), and System Response Automation (SRA).

Where is the IoT element?

Erik Jaspers: Buildings operate continuously, every second, minute, day, week, and year. This necessitates IoT solutions that continuously supply data to the Digital Twin, enabling the detection of anomalies in real time.

IoT on its own is interesting but cannot provide real value. IoT is just providing the continuous flow of data. The true value comes from business applications that are using IoT data and insights. It is essential to begin by identifying your business imperative or the specific problem you aim to solve or address.

IoT serves as the infrastructure, but it is the application that drives business value. When logic is applied to the data collected, the Digital Twin emerges as an application rather than just a model. A Digital Twin for building operations therefore goes beyond the definition of a mere model.

How can Planon support the smart building journey?

Erik Jaspers: When organizations seek smarter buildings, they are invariably dealing with some kind of challenge that they need to manage or address. These challenges manifest in various forms, and employing smart solutions based on Digital Twins and IoT can frequently yield significant benefits.

At Planon, Digital Twins lie at the core of our value proposition. The concept serves as a versatile foundation that can be applied across various domains and use cases to address a wide range of business challenges including energy and sustainability management, space management or asset management.

For professionals involved in facility and real estate management who utilize our software, the integration of Digital Twins and the connection of IoT devices to the respective assets and spaces within a building can greatly enhance building operations.

To facilitate businesses, Planon offers system apps on the platform, referred to as IoT use cases or Digital Twin types. Each of these applications is tailored to address a specific problem.

Can you give some exciting examples of Digital Twin applications?

Erik Jaspers: Digital Twins can be utilized for a range of purposes, but one that illustrates their benefits simply, is smart space cleaning, which enables your facility management team to move from planned cleaning to use-based cleaning. Based on real-time occupancy data, it optimizes cleaning efforts, reducing frequency while maintaining service quality.

At Planon, we have Digital Twin solutions for occupancy monitoring, utility metering, monitoring asset conditions and more. Ultimately, the most exciting example of using Digital Twins is simply tackling our clients' most significant challenges. That is what energizes us - not the technology itself. This principle holds true across all use cases. Digital Twins help provide understanding around a specific business problem and automate the solution in a sensible way. You don't put Digital Twins on everything just because the technology is impressive, but rather, you should only apply Digital Twins when there is a clear business case.

Our Digital Twin for building operations combines continuous IoT-based monitoring, Fault Detection & Diagnosis (FDD), and System Response Automation (SRA).

What future possibilities are to be expected?

Erik Jaspers: When examining IoT, the core concept revolves around connectivity and interaction. The most promising developments within the IoT sphere will revolve around linking tangible objects from the physical world to digital platforms. This connectivity will unlock a plethora of opportunities, including:

- Standardization of communication protocols (connectivity)
- Simplistic onboarding and offboarding tools (for manageability)
- Increased building controls (interaction by automation)

The concept of 'smart' has always been synonymous with connectivity. While a smart building incorporates IoT technology, it goes beyond that. A truly smart building possesses autonomous capabilities to self-monitor and respond to incidents and situations. Within Planon's strategy, the Digital Twin plays a vital role as a key component in achieving this vision.



“At Planon, we have Digital Twin solutions for occupancy monitoring, utility metering, monitoring asset conditions and more. Ultimately, the most exciting example of using Digital Twins is simply tackling our clients' most significant challenges. That is what energizes us; not the technology itself.”

- Erik Jaspers, Global Product Strategy Director at Planon

Section 4:

Exciting possibilities for IoT applications in your industry

Business value is always hard to determine because the use cases, goals, and measures of success can differ markedly between industries - and even companies. But although the business cases may differ, all IoT opportunities can be applicable to all business models, in-house or outsourced.

Given the breadth of IoT opportunities available today, many industries have reasons to be excited about the advantages that this technology could grant them.

These are the exciting possibilities that are highlighted:



[IoT for legionella prevention in public organizations](#)



[IoT for refrigeration in retail](#)



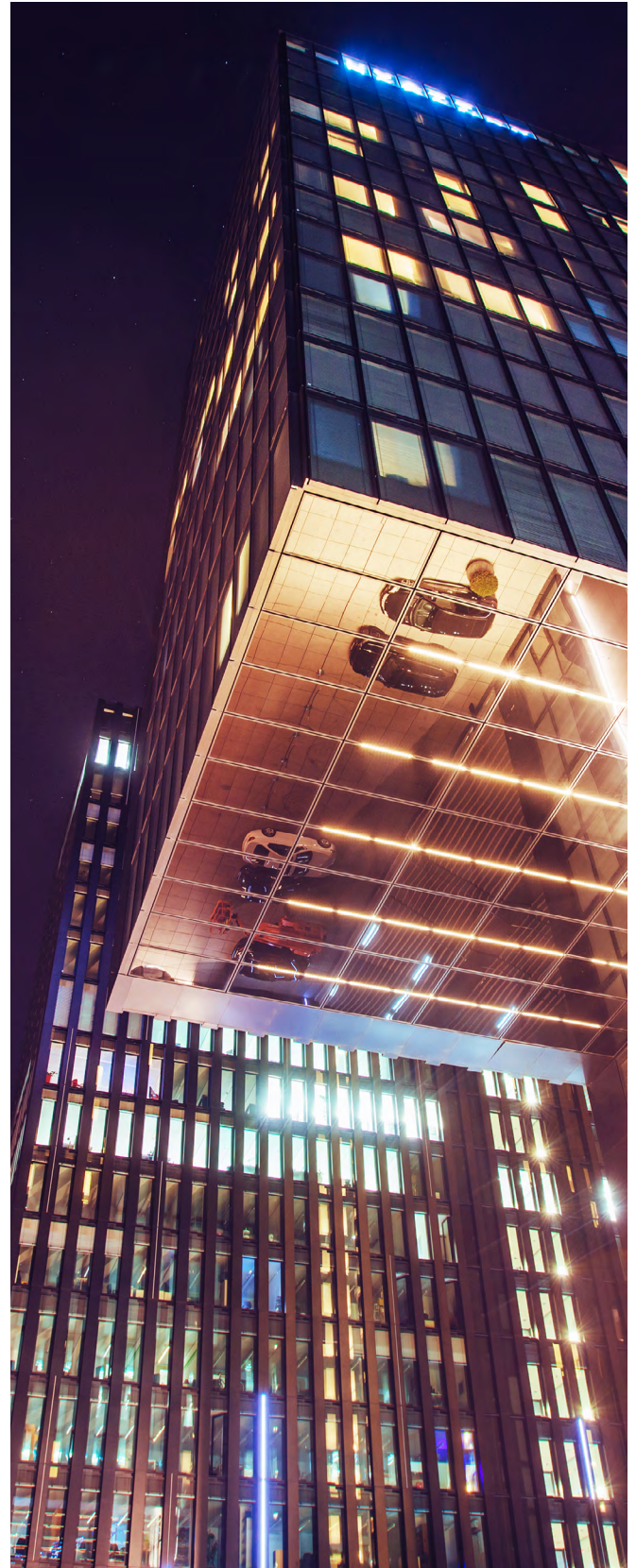
[IoT for asset tracking in healthcare](#)



[IoT for energy efficiency in corporate organizations](#)



[IoT for space optimization in universities and offices](#)



Exciting IoT possibility 1 – IoT for legionella prevention in public organizations



Industry: Public organizations such as universities, office buildings, or sports centers with shower facilities.

Why does IoT matter?

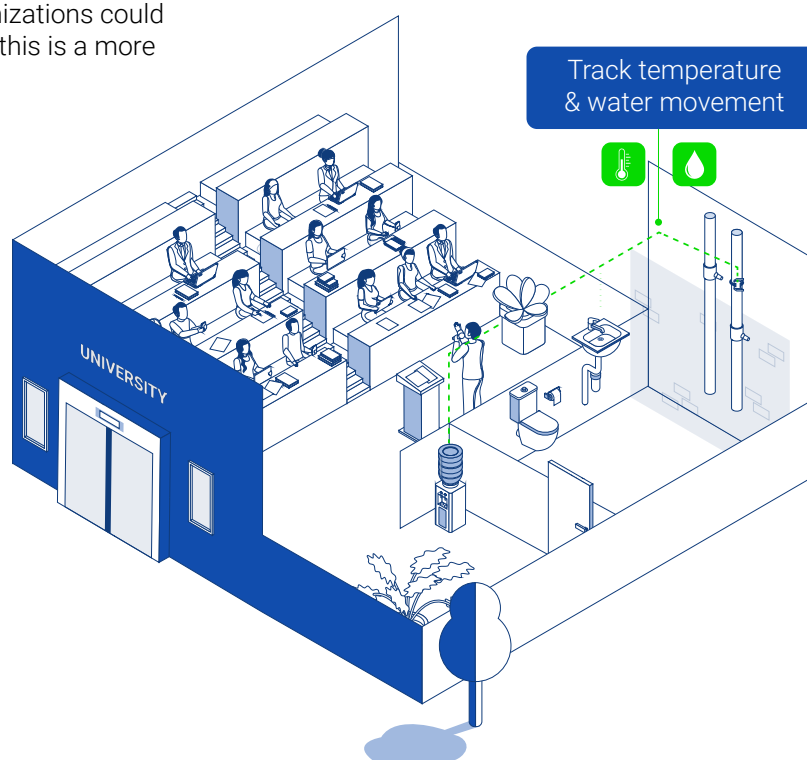
Legionella is a harmful bacteria carried by infected water droplets. To comply with health and safety regulations, public bodies face various legislative demands, depending on geography. Requirements often center on the regular flushing of water pipes at high water temperatures for a certain time - this is something that IoT solutions can assist with.

What is the IoT possibility?

IoT can prove, with demonstrable data, that businesses do not have to flush a particular pipe during a planned maintenance event because the water usage for that pipe has been recorded recently, guaranteeing the flushing for a certain time at a certain temperature during regular use and thus ensuring compliance. In this way, businesses only flush a pipe if they need to based on insights and according to regulations.

What does IoT measure?

Temperature. Every time you see a spike in the temperature for a certain time, it is clear that the pipes have been flushed with water. Organizations could alternatively install flow meters, but this is a more invasive process.



What is the business value?

Using IoT to ensure compliance provides savings in needless water consumption (as well as energy and CO₂ to heat it to the required temperature). IoT also lets businesses save in terms of the man-hours required for flushing and active checking. Organizations have no need to waste resources; they only flush when they have to.

For example, UPP, the UK's leading provider of on-campus residential and academic accommodation infrastructure, indicated that it receives 4,000 tickets on a monthly basis just related to tap checks for legionella compliance.

“It takes an average of **1,300 labor hours** each month to record tap temperatures and we are wasting around **53,000 gallons** of water per month conducting these checks.”

– Nick Tonge, Head of FM Systems at UPP

By adding sensors to the taps that will record a temperature on a frequent basis and signal back to the building system, tickets are only raised when necessary. This means UPP no longer has to use as many resources and needless water and energy consumption is prevented.

Exciting IoT possibility 2 – IoT for refrigeration in retail



Industry: Retail and organizations with their own company restaurant

Why does IoT matter?

These organizations carry a responsibility to provide healthy food. If, for example, a power loss over the weekend, unknown to the business, caused disruption to refrigeration units, this would negatively affect the quality of food, risking damage to employee or customer health. IoT temperature monitoring could avoid this issue.

What is the IoT possibility?

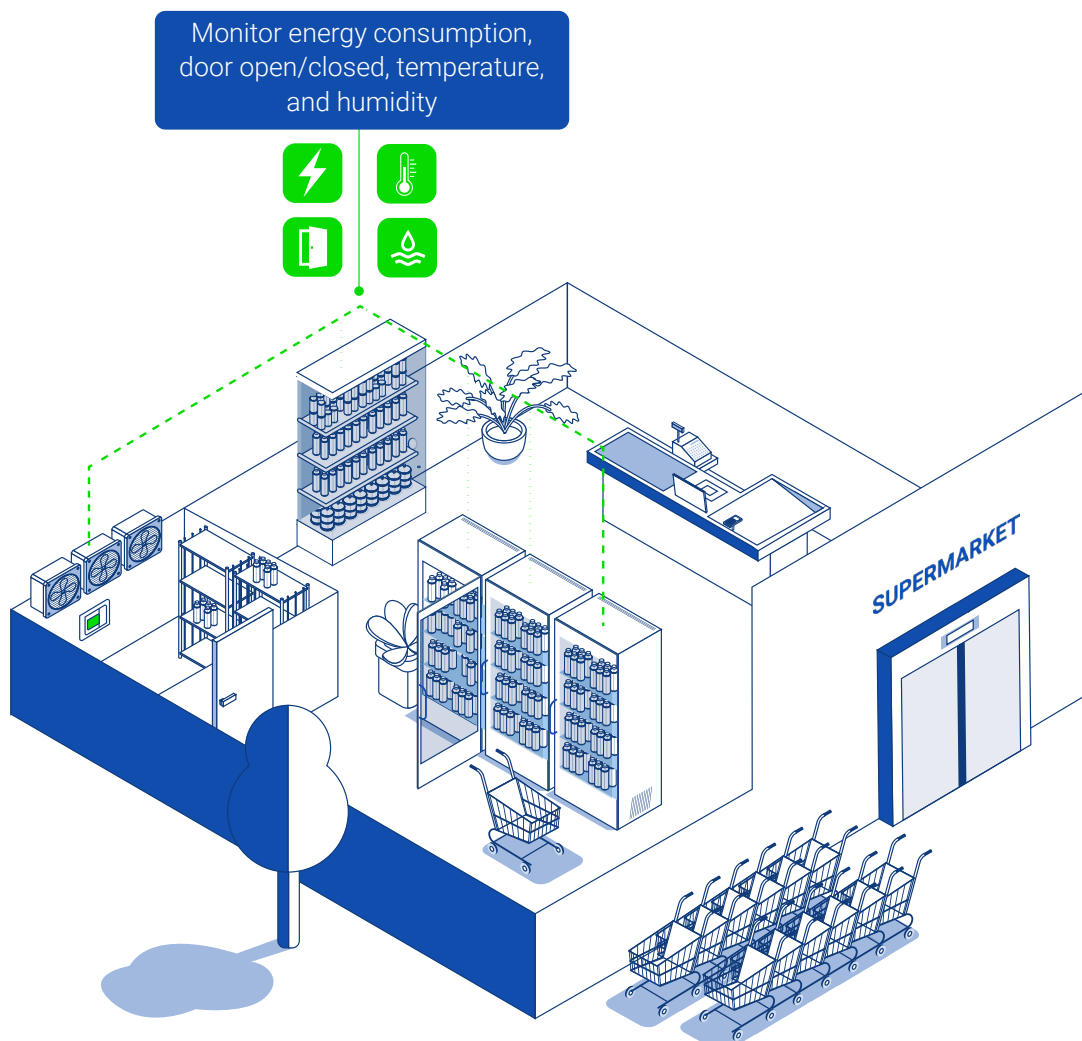
IoT sensors could prevent food waste in the retail sector, as well as any other business that relies on refrigeration. IoT also saves businesses from spending time manually checking refrigeration temperature.

What does IoT measure?

Temperature. Monitoring the temperature levels of refrigeration units can inform businesses when food is spoiled, or when maintenance should occur if values are being recorded outside agreed levels. A door sensor could also be used to create an alert when refrigerators have been left open.

What is the business value?

By maintaining the temperature of refrigeration units, IoT can save businesses large sums of money in food waste. IoT sensor data for triggering alerts, notifications and work orders can improve response times to a fault, help businesses prove compliance in terms of food storage, carry out predictive maintenance according to agreed service level agreements, and avoid the reputational damage that would be felt in the event of inadequate refrigeration leading to food poisoning.



Exciting IoT possibility 3 – IoT for asset tracking in healthcare



Industry: Healthcare, hospitals and other medical facilities

Why does IoT matter?

IoT provides visibility. It enables healthcare bodies to see the location of their assets. This is especially important for equipment that is subject to compliance standards such as medicine pumps.

What is the IoT possibility?

IoT in healthcare is generating excitement because of the added insight it provides. Solutions can ensure that medical equipment is present in sufficient quantities and certified. It also keeps stock better organized, so new equipment won't be ordered erroneously because the stock has been misplaced. Asset tracking has many other use cases outside healthcare too, such as fleet management. In addition, the value of IoT revolves around monitoring of critical support systems like Uninterruptable Power Systems (UPS) to ensure they are operating correctly in case of an emergency.

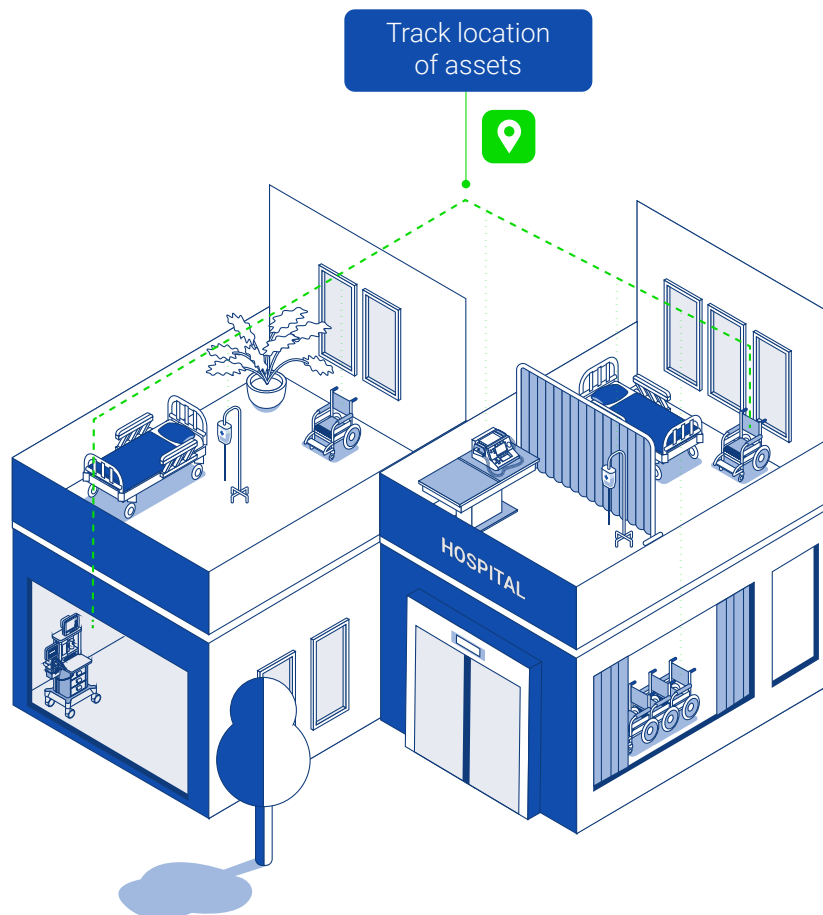
What does IoT measure?

Location. IoT sensors can measure the location of healthcare assets - usually with Bluetooth beacons or NFC gates. This will depend on regulations because hospitals can have strict rules around the use of radio waves. GPS tracking is also sometimes used for outdoor assets.

What is the business value?

Value goes hand in hand with risk. IoT technologies can help healthcare facilities ensure they have enough assets, such as wheelchairs, for their patients. For equipment that needs to be certified, the value comes from the fact that excess quantities of these higher-priced items do not need to be purchased. Asset numbers are optimized and fewer man-hours are needed to be used looking for equipment.

In addition, IoT technologies can support the remote monitoring of patients, measuring vital statistics and responding quickly in the event of an emergency, like a heart attack, by notifying the relevant medical professionals. By automating the collection of health data, IoT solutions can promote earlier intervention, potentially saving patient lives.



Exciting IoT possibility 4 – IoT for energy efficiency in corporate organizations



Industry: Corporate and public organizations

Why does IoT matter?

Many meters are not smart - they can digitally communicate, but lack an interface connected to the internet. This means the information cannot be pooled to take action on consumption. IoT takes away the need for manual labor because employees do not need to log energy measurements. It provides more detailed insights that can't be gathered through a simple spreadsheet.

What is the IoT possibility?

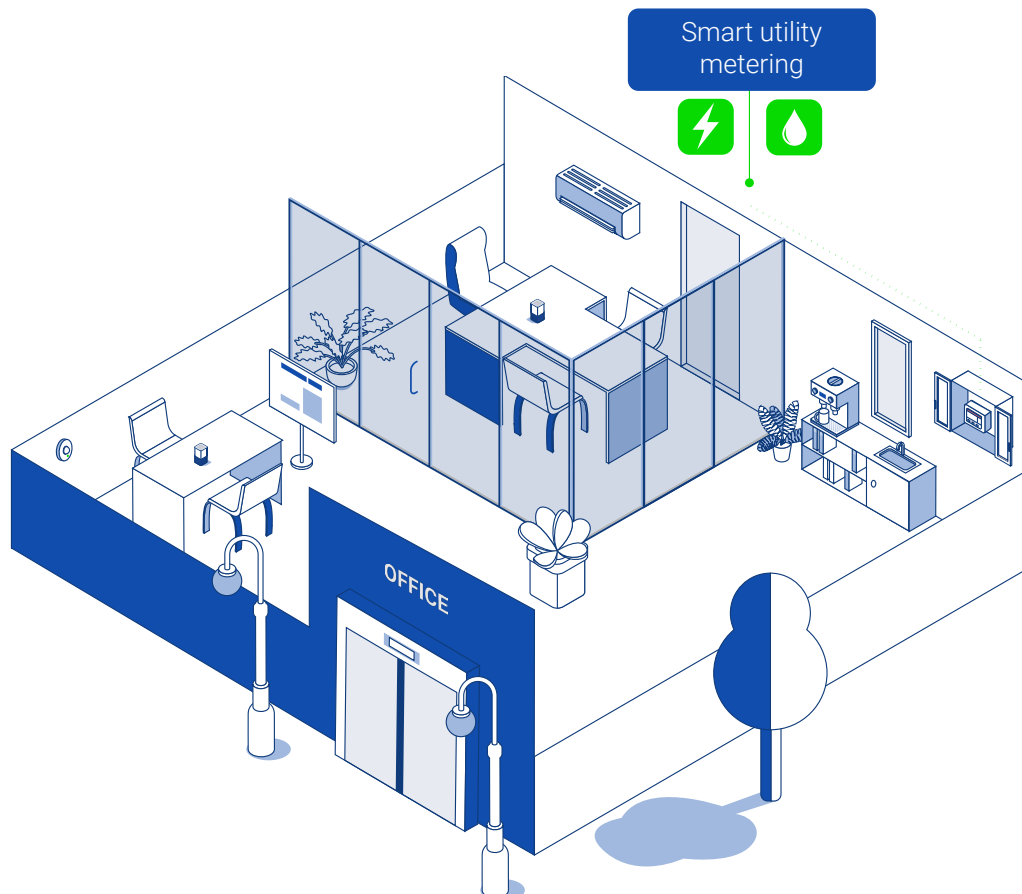
When combined with the square footage footprint of a building, IoT energy measurements can be employed for benchmarking and timely actions. The energy bill alone will not say anything about efficiency, but IoT can provide this insight and share alerts about actual energy waste to take immediate action.

What does IoT measure?

Energy consumption. Measurements of energy consumption are essential for reducing energy usage and meeting ESG (Environmental, Social and Governance) goals. If companies can show that they are reducing their energy consumption, they can demonstrate genuine impact.

What is the business value?

The IoT value comes from the possibility of saving energy. Less energy consumption means lower outgoings in terms of energy bills. Measuring the efficiency of individual appliances or areas within a particular building can guide businesses around when to replace or renovate assets - for performance and sustainability reasons. For service providers, the value is in identifying potential energy improvement opportunities by monitoring the performance of energy efficiency projects, or monitoring anomalies in energy consumption.



Exciting IoT possibility 5 – IoT for space optimization in universities and offices



Industries: Corporate and public organizations, higher education

Why does IoT matter?

Are you making optimal use of space? If universities or offices are being underutilized, buildings may be able to save on resources. IoT solutions can help optimized space utilization and resource consumption.

What is the IoT possibility?

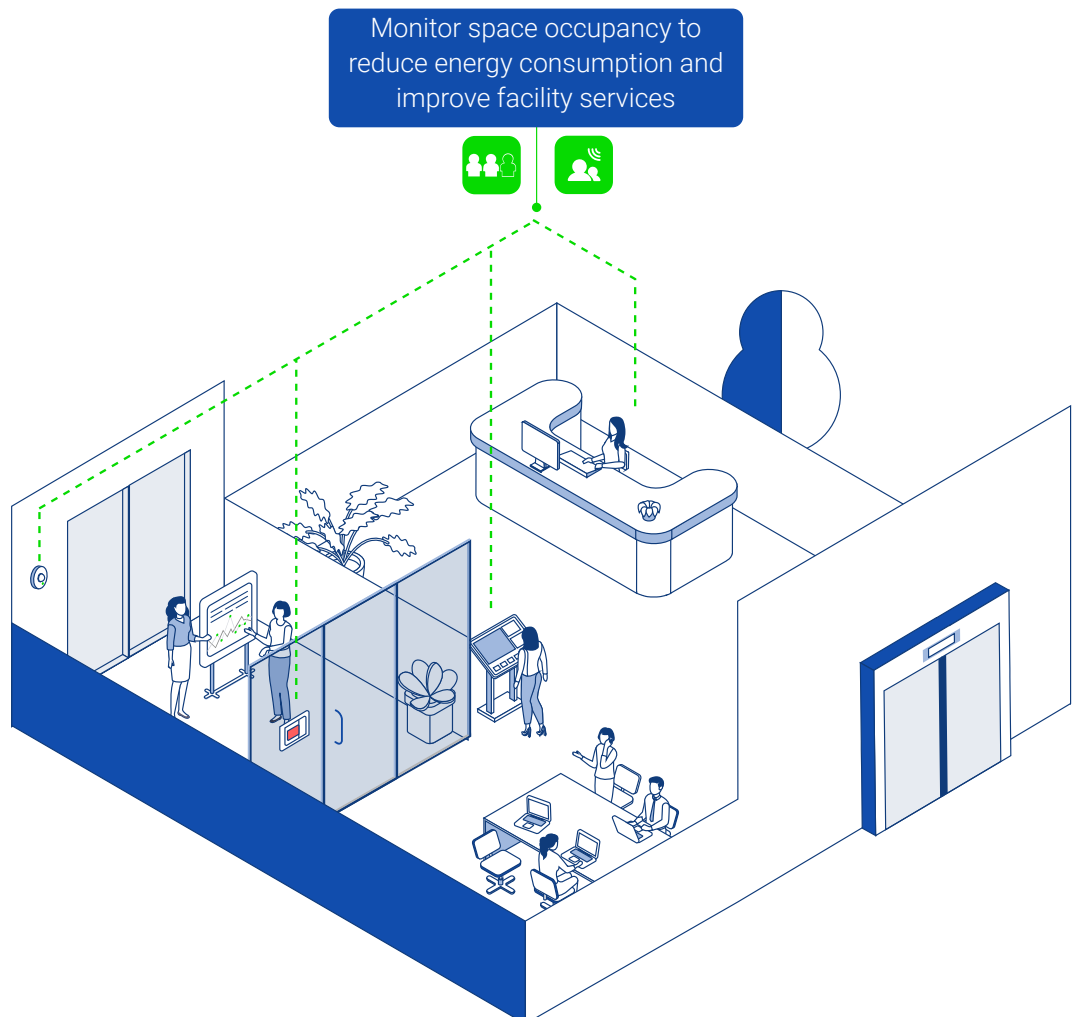
IoT can monitor occupancy levels, enabling businesses to reduce energy usage for areas that are not in use or provide use-based facility services. The technology can also lead to improved services and better facilities. For example, universities can use IoT to meet shifts in demand by tracking facility use, increasing or decreasing the number of meeting rooms or flexible workspaces.

What does IoT measure?

Occupancy levels. Having too many rooms is bad in terms of energy use, but having too few rooms has negative effects in terms of operational performance, user experience and productivity.

What is the business value?

To provide optimal performance, universities and offices need optimal facilities. Space utilization is key here and IoT solutions can provide insights for organizations into how resources are being used. Sensors can measure occupancy levels to reduce resource waste.





Closing remarks

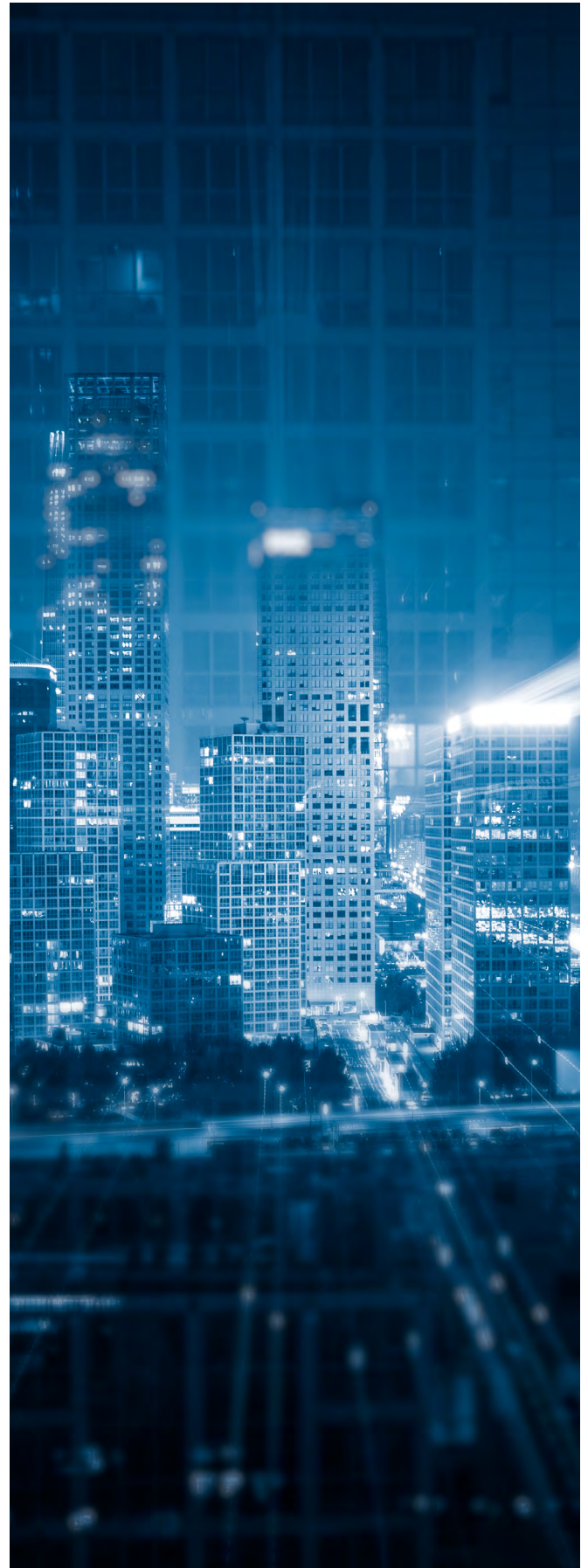
Embracing the IoT revolution

IoT technologies have moved from something visible on the distant business horizon to software solutions that are having major impacts today. They are creating business value across industries, being employed in healthcare, higher education, and beyond.

One of the areas where we are seeing great impact from IoT solutions is within the facility management and real estate sectors. More than ever before, technology promises to grant visibility into a building's resources and operations. This will have a profound effect on financial outgoings, sustainability, and the overall experience of the building occupant.

At Planon, we are leading the charge in providing IoT solutions that meet the many needs of an organization through an IoT platform. Our IoT-enabled platform combines IoT and Digital Twin capabilities to fit our clients' needs related to facility management and real estate, regardless of their industry. As the IoT space develops further, incorporating additional technological advancements, the opportunities within the built environment will only increase.

Businesses must be prepared to capitalize on the numerous benefits that IoT solutions offer, whether they pertain to space optimization, automation, energy consumption, predictive maintenance, or any other aspect. The future is IoT-enabled. Businesses must embrace it today.



Are you searching for an IoT solution that fits your requirements?

Planon is ready to help! Let's have a conversation today about how your organization wants to utilize IoT.

You can also use this Buyer's Guide from Verdantix to learn more about enterprise-scale IoT solutions for smart buildings.

The guide provides decision-makers responsible for selecting, implementing and managing building technology with an up-to-date analysis of 40 prominent vendors offering IoT solutions for buildings.

Get your free copy of this Buyer's Guide on the Planon website.