AXONIZE

Designing Smart Spaces

The importance of smart buildings & workplaces
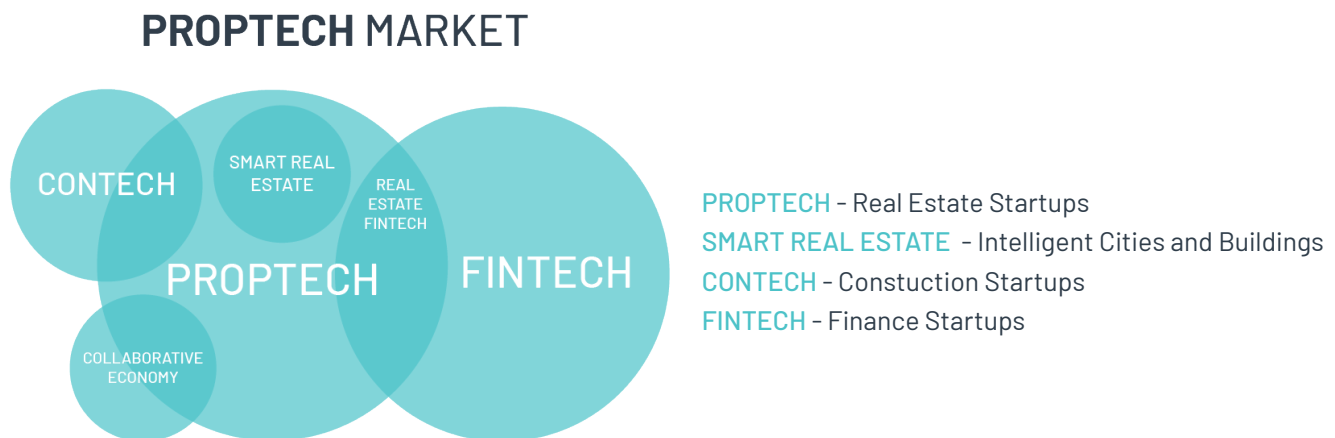in the era of digital transformation

Introduction

Physical space is a hot commodity. This statement rings especially true in the workplace, where the workforce and the way it operates continue to evolve. Open floor plans, hotdesking, and co-working spaces are increasingly more common, as workers are becoming more collaborative or mobile. As a result, businesses often have unused space, and they end up wasting significantly on rent and increasing utility and maintenance costs unnecessarily.

Buildings are one of the biggest energy consuming entities, so monitoring them has become of great interest for trying to avoid non-necessary costs. Smart buildings and smart offices are therefore driving innovation in IoT.

Proptech is one buzzworthy term that continues to gain momentum, describing the array of startups offering technologically innovative products or new business models to disrupt the real estate market in this new digital landscape. As evidenced in the diagram below, real estate has become a prized target for investors and technology.

PROPTECH MARKET

PROPTECH - Real Estate Startups
SMART REAL ESTATE - Intelligent Cities and Buildings
CONTECH - Constuction Startups
FINTECH - Finance Startups

Source: Proptech: What is it and how to address the new wave of real estate startups?

People spend most of their time inside buildings, including offices, retail stores, and homes. It's not a surprise then that innovation is turning to buildings, which are responsible for 40% of the energy consumption in developed countries.

Gaining knowledge about usage and finding ways to reduce consumption should be a common goal for all businesses.[1]

The idea of the smart building is driven by the ability to optimize space to reduce costs, but also to

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1 - MDPI Smart Buildings study

digitize buildings to improve employee, user, and visitor experiences. Forward-thinking building owners and companies are implementing key technologies to stay attractive and relevant to today's businesses and workers.

There is also a growing effort for companies to be more green and conscious of environmental implications. Nearly 40% of millennials have chosen a job because of company sustainability and most millennials would take a pay cut to work at an environmentally friendly company, according to a report covered by Fast Company. This finding is significant as millennials will make up three-fourths of the workforce in six years.

These technologies allow building and business owners to collect data like never before, which they can then transform into actional insights for more efficient and attractive spaces.

Approximately 50% of developers, owners, and occupants believe that a smart building strategy will become a competitive differentiator in the commercial real estate market.[2]

For every square foot of space used, tenants spend about $3 on utilities, $30 on rent, and $300 on payroll every year. This ratio, the "3-30-300 rule," showcases the approximate cost savings available to companies that optimize their spaces with IoT.[3]

In addition, the typical utilization rate of office space is just 39%.[4] Opportunities presented by IoT such as workspace occupancy sensing can help companies further understand how desks, meeting rooms, and breakout spaces are used to help them improve this rate. Equipping a building or office with sensors that gather this information each day and hour can deliver valuable intelligence to determine both demands and waste of space.

Yet despite clear use cases and the financial benefits smart building technology presents, many organizations struggle to launch IoT projects.

60%
of global organizations view **digitizing the workspace** as the **top challenge** in the next 5 years.
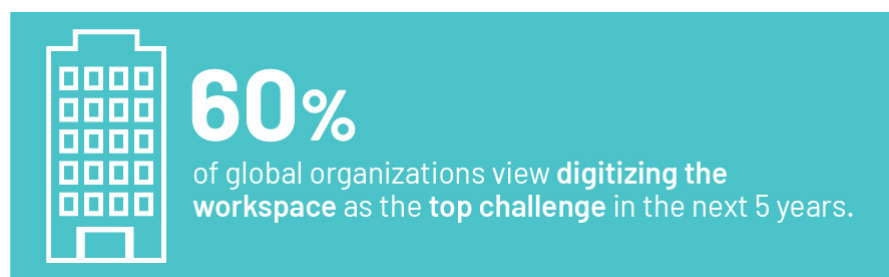
Source: Condeco 2019/20 Workplace Report

The seemingly complex and cross-organizational nature of smart building projects often makes stakeholder buy-in difficult. Building and company owners often feel they need dedicated teams of resources to engage in these projects and are unsure where to begin.

Many IoT providers simply focus on smart products, but more industry players are coming forward to

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2 - Harvard Business Review, Create Smart Spaces with Azure Digital Twins, 2018

3 - 2 JLL, A Surprising Way to Cut Real Estate Costs, 2016

4 - Condeco 2019/20 Workplace Report

connect entire enterprises and help offices become smarter within days. These projects can now be outsourced entirely – with the ability to receive necessary tracking sensors, building application, and dashboards for monitoring and alerts seamlessly.

Those moving smart building and office projects forward with an end-to-end solutions are reaping the benefits – cost savings, the ability to detect and react promptly when space isn't being utilized to its full potential, greater building security, and happier space inhabitants.

How to approach smart buildings and offices

Define your business goals
There are questions that all building or business owners should be able to answer at any given time: Are the lights or A/C turned off in rooms when no one is using them? Are the doors and windows shut at the end of the day? Yet while many roles IoT can play are universal, it's important to consider what a smart building and its unique capabilities mean for your business specifically.

When businesses delve into IoT but are unsure what "success" means for their bottom line or lack proper guidance, it will be much more difficult to realize ROI. Just because a smart building capability exists, doesn't mean your building will derive value from it.

Recording, analyzing, and evaluating your building space's needs and costs, as well as receiving feedback from employees and tenants, will give you control to define how your building or office will benefit. Are desk sharing schemes something your workers can take advantage of? While employees continue to demand more flexibility, not all companies can operate with workers being remote, while others thrive on agile workplaces with hotdesking when office space is expensive.

Even geography can play a role. In the US, many smart building projects are driven by sustainability and benefits for the employee experience, whereas in the Middle East energy and water optimization are often the focus, and in Asia optimizing labor costs and reducing high maintenance costs are key.

Take a moment to define your smart building or office goals and determine what you will classify as successful implementation.

Engage important stakeholders
While senior leadership will often have official project sign off, it's crucial to engage your IT department and stakeholders from different departments to ensure you have one unified vision for success.

Different departments (HR, finance, sales) have different goals for effective buildings and workplaces, which often need to be evaluated and prioritized. These voices will also help with buy-in. For example, if sales is regularly hosting clients, equipping your building with smart parking features and temperature monitoring of conference rooms to ensure guest comfort can be defined as important elements to consider for smart building applications.

Show results with a first use case
To showcase the potential and benefits of IoT, it's often important to select one element you can effectively track and report back to stakeholders with clear cost-saving metrics. Receiving data on heating, A/C, and energy is often a strong place to start.

You can start by monitoring and tracking a single floor in an office for example to prove success with

metrics. Demonstrating ROI pre-IoT and post-IoT implementation is often the key to bringing more stakeholders on board and expanding IoT initiatives that might be less 'trackable' later on such as tenant satisfaction.

Security-first implementation

Understanding threats to your building and how IoT can help to prevent them is also a strong indicator for how your business can benefit. Expectations for security in the age of digital transformation are growing greater.

From cybersecurity to physical harm, it's important to work with a provider who fully understands the risks which come with connected systems and how to prevent them. It's crucial to lessen the risks posed by tenants, visitors, staff, and assets from vulnerabilities in connected systems.

You want to work with a partner who understands proper certifications and has built a security system that properly integrates hardware and cloud based security, and manages communication between devices and the cloud effectively.

Proper security is invaluable when it comes to IoT and the safety of your buildings and inhabitants, so ensure you select a provider or partner you can trust.

How The Smart Building & Office Work

How will your smart building or office function once it's all connected?

Use cases in action

From people monitoring to comfort, IoT can be applied to make buildings and offices smarter in a number of ways.

- **Overall occupancy:** Many companies notice similar employee behaviors and usage from Monday-Thursday, but on Fridays more workers may be remote or leave the office early. Motion sensors allow these companies to track patterns, count employees, and know if spaces are truly being utilized to save on unnecessary energy.

  - **Optimized seating:** Set preferences to allow employees to book desks or meeting rooms near fellow employees, on specific floors, or near preferred locations, such as the window, for an improved workplace experience.

  - **Optimization of shared office spaces:** Analyze how and when spaces are being used to be able rent out unused spaces and set pricing based on common patterns or preferred locations, and make money off of unused spaces whenever possible.

  - **Shared desks:** Sensors allow companies to analyze desk occupation and release reserved desks which are not actually being used in shared office spaces (Ex: If most desks are regularly unused after 5pm, they can offer to rent out these unused desks for added revenue).

  - **There are two levels of occupancy detection:**

    - **Motion detection:** Recognizing human presence in an office or room
    - **People counting:** Identifying how many people are in an office or room

- **Energy efficiency:** Sensors significantly reduce energy costs and provide ways to make buildings

and offices greener, with ways to fully control HVAC, temperature, lighting, and more within these spaces to ensure energy is not wasted.

- **Room energy usages:** Monitor and analyze room usage and notify employees to switch to smaller rooms which use less energy when they rent out larger ones but do not need the extra space.

- **Meeting room reservations vs. usage:** Movement sensors can help companies compare real meeting room usage with reservations stored in the room booking system. Incorrect usage of reservations may result in empty meeting rooms while workers are trying to reserve ones without success, a loss in productivity which doesn't need to occur. (Ex: A rule can be set so that a reservation is cancelled 10 minutes after a meeting start time should no one enter the room).

- **Room comfort:** Monitor and set comfort parameters, including temperature, humidity, CO2, light, and noise depending on 'rules' that you set, including how many people are occupying a room or the purpose that the room serves for improved workplace experiences or client entertaining.

- **Doors/windows:** Monitor and analyze door/window openings and closings to ensure your building or workspace is secure at all times.

- **Visitor management:** Make a good first impression and implement sensors to promote security, as well as detect when visitors arrive to notify their hosts.

- **Smart parking:** Optimize parking space usage with sensors to deliver better experiences to employees and visitors for a seamless parking experiences, including pre-bookings or meet-and-greets when motion is detected.

- **Single pane of glass solution:** From in-door navigation to asset management to safety, making buildings smarter allows for a unified view of all data from multiple sources within the building or office via a single management console.

Types of sensors & equipment companies are using to fuel these efforts include:

- **Presence:** Detecting motion, monitoring temperature, and easily mounted

- **Comfort:** Monitoring air quality, temperature, humidity, noise, CO2, and powered by a USB outlet

- **Motion:** Monitors occupancy, temperature, humidity, light, sound, and easily mounted

- **Gateway:** Provides live and historical data and connection to the Cloud for storage

- **Wi-Fi:** Allows for cost-effective way to extend your wireless coverage

- **Footfall Camera:** People counting sensor that supports people entering and exiting with 95% accuracy, as well as abilities to monitor and control energy, lighting, HVAC, and access and aid in asset management and safety (flood, smoke, broken glass, and more).

Reports and analytic capabilities to seek out when selecting a provider or partner
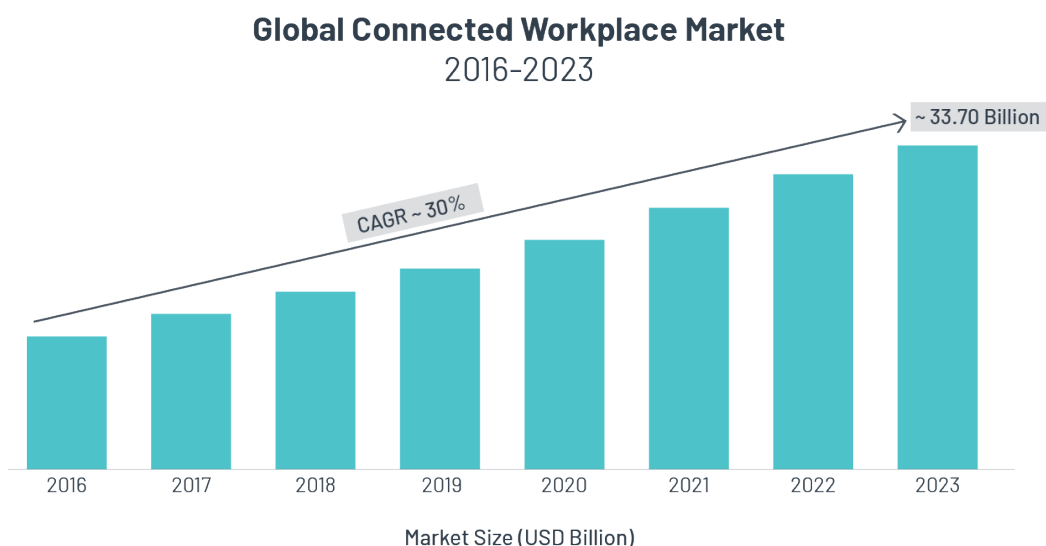If you're investing in smart building technology you shouldn't settle. Select a partner who can provide you with the full spectrum of offerings.

- **Visibility:** You want visibility into every sensor and how it impacts your business – including overall statistics analyzing space usage by your tenants and employees, usage of energy, lighting, and A/C, and wastage to learn where you can cut costs.

- **Automation:** Opportunities to customize and set parameters and limits to enable automatic alarms, such as if a room is empty to turn off the A/C or if a temperature reaches below a certain level to turn the heat on.

- **Cross Analytics:** Cross-system/sensor charts that allow all of your devices to speak to each other to ensure you have an overall picture of your building or office space at any given time.

- **Device Management:** The ability to manage your devices from your phone or remotely and respond instantaneously.

- **Multi-tenant Aspect and User Management:** Ensure multiple building or company stakeholders can access your connected systems, but grant access or notification alerts only to specific individuals who need them. This feature allows you to effectively alert users who manage the areas that specific devices serve in a space.

- **Security:** Simplify the hybrid workload protection by delivering unified visibility and control, adaptive threat prevention and threat detection and response across workloads.

Conclusion

Connecting an office or making your buildings smarter shouldn't feel daunting. It's also a necessity to stay competitive in today's real estate and job markets. According to a study by Market Research Future, the global Smart Building Market is expecting a boost by 29.69% CAGR during the forecast period of 2018-2023, and will quadruple its previous market valuation of $7.45 billion USD in 2017 to attain a worth of USD 33.70 billion by 2023.5

Global Connected Workplace Market
2016-2023

~ 33.70 Billion

CAGR ~ 30%

2016 2017 2018 2019 2020 2021 2022 2023

Market Size (USD Billion)

Source: MRFR Smart Building Market Research Report – Forecast to 2023)

AXONIZE

www.axonize.com

Some of the biggest benefits of making your buildings or office places smarter include:

- Reduced costs, ie. maintenance, energy, and water usage

- Improved working conditions and safety for building inhabitants

- Enhanced customer service and guest experience

- Improved visibility and management of building occupancy

- Optimization of resources

Our mentality: Start small and scale

Partners like Axonize with important industry relationships can work with you to develop a smart building or office plan. With an end-to-end solution, Axonize can help you launch smart building projects quickly, with the opportunity to start small and scale. Our innovative team of experts have built an IoT platform with five key technologies to help you seamlessly manage an array of software, devices, and sensors to transform your buildings into smart, secure, and connected enterprises.

About Axonize

Based on 5 key technologies, Axonize is uniquely designed to transform buildings, offices, and retail locations into smart spaces. We provide customers with an end-to-end solution to manage the wide array of legacy and new software, devices, and sensors necessary to launch effective and secure IoT projects within days. With Axonize's IoT orchestration platform, businesses are operating more efficiently with improved utilization, comfort, and security. Axonize clients witness ROI and substantial cost savings within months.

Our current customers include:

Contact us for more information at **hello@axonize.com**.