

# The Future of Sustainability for Facility Management with IoT

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## Introduction

According to data from the United Nations Organization (UN), in 2050 about 68% of humanity will live in cities. However, cities barely represent 3% of the planet's surface, and yet they consume 78% of the world's energy and produce 60% of all greenhouse gas emissions. To address this, the UN has already approved the New Urban Agenda to make cities more habitable, inclusive, healthy, resilient and sustainable places. And as new digital and intuitive technology becomes more readily available, this New Urban Agenda becomes more viable. For example, today we are already able to use data to optimise resources and facility management, and digitise our buildings, cities, behaviours and essentially our entire environment.

IoT is one of the major forces enabling us to accomplish this digitisation and to enhance the utilisation of devices and systems, with sustainability at the core. Organisations are quickly starting to realise that they can use IoT to reach their sustainability goals, spanning from improving the well-being of their building occupants to helping reduce waste and enhance processes and supply-chain workflows that affect the entire planet.



## Why IoT for sustainable facilities?

A report published by Ericsson concluded that the use of IoT has the potential of reducing emissions by as much as 63.5 gigatons by the year 2030, should all industrial sectors participate. Consumers are passionate and vocal about sustainability as well, with as much as 87% preferring to buy from companies who are environmentally and socially responsible, and 76% willing to boycott companies who are not. IoT is destined to be an enabler that will help industries reduce their greenhouse gas emissions and increase their energy efficiency. And not every sustainability initiative has to be a huge undertaking with a large budget. Just reassessing how you can infuse more sustainable actions in everyday processes and maintenance tasks can add up to huge gains for organisations in the long-term.

For example, lighting is one area that consumes a considerable amount of energy. Many companies are implementing measures to improve their lighting efficiency. With the use of IoT-enabled smart lighting sensors, lighting becomes smarter and more responsive, automatically turning on and off lights based on the presence or absence of people. These smart lights can detect the presence of occupants or can adjust the intensity of the lighting depending on the how much natural light is available, or based on the time of day, or the environment.





Additionally, many industries rely on efficient heating and cooling systems to reduce their carbon footprint. There are multiple ways in which these industries can consume less energy, from proper maintenance of air filters to air ducts, and other HVAC equipment. Efficient HVAC maintenance is a standard in many industries, and many government regulations won't allow installations without adhering to these. Using IoT devices like smart thermostats, smart plugs, and other devices can significantly reduce the consumption of energy and reduce carbon emissions.

**It's also important to point out that these improvements to lighting or HVAC equipment may not be the first thing you think of when you think of sustainability – but every facility manager should be aware of their critical role in this, and recognize that these examples are related to an organisation's greenhouse gas emissions.**

IoT presents new opportunities that help utilise energy storage, maximise energy efficiency, and lower our carbon emissions as a planet.

## An IoT platform is key to this success!

To effectively begin tracking sustainability initiatives, you must have the basics in place. This requires the ability to collect accurate and timely data from the devices, assets, and behaviours you are trying to improve. IoT enables companies to gather the real-time information they need to set baselines. Access to historic data can also help organizations to refine protocols and reduce risk.

By connecting software, devices and sensors into one integrated system, building managers gain the ability to monitor every aspect of the building, and gain business insights. Not only do managers have the data to make better decisions and report on performance, but they benefit by the ability to quickly react to issues, enabling them to set rules based on specific thresholds to monitor energy consumption and detect abnormal consumption. For example, if the HVAC is using more energy than normal, managers can immediately detect this in the IoT Platform, and call a technician before the HVAC breaks down to help reduce downtime and enhance productivity.

Another excellent example of automation using IoT devices is in renewable energy, and their use in monitoring and efficient operations of wind turbines. The direction of the wind turbine can be altered for gaining maximum efficiency by analysing the data generated by IoT sensors. A similar application can be seen in solar power utilisation. The direction of solar panels can be altered to be perpendicular to the energy source. This provides maximum utilisation of solar energy, reduces operating costs and improves the safety standards. This holds true across use cases such as space utilisation, water consumption, waste management, and the list goes on.







## Enter the Axonize IoT Platform

With Planon's recent addition of Axonize, our offering now includes IoT connectivity. Axonize is a no-code IoT Platform that enables easy configuration across all sustainability use cases. Axonize specialises in bringing IoT data capture, analytics capabilities and optimisations functionalities to facilities and to the built environment.

The platform offers out-of-the-box connectivity to all devices, protocols, digital twins, and other data sources, which are fed into Planon's smart building platforms.

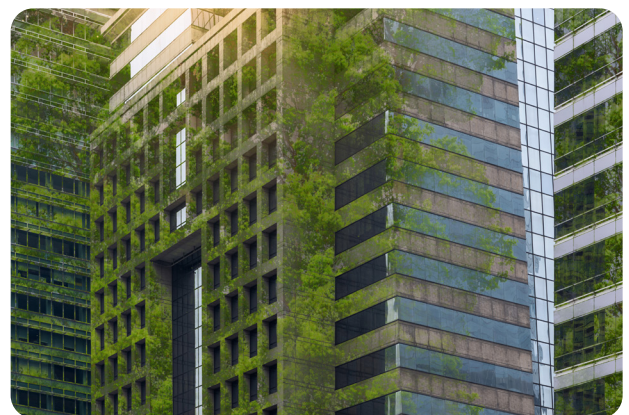


## So how does it work?

To demonstrate this, let's look at how your company can benefit from our IoT offering for sustainability management. Beginning with a consultation to discuss your sustainability needs, our team provides a thorough evaluation after which initial use cases and sensors can be decided upon. Your devices and sensors are connected to the IoT platform, and you began receiving real-time data from the connected sensors and digital twins. A digital twin is a collection of all the information known about an entity – which could be a building, a building system, a piece of equipment or even a person. By collecting and organising all the data available about the subject, we create an environment that can be used as a laboratory test tube, that allows us to test out scenarios in which we alter one or more conditions, and observe the impact on the entity as a whole.

## After implementing the functionality of the platform, you can quickly:

- Measure energy and water consumption, waste levels, and environmental surroundings using sensors such as: CO2, VOC, lighting, sound, temperature, humidity, and many others.
- Monitor and analyse data to help gain a deeper understanding of your spaces, and set clear goals for enhancements.
- Rules and alerts are set to optimise data such as energy, water consumption and humidity levels, so they don't exceed a certain threshold. For example, if humidity levels are too high, an alert is automatically sent to necessary parties, and levels are optimised automatically.
- Receive complete support, and continued results analysis from our team of experts.





## Unique characteristics of Axonize IoT & Sustainability Management

Our solution enables companies to quickly connect any device, data source, system or protocol, whether new or legacy.

Companies can easily build and implement sustainability use cases and manage all data insights in a single pane of glass, and then scale to all, or as many, use cases as desired across an endless number of applications.

The Axonize IoT platform explicitly stands out due to the following unique benefits:

- Customers get all, or any, smart business services needed in one place.
- Quickly connect any device, digital twin, data source, system, and protocol into one integrated system.
- Flexibility to help you easily scale to as many use cases as needed, and across multiple applications.

- Easily build, and implement sustainability use cases independently without needing to write any code.
- Gain real-time ability to monitor every aspect of the building with business logic (rules, templates, analytics, profiles,) and shared insights.
- Set rules, and quickly react to any issue relating to the sustainability of your building to easily optimise.

Axonize bolsters Planon's ability to collect IoT and digital twin data across the built environment. Together, Axonize and Planon support an endless number of sustainability use cases that rely on rich asset data. The combined offering enables building digitalisation and sustainability by integrating smart building technology, business solutions and data insights into one source of truth. The journey results in enhanced transformation for companies from optimised enhanced water and energy consumption across all buildings to renewable energy usage and enhanced overall occupant satisfaction.

**Bottom line:** Demonstrating the sustainable value of having smart building technology, business solutions, and data insights all in one place