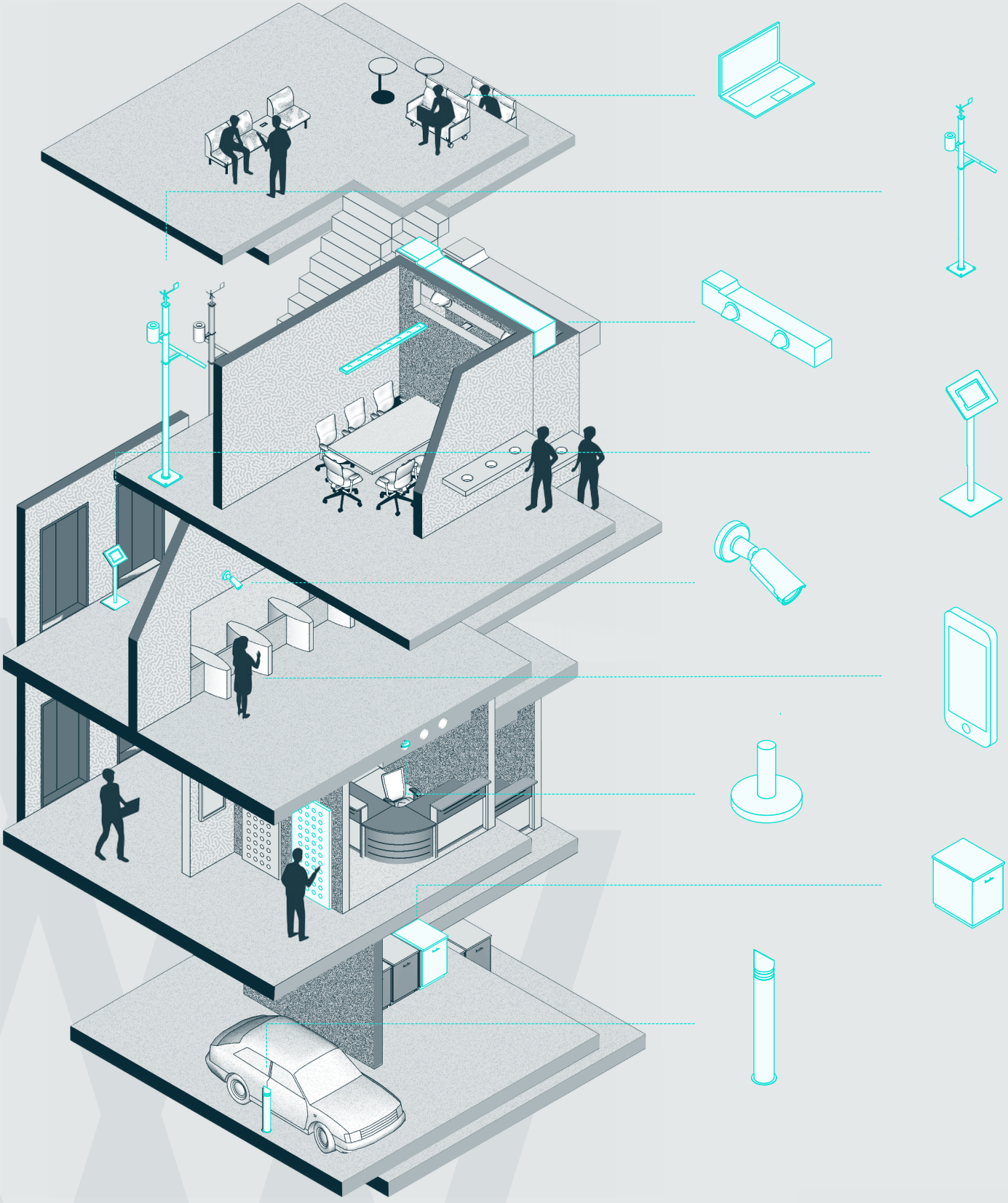
Smart Buildings, Smart Futures: Your guide to delivering value with smart technology



WiredScore

Foreword

When I reflect on the journey of WiredScore over the past decade, I am astounded by the transformative power of technology in real estate. Ten years ago, the landscape was vastly different and WiredScore set out to meet the challenges the market was facing. Launching WiredScore certification kicked off our mission to make the world's buildings smarter and better connected.

In 2021, we introduced the SmartScore certification, marking a significant milestone in our commitment to advancing smart technology in real estate. This initiative was born out of our understanding that the world was rapidly evolving, and so were the needs of real estate stakeholders. The COVID-19 pandemic, in particular, ushered in an era where adaptability and innovation became paramount, especially in cities like New York, which are still facing unprecedented levels of void space.

In this ever-changing landscape, smart technology emerged as a beacon of hope and resilience for the real estate industry. Smart buildings, equipped with cutting-edge technology, have not only weathered the storm but have also positioned themselves as leaders in the market. Those who have invested in smart technology for a top-quality user experience have overtaken the competition, providing better value and returns for their stakeholders.

We set out to demonstrate the key steps real estate professionals should follow in order to develop a portfolio of best-in-class smart buildings. Using the areas we've outlined, you will be able to successfully drive cost efficiency, reach ESG+R goals, and meet occupier expectations both now and in the future.

This publication is the heart of a wide collection of insights from experts in our industry. Follow us on LinkedIn to get the full interviews as they're released, or find all of the interviews on our website.

Arie Barendrecht
Founder & CEO

Creating your smart building

Set your building up for success by addressing these key areas.

In-building communities
Hear what some of WiredScore's Accredited Solutions had to say about how smart tech turns buildings into dynamic, interconnected communities.

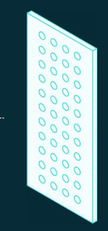
Sustainability
Discover Water Street Tampa, The Louise, and AIRSIDE; three sustainable developments that are carving the path to smarter spaces.

Maintenance & operations
How is building maintenance and operation evolving? WiredScore's Will Brouwer explored the use cases he's experienced so far.

ESG+R
Chris Pyke (GRESB) and Dr. Sue Chadwick (Pincent Masons), spoke on the vital importance of smart technology in ESG+R.

Innovation
Four of WiredScore's leading smart technology experts gave their insights into the possible future innovations and paths for smart buildings.

1 **User experience**
Learn how smart technology redefines the user experience and positions your building as a market leader



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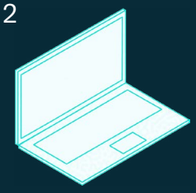
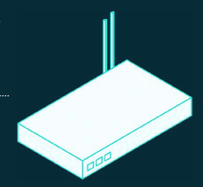


3 **Digital connectivity**
Digital connectivity isn't just a luxury—it's a necessity. Sanjaya Ranasinghe and Axel du Mesnil du Buisson from WiredScore discussed how buildings need to evolve.



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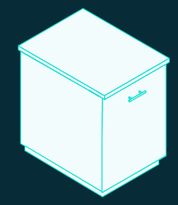
5 **Health & wellbeing**
Uncover the key areas asset managers should address to provide a healthy working environment for their occupiers.



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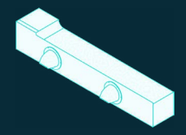

7 **Security**
WiredScore and SmartScore Accredited Professional, Simon Ng, gave his insights into why cybersecurity is more important than ever.

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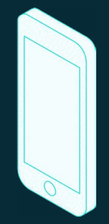

9 **Communicating benefits**
Three of WiredScore's Accredited Professionals shared their expertise on how best to demonstrate smart building benefits to occupiers and investors.

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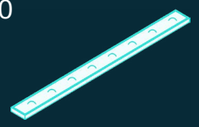


Enhance your building's user experience with smart technology

Occupiers and investors expect smart technology to provide a first-class experience.

Since the end of the COVID-19 pandemic, we have seen a rise in hybrid working practices. However, businesses have struggled to convince employees that their office space is just as attractive as their sofa.

How can we prove this? Through the adoption of smart technology.

80% of real estate decision makers in North America believe that employees are more likely to attend an office that has smart technology, as opposed to working from home[1]. It is this technology experience; the kind of that can create a best-in-class user experience; the kind of experience that drives success for leasing and retention goals.

Research shows that offices that can demonstrate high levels of digital technology can expect 3.8% lower vacancy rates and 9-month longer leases[2]. By offering a space that prioritizes user experience, your building holds a competitive edge that can attract and retain occupiers, increasing your ROI.

> 3.8% lower vacancy rates for digitally connected buildings

Impact on user experience

With the adoption of in-building technology, you can create a more comfortable, efficient, and safe environment for occupiers.

Starting from the moment they enter the building, occupiers and visitors of a smart building are greeted with a seamless check-in process. Technology can help automate that process with systems such as keyless entry or self-service kiosks. Another popular use case is providing digital displays in the lobby. These can be used for occupier and visitor instructions to assist in wayfinding.

These steps to create a hassle-free work day are greatly appreciated by occupiers. Their decisions to choose a smart building are often guided by the knowledge that their space is actively working with them to support their workforce.

Building users can also expect real-time updates to the status of their office with smart technology. For example, an occupier app can provide occupancy data for meeting rooms, removing the time-wasting task of wandering around looking for a space. While occupiers may not consciously recognize this benefit on a daily basis, they would certainly notice if it wasn't there.

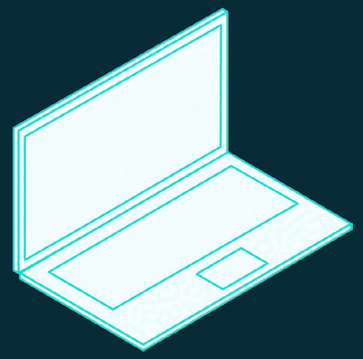
Solutions such as these enhance a user's experience and, in a world of hybrid working, encourage them to choose the office over their sofa. Occupier decision makers will see an increased number of productive office attendees, whose lives are made easier by the in-building tech.

Embracing cutting-edge technology in your building is attractive to both occupiers and investors. Their expectations have evolved along similar paths, and smart technology is the key.

Positioning your smart building

Branding your building as 'smart' supports its future-readiness. When conducting research on investors in the APAC region, 38% highlighted the importance of implementing smart technology to deliver a best-in-class user experience. In fact, 43% wouldn't invest in a property that doesn't have smart technology[3].

[1]The office in 2028: a smarter way to work, WiredScore
[2]In with the old: How technology is redefining retrofitting, WiredScore
[3]Investing in the future - Exploring the cost of technical obsolescence, WiredScore



Support your building's community with technology

Community is an important part of the human experience. It is essential to consider this when building and maintaining a future-ready building.

A successful smart building offers an exceptional user experience, and this includes creating a sense of community within the space. Smart technology can support this in many ways, but it is particularly impactful when it comes to data utilization and cross-team collaboration.

Read insights from:

Andrew Wray, Regional Sales Manager, Motorola Solutions

Billal Vindhani, UK&I Country Manager, Spacewell

Navjeet Birdi, UK Country Manager, bGrid

William Hulls, Chief Revenue Officer, Demand Logic

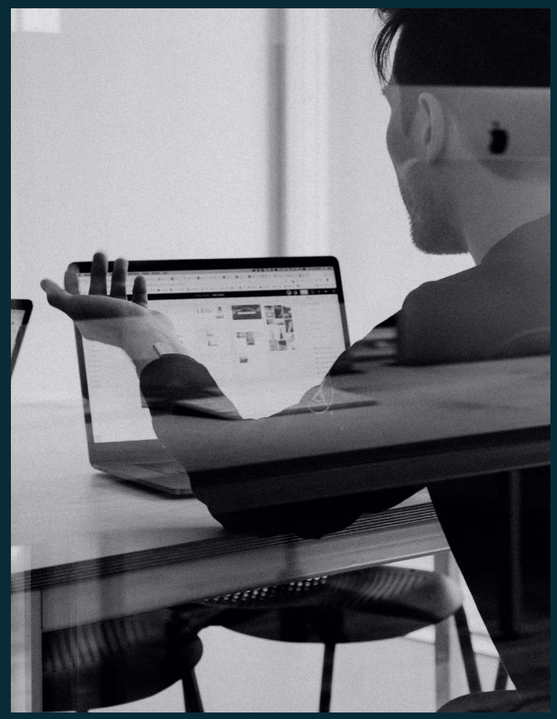
Community through data

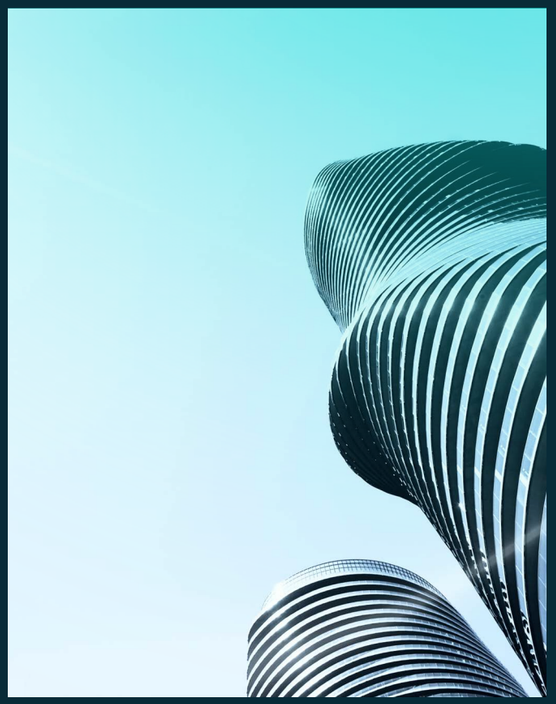
Asset managers and property owners need to make decisions on how to optimize their building's performance. An improved building performance creates an environment that occupiers enjoy spending time in and reduces costs from inefficient monitoring.

"Smart building technology has massively impacted the way decisions are made , by providing real-time data and analytics that empower building managers to make data-driven decisions. These decisions lead to an impact on energy efficiency, user comfort, predictive maintenance, and overall operational excellence. The integration of smart technology has become an essential tool for building managers to optimize building performance and make key decisions" - Navjeet Birdi, UK Country Manager, bGrid

There is a common misconception that non-smart, or 'dumb', buildings don't collect data; this is not the case. More often than not, it is our inability to utilize in-building data to its full effect that has a negative impact on user experience.

"The big thing that data can do for buildings is utilize the existing data in a building. A lot of people don't realize how much data there is, especially those that have got a BMS network. Demand Logic can get tens, if not hundreds, of thousands of datasets out of a building. And that allows us to look at when assets are running, and why they are running. From that, you get a really rich picture of how a building is operating. Then, off the back of that data, you can start making some informed decisions … on what you do with that building based on the live data." - William Hulls, Chief Revenue Officer, Demand Logic





The technology used to gather building data forms a community of its own behind the scenes. You may find one solution which addresses all of your building's needs, but you may prefer to find a few solutions that compliment each other. The benefit of smart technology is that it's designed to be flexible to your needs, not the other way around.

"There are many benefits [from smart technology] for commercial real estate landlords and asset managers alike. It's now possible to deliver a huge amount of data to these stakeholders through systems such as Avigilon Alta, Motorola Solutions' end to end cloud video and access platform. This gives landlords and asset managers a much better understanding of their building and how it is performing across many different areas." - Andrew Wray, Regional Sales Manager, Motorola Solutions

Many people are still apprehensive about implementing and using in-building smart technology. This is why it's important to bring communities on side from the start of the adoption journey. Building users should have demonstrations of the benefits the technology offers and, at the same time, have the chance to gain a deeper understanding by asking questions.

"One common challenge is fostering initial engagement and adoption of new technology and solutions. Many organisations address this by appointing champions and ensuring that internal processes are aligned with the use of new technology. And by organizing community events and leveraging our digital platform for easy easy communication, the increased participation and engagement amongst users can easily be analyzed over time and continually improved." - Billal Vindhani, UK&I

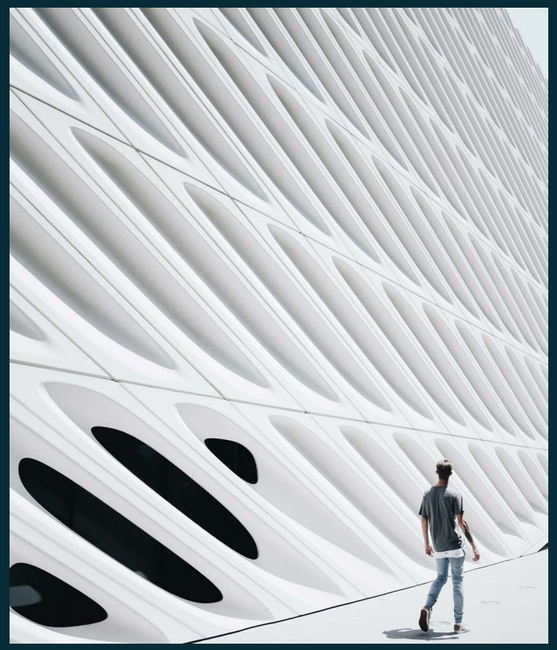
Community through collaboration

Insights gained from smart technology such as movement patterns or occupancy trends support collaboration across teams and businesses.

"Creating a heart within a building is really important … When an office or a building provides an environment that nurtures spontaneous and unexpected interactions, that is where occupiers perform better and they come back into the office. And ultimately, this is what a company needs to flourish. Now taking this into consideration when we look at our occupancy rates, the data provided allows us to understand where these conversations are happening, … so we can use data to actually understand and give evidence to create more of these spaces." - Navjeet Birdi, UK Country Manager, bGrid

Just like our phones allow us to stay connected, in-building smart technology enhances communication. It offers a way of keeping all users up-to-date with the status of the building, from community events to lift issues.

"'Smart building' is a very broad term, it gets used a lot. … There's probably two or three different ways in which you can look at it as a tenant. A building user is more connected to the building part as the community is kept up to date on everything that's going on; whether that's community events, building shutdowns, planned maintenance, lift issues, quality issues, cleaning issues, or enabling them to also log things… it's that speed of insight and access to information." - William Hulls, Chief Revenue Officer, Demand Logic



Smart technology also enables people to collaborate on much wider issues. For example, there is a greater positive impact when a whole community can meet sustainability targets with the aid of smart technology.

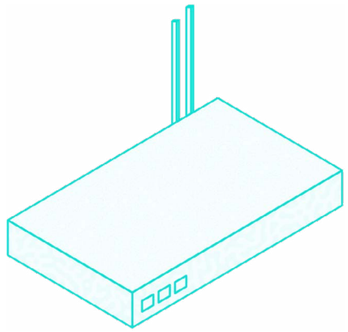
"After realizing that space efficiency and energy efficiency in commercial buildings go hand in hand, gaining insights into the space occupancy and utilization was an obvious first step - especially with hybrid working on the rise. Underutilized spaces and floors … can then be temporarily shut down, taken out of service or repurposed, reducing energy consumption by almost 60%." - Billal Vindhani, UK&I Country Manager, Spacewell

The main goal of a smart building is to make life easier for its occupiers. They should see an improvement to the efficiency of their everyday routine, increasing engagement with the space.

"Our solutions are integrated with more than a dozen tenant and resident experience apps, which helps to facilitate engagement between building occupants and our hardware. We also utilize a technology called zone sharing that allows tenants in the base building to share not only access, but to give their staff access to limited shared spaces." - Andrew Wray, Regional Sales Manager, Motorola Solutions

A community-led approach to smart technology ultimately leads to a better user experience. but the knock-on effect this has for building success takes things to the next level.

Occupiers who feel 'at home' in their office will make better use of the space, even as hybrid working becomes the norm. Employees who enjoy coming into the office will put pressure on their companies to renew their leases, reducing void space and driving improved retention. As a result, your position as a leader in real estate is cemented and your building is more prepared than ever for years to come.



Digital connectivity: building a strong foundation

Why digital connectivity is vital for occupiers and investors.

You can't have a smart building without a strong digital foundation. With this, you lower the risk factor associated with your building and create a resilient, future-ready asset.

WiredScore's Sanjaya Ranasinghe (Global Director of R&D) and Axel du Mesnil du Buisson (WiredScore Group Product Manager) know this all too well, and sat down to discuss how you achieve excellent digital connectivity, and why it is so important.

Here's some of what they had to say - want to hear their full discussion?

Watch now

What do we mean by 'digital connectivity'?

Axel: Digital connectivity in real estate is crucial. There are four key outcomes that should be front-of-mind when we're considering it. First, future readiness – how adaptable is the building to new tech like 5G? Second, resilience – can the building ensure connectivity even during internet outages? Third, occupier setup – can they easily plug-and-play, or do they face lengthy delays? Lastly, user experience – does it provide seamless connectivity from lobby to desk?

Sanj: To translate these into actionable specifications for building evaluation, we categorize them into three areas: connectivity services, infrastructure, and readiness/legal preparation. Connectivity services encompass Wi-Fi, mobile, and fixed-line internet options, ensuring occupiers get the services they need at the right price. Infrastructure focuses on how the building transfers these services to occupied spaces. Finally, readiness and legal preparation ensures landlords can adapt to new services as needed, while complying to regulations.

Why should we care about digital connectivity?

Axel: Digital connectivity matters because it impacts risk and resilience. When everything works, we take it for granted, but outages can disrupt business, and potentially lose 3 million USD. I once faced an issue where our office needed more bandwidth for cloud-based document storage, but the building's infrastructure couldn't handle it. It took six months to upgrade, affecting productivity. Buildings must anticipate occupier needs for seamless digital experiences.

Sanj: Changing occupier needs are now reflected in lease requirements. Some won't move in unless the building meets connectivity demands. Being able to demonstrate a commitment to in-building digital connectivity is now essential. Moreover, focusing on digital connectivity is crucial for investor reporting and ESG+R efforts, showing the market that your building is future-ready.

How does having good digital connectivity set your building up for success?

Axel: Good digital connectivity sets your building up for success by allowing landlords to proactively meet occupier demands. It empowers landlords to guide occupiers in using the space effectively for evolving work patterns. Additionally, it helps buildings differentiate themselves in a competitive market, attracting occupiers who seek a connected, forward-thinking workspace.

Sanj: Occupier requirements are diverse, and offering flexible digital services becomes a competitive advantage. It's not just about providing a signal; it's about meeting specific occupier needs. Certifications like WiredScore provide a common language for both landlords and occupiers, helping them align their expectations.

How does good digital connectivity appeal to investors?

Axel: Having strong digital connectivity attracts investors who recognize the financial benefits. Buildings with good technology achieve premium rates, lower vacancies, and faster leasing. These benefits are clearly seen in Moody's 2022 white paper where offices could demonstrate 3.8% lower vacancy rate when proven to have strong digital connectivity. When selling assets, transparency about digital capabilities accelerates due diligence and increases asset value.

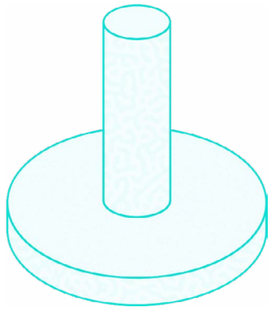
How can you avoid obsolescence through digital connectivity?

Sanj: Avoiding obsolescence through digital connectivity requires capacity, flexibility, and control. Buildings need the capacity to adapt to evolving technology and user requirements. Flexibility is crucial to offer tailored services to occupiers. Control ensures landlords can switch services on and off as needed, preventing reliance on single providers.

Why is digital connectivity an important part of a building's resilience?

Axel: Resilience is vital, considering climate, technology, and cyber aspects. Buildings should be environmentally friendly, and their technology should withstand external factors like flooding and temperature changes. Robust supply chains for technology changes are crucial. Cybersecurity policies should cover both physical and data security within the building.

Sanj: Absolutely, cybersecurity within the building often gets overlooked. It's not just about securing devices but also ensuring data handling and storage are robust. Policies must encompass all aspects of cybersecurity, including the building's infrastructure, to prevent breaches and data leaks.



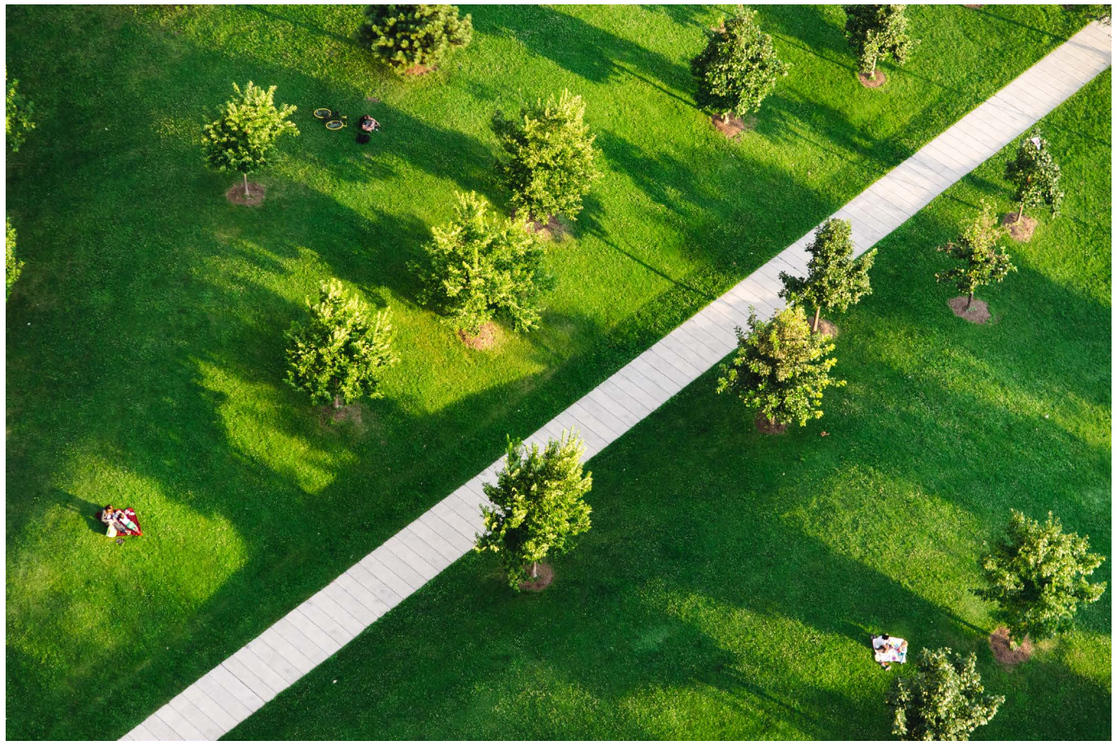
Create a sustainable environment

Minimize your building's impact on the environment and support environmental reporting.

Occupiers are increasingly prioritizing real estate that meets their ESG+R goals, and offers an environmentally sustainable and efficient space. When asked whether sustainability was a priority for employers and landlords, 60% of workers in the Middle East agreed it is a top priority. A further 48% said that improving the sustainability credentials of the building would make them more likely to enjoy going into the office[1].

Smart technology provides modern solutions to increase the active sustainability of a building, and provide support in reporting on ESG+R objectives. The adoption of smart building frameworks such as SmartScore provides a simple and effective way to communicate the environmental impact of buildings with occupiers and investors.

The following buildings have all shown a commitment to delivering a sustainable built environment for their occupiers, with smart technology as a pivotal part of their strategy.



Water Street Tampa, Florida

Water Street Tampa is an urban development that strives to bridge the gap between technology and nature. Covering 56 acres, this mixed-use development sits in Downtown Tampa and is a stone's throw for the Central Business District. The development holds the title of the world's first SmartScore Pre-certified Neighborhood, thanks to its commitment to smart technology.

The development includes 180 smart light poles with strategically placed air quality sensors attached. These sensors are seamlessly integrated into the neighborhood's infrastructure and carefully track metrics such as Air Quality Index (AQI), microparticles, heat, and humidity. This real-time data, easily accessible to the public, empowers both residents and visitors to make informed decisions about their daily activities.

As Tampa receives more than 300 days of sunshine per year, the neighborhood has been developed with comfort in mind. This goes hand-in-hand with its green goals, as efficient outdoor cooling is achieved through an extensive tree canopy. In addition to providing much-needed shade, these trees are one of many rainwater retention initiatives. These 'rain gardens' hold and naturally filter water into the ground, instead of leaving it to run into the city's storm drains.

At the heart of Water Street Tampa stands Heron, the community's pioneering residential building. Heron boasts a green rooftop featuring native Florida vegetation, enhancing visual aesthetics but also actively contributing to air purification and minimizing energy consumption, setting an inspiring precedent for future constructions.

The District Cooling Plant, a leader in sustainable technology, highlights Water Street Tampa's dedication to reducing its carbon footprint. By producing and distributing cold water for air conditioning needs, the plant ensures eco-conscious cooling for the majority of the neighborhood's buildings, exemplifying a commitment to green energy practices.

These developments are prime examples of where smart technology can support in creating future-ready real estate. Smart buildings are the future and these show that they are starting to become the present. Numerous awards from companies like WELL, LEED and WiredScore serve to demonstrate their commitment to a sustainable future, backed by smart technology.

AIRSIDE, Hong Kong

In September 2023, the mixed-use development, AIRSIDE, opened its doors to the public. Developed by Nan Fung Group, the building is 1.9 million sq. ft. of commercial real estate in the Kai Tak area. 32-storeys of Grade A office and a multi-storey retail complex fill this space and create an area dedicated to 'wholeness'.

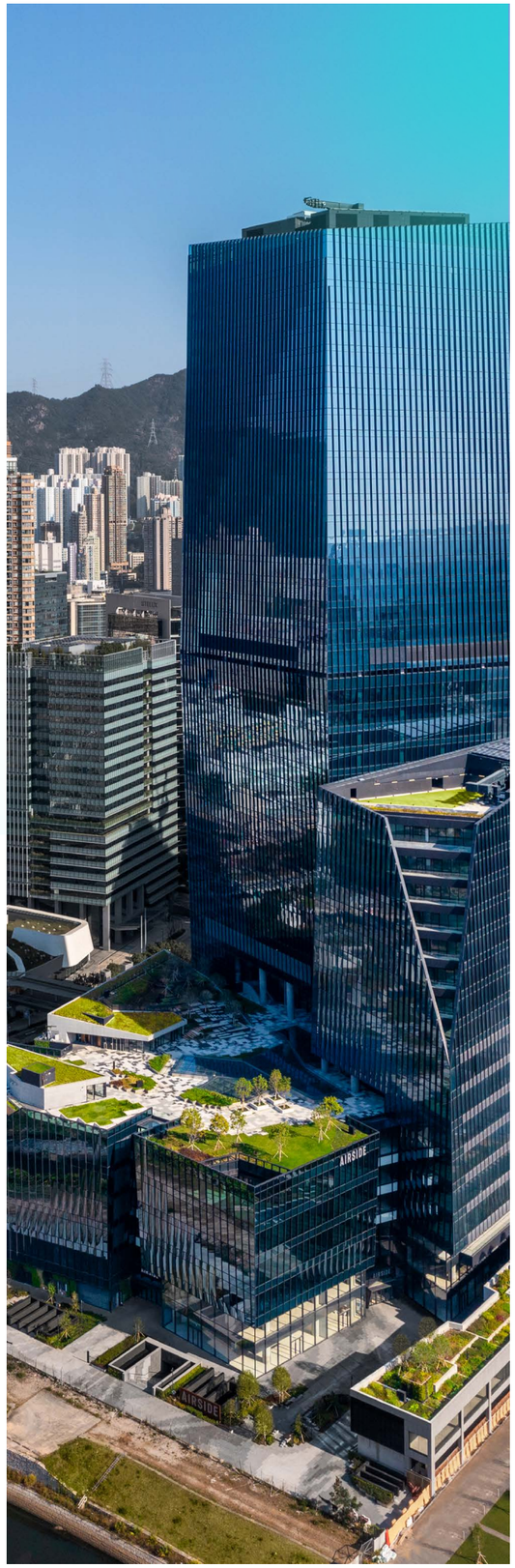
This concept stems from a desire for the development to serve as a gathering place for the whole community. It focuses on promoting a connection to others and to nature. The initial blueprint of this development was created with the United Nations' Sustainable Development Goals in mind. From this, a new sustainability development framework, 'CO6 Metrics', was created and covers each of the following:

- Community hub creation
- A comfortable & healthy environment
- CO2 reduction
- Conspicuous performance & consumption
- Cost effective smart technology

This holistic approach to creating a healthy environment involved the installation of high-performance air filtration devices, e.g. MERV14, to minimize indoor air pollutants. The air quality of the building is constantly monitored by real-time air quality sensors - a step which has led to multiple building awards, including WiredScore and SmartScore Platinum.

AIRSIDE particularly excels in its reporting on the building's successes with the aid of smart technology. AI technology enables advanced customer analytics through crowd counting and video analysis. This facilitates quick responses for queue management and crowd detection.

In addition, an AI smart building console has been adopted by the development. Centralized building information management and asset management systems allow the optimization of operations and facilities management. This is achieved through real-time monitoring of assets, predictive maintenance and task scheduling.



The Louise, Brussels

This iconic 1960s building stands to become a modern marvel as developer, PATRIZIA, looks to bring the space into the 21st century. In a retrofitting project due to be completed in Q2/Q1 of 2024, PATRIZIA aims to set a new standard for sustainable and tech-enabled grade A offices. The tower has already achieved BREEAM Excellent and WiredScore Platinum, and is also well on the way to achieving WELL Platinum status, and becoming Active Score compliant.

The Louise is looking to achieve its goals by:

Driving sustainability - The majority of The Louise's structure has to be kept and the façade has to be done as the original, but with new materials and glazing. This has a huge impact on minimizing the need for additional materials and saving around 8,500 tons of carbon. The design of The Louise, through the upgrade of the façade and choosing the latest technology for MEP equipment, will also considerably reduce the operational energy.

The new installations will have smart-controlled capabilities, and should halve the operational energy outputs. All of these initiatives mean The Louise is on target to achieve an impressive net zero carbon status.

Embracing technology - Smart technology forms a high-speed, resilient infrastructure within The Louise, maximizing its functionality and minimizing maintenance and operation costs. The use of sensors through the structure provide data-backed insights into how the building is being used. Through this, the in-built systems will be able to predict periods of higher demand and tailor lighting, cooling, and heating accordingly. This data will also enable more effective management and preventative property maintenance, and simplify the occupier's life.

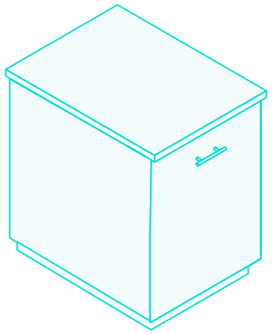
[1]*Smart vision: the office in 2022 and beyond, WiredScore*

Top-rated green and smart grade-A office & retail development at Kai Tak by Nan Fung Group, ARUP

A thoroughly modern Louise, PATRIZIA

Discover Water Street Tampa, WST

In with the old: How technology is redefining retrofitting, WiredScore



Improve the health & wellbeing of occupiers

Occupiers expect a healthy environment they can control.

Air quality

An older stereotype of an office building often includes words like ‘stuffy’ and ‘airless’. Modern smart buildings implement a variety of sensors to assess different aspects of air quality, including:

- Carbon dioxide - high levels can cause difficulties when concentrating, headaches, and fatigue.
- Temperature & humidity - high levels can facilitate mould and mildew which can cause respiratory problems.
- Particulate matter - coming from largely industrial sources, these particles can be inhaled and cause a wide variety of irritations such as dry throats, dizziness, and coughing.
- Volatile organic compounds - these chemicals can cause nausea, respiratory problems and headaches.

Smart HVAC systems can be linked to these sensors and automatically adjust their activity based on predefined levels. They may assess the occupancy levels of a room or floor, and increase the ventilation accordingly. Workers experience a healthier environment, boosting productivity and encouraging them to use their space effectively.

Occupier comfort control

Since the COVID-19 pandemic required most of us to work from home, occupiers have got used to having complete control over their working environment. To bring workers back into the office, asset managers need to be able to offer a competitive experience and give the occupier control over their space.

Occupier apps can provide valuable insights into the different environmental levels within a building. For example, heat maps can show which areas of the office are warmer or cooler, allowing users to choose the environment that suits them best.

Providing these options and giving the occupier control, reduces potential frustration with their environment, resulting in higher attendance rates and occupier satisfaction levels.

Wellbeing reporting

There is often a lack of information on the health and wellbeing of building users, leading to difficulties in benchmarking and monitoring improvements.

Providing solutions that display real-time data, such as dynamic dashboards, means building operators and occupiers are more informed when making building management decisions. It becomes much easier to track and report on wellbeing targets and make data-based improvements.

Transparency around this data is also key. Bringing the occupiers into the conversation enables them to integrate the findings into their own solutions and take ownership of their space.

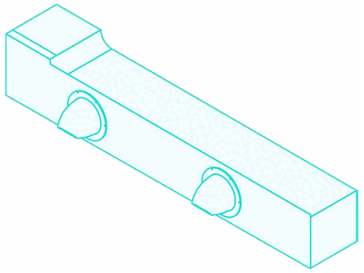
Comfort optimization

A building’s health and wellbeing targets are ultimately centered around optimizing the comfort of its occupiers. This shouldn’t be limited to the occupier-owned spaces, but landlord common spaces as well.

Occupier feedback is an essential part of achieving these comfort goals, and they should be given the opportunity to share their views on the experience. Asset and facility managers can then take this feedback and use it to make informed decisions. The building can then be viewed holistically, employing technologies that integrate seamlessly, maintaining occupier comfort throughout the space.

How to measure and improve indoor air quality by using Smart Buildings technology, Sweco

Cost-benefit analysis of improved indoor air quality in an office building, Djukanovic, Wargocki and Fanger



Provide effective maintenance & operations

What does it mean to be in the era of adoption for smart building technology?

In recent years, the real estate industry has undergone a significant transformation, transitioning from a phase of exploration to one of adoption in the realm of smart building technologies. The days of post-it notes and lengthy exploration projects to define what a smart building is are in the rear view mirror. Instead, the industry now focuses on a consolidated set of use cases that deliver tangible sustainable, operational, and experiential value.

With close to 500 buildings undergoing SmartScore certification, WiredScore has a unique purview into the breadth of solutions being deployed. What is evident is the emergence and widespread adoption of smart building use cases centered around enhancing the maintenance and operations of base-build systems. Some of the most popular are systems designed to provide predictive maintenance and autonomous fault detection. These use cases not only extend equipment life, but also reduce operating costs and enhance occupier experiences.

A core focus of these use cases lies in the integration of innovative analytics and platform technologies with older Building Management Systems. Older assets are being revamped through the incorporation of new sensing and analytics capabilities, ushering in an era of unprecedented efficiency. What's truly groundbreaking is the evolution in the delivery of these solutions. Previously reliant on human-led onboarding and data analytics, the industry has shifted towards an autonomous, machine-learning led approach. This shift expedites data analytics and enhances recommendations to facilities managers to optimize the asset.

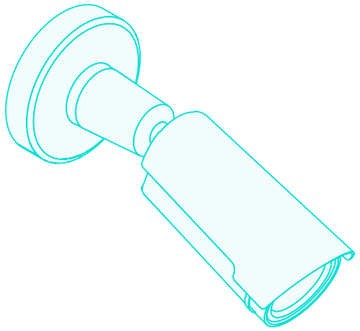
The future of real estate undoubtedly rests in the hands of those who adopt and adapt, integrating smart building technologies seamlessly into the very fabric of their properties.

Furthermore, the maturity of these solutions has significantly lowered the cost of deployment while macroeconomic and political factors have amplified the benefits. Escalating energy costs and discerning occupiers, who demand well-managed spaces and control over building systems, have intensified the urgency for these advancements. Yet some challenges persist which cause the pace of adoption to lag. The hurdle lies not in the sophistication of software or analytics, but in the physical practicalities of supplementing older assets with high-quality additional data, such as granular insights into energy consumption.

These challenges are not insurmountable. With a growing demand from occupiers for superior spaces, landlords who do not embrace these solutions risk falling behind in an industry that is constantly maturing. The future of real estate undoubtedly rests in the hands of those who adopt and adapt, integrating smart building technologies seamlessly into the very fabric of their properties.

As the industry evolves, smart buildings are not just a luxury but a necessity. Those who embrace this revolution will lead the way into a future where buildings are not just structures but intelligent, responsive ecosystems, enhancing both experiences and efficiency for all who inhabit them.

Will Brouwer, Global Product Manager for SmartScore certification, WiredScore



Secure your smart building

Physical security alone is no longer enough.

Simon Ng, Senior Associate Director for ICT Services, Beca

We spoke to Simon Ng, Senior Associate Director for ICT Services at Beca, about the growing importance of cybersecurity in buildings.

With over 20 years of experience in IT management and consultancy, Simon has seen a lot of change in the technological capabilities of buildings. He is responsible for designing and delivering ICT network infrastructure, and serves as his company's data protection officer. As a part of his role, Simon is also a WiredScore and SmartScore Accredited Professional, helping his clients to evaluate their digital connectivity and smart technology.

Hi Simon, thank you for speaking with us today. To begin, please could you share how the perception of security, particularly data security, evolved as a key concern among occupiers?

In today's digital economy, occupiers rely heavily on technology to streamline their business operations, the integration of systems, and the use of data to enhance efficiency. This increase relies on technologies and systems that come with their own sets of risks and vulnerabilities - particularly in securing the data that they have collected post-process and stored either on the premises or on the cloud.

When a large amount of data is collected, consolidated, mapped, and stored digitally, the data becomes a very valuable commodity. This may include asset information, people's information, financial transactions, building management information, location information, and much more.

Due to the large amount of data that we possess, data security has definitely become a major concern. We've had a lot of news and reports made about data leaks, data breaches, and cyberattacks. People and businesses have both been affected by these events, which has made people more aware of how vulnerable digital data and personal information can be.

> People expect businesses to keep their data safe

People are now more aware about their privacy rights and how important it is to keep their personal data safe. People expect businesses to keep their data safe and they might even choose to do business with companies that put data security first and treat their privacy seriously.

> Data breaches can be expensive, because they can result in legal fines and penalties

There are also laws and regulations in the countries businesses are operating in, and these laws contain very strict data handling and breach reporting requirements. Data breaches can be expensive, because they can result in legal fines and penalties, the cost of fixing the problem, the customer losing trust in the company and reputational damage.

What are some of the common misconceptions you've seen when promoting the importance of building cybersecurity?

I recall asking cybersecurity questions in a building project, and the answer was quite disheartening. The answer was, 'what data is there to secure in a building, and what kind of information do buildings contain that hackers will find useful?'. This is one example of how we need to correct this misconception about information in a building, especially smart buildings, with new technologies and more data collected.

People believe that having CCTV and Door Card Access in their building is safe enough, and they don't need additional security measures. While these measures do contribute to the overall security of a building, they are not sufficient in protecting against digital or cyber threats. Cybersecurity encompasses measures designed to protect data networks and systems from unauthorised access, misuse, modification, or even destruction.

One of the ways that we can correct this misconception is to use tabletop exercises. Tabletop exercises can be a very helpful tool for addressing misconceptions and challenges in promoting building security. These exercises simulate security scenarios and incidents, allowing stakeholders, or even occupiers, to discuss, plan and evaluate their responses.

Could you share some insights into the types of security solutions that are most effective in addressing security concerns for occupiers?

There are a few but I'll just share one today. One of the projects I worked on used the 'defence-in-depth' approach.

'Defence-in-depth' refers to a cybersecurity approach that uses multiple layers of security for a holistic data security protection. In this project, we used a layered defence approach to help:

- assess the security posture of the systems,
- establish governance,
- reduce vulnerabilities containing threats,
- mitigate risks,
- put controls in place to provide holistic protection to the networks, digital assets and information.

Each layer has its own set of criteria, that the systems, the OT systems or the IoT suppliers will have to self-assess, because I always believe that cybersecurity is everybody's responsibility. A final document will be populated and compiled, and the client may request an independent review by a third-party cybersecurity vendor or specialists.

What trends do you see emerging in the realm of building security, and how should our strategies adapt?

"It is not a matter of if, but when." In the current cybersecurity threat landscape, it is not just a matter of if the building is prepared for cybersecurity threats, but more importantly, if the building is ready to respond to these threats.

The question is, are we ready for the various attacks we could face where the shifts to remote work and remote monitoring have increased vulnerabilities? including the likes of AI and machine learning attacks.

As AI and machine learning are increasingly used in building systems, attackers may attempt to manipulate AI models to misbehave or make malicious actions.

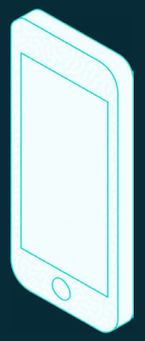
To mitigate these emerging threats, organizations should adopt a comprehensive cybersecurity strategy that includes regular security risks and impact assessments, awareness training, and stay informed about the latest cybersecurity developments. Building security should be a proactive and evolving process to adapt to the changing threat landscape.

Adopting security standards and obtaining certifications are essential practices for enhancing security assurance and establishing a safe place and trusted environment for occupiers. These strategies and measures demonstrate a dedication to cybersecurity, provide transparency, and contribute to the holistic accountability of using smart technologies in the building.

SmartScore certification includes a cybersecurity category to reflect the growing importance of cybersecurity in smart buildings certification and facilities. Buildings with SmartScore certifications are more competitive as occupiers are increasingly prioritizing cybersecurity when choosing where to conduct business.

Getting SmartScore certification is an excellent illustration of how it can meet the evolving needs and expectations of the occupiers.

Watch the full interview for all of Simon's insights here.



Achieve ESG+R goals and ethical data use in smart buildings

Set your building up as a force for good using smart technology.

The role of smart tech in navigating ESG+R goals

Building owners and occupiers alike have Environmental, Social, Governance, and Resilience (ESG+R) goals. How can we use smart technology to achieve these and deliver the associated benefits?

We spoke with Chris Pyke, Chief Innovation Officer for GRESB, to get his insights from over 20 years working in the industry, with a particular focus on Governance - often the hardest goal to pin down.

Could you explain how technology solutions are helping companies ensure transparency, accountability, and ethical decision-making?

"At GRESB, we know that technology is integral to providing actionable transparency for institutional investors and real estate companies. Managing vast assets and data points worldwide demands a technology backbone. We envision a vertically integrated technology stack, from space-level controls to comprehensive annual reporting on energy and emissions. In today's environment, technology is essential for asset and facility managers, in enabling real-time adaptation and feedback analysis. Investors require aggregated, high-quality data, which also necessitates advanced technology solutions. Ultimately, integrated information technology is crucial for meeting stakeholder expectations, ensuring transparency, accountability, and ethical decision-making in the real estate sector."

> Smart technology is the foundation of understanding building performance.

What challenges have organizations faced when integrating smart technology to support their ESG+R Governance objectives?

"As organizations embrace smart technology, they face the challenge of being in the 'messy middle' of adoption. Interoperability, data quality, and actionability of data points are key issues. Managing vast amounts of data from diverse sources is complex, especially when it needs to be presented uniformly to stakeholders. We need to achieve a seamless data flow across different systems and locations. As it stands, organizations strive for consistent, high-quality information but grapple with integrating systems effectively. The shared struggle lies in realizing the technology's potential while navigating these challenges."

> In the future, I anticipate a seamless integration of real-world measurements with high-quality predictions, facilitated by AI and machine learning.

How can smart technology solutions provide greater visibility into the sustainability and efficiency of buildings, and what benefits does this transparency bring?

"Smart technology is the foundation of understanding building performance. Transparency in areas like energy efficiency, emissions, and air quality is crucial for sustainability efforts. Technology aggregates this information across spaces, floors, and buildings, turning opaque assets transparent. There's no going back on these advancements; the challenge is to continually improve their effectiveness and insightfulness as we move forward."

> Ultimately, integrated information technology is crucial for meeting stakeholder expectations, ensuring transparency, accountability, and ethical decision-making in the real estate sector.

As technology continues to evolve, what innovations in smart technology do you foresee that will further contribute to achieving ESG+R goals?

"In the future, I anticipate a seamless integration of real-world measurements with high-quality predictions, facilitated by AI and machine learning. This blending of technology will enable us to continuously predict and measure how assets operate, refining our understanding in real time. With shorter cycle times, we'll predict and measure at various intervals, enhancing our control over buildings at unprecedented scales. This integration will fundamentally transform how we manage buildings, providing a deeper understanding and control, and shaping the industry in the coming years."

Watch Chris's full interview for more insights.

Chris Pyke, Chief Innovation Officer, GRESB

The uses, benefits and ethics of data

In an evolving landscape, keeping up with digital trends is hard enough on its own, but more difficulties arise when people's data is involved.

Dr. Sue Chadwick, Digital and Strategic Planning Advisor at Pinsent Masons, knows this all too well. We spoke to her about how we can best use data from smart buildings, and what's important to bear in mind when considering the ethics of a data-led environment.

Here's an overview of her insights:

What advice would you give to professionals looking to stay ahead of the curve by leveraging data-driven insights?

"Stay updated with tech podcasts and media. Collaborate with specialists and academic institutions and be purposeful in your data collection, gathering only what's necessary. Prioritize transparency and informed consent in smart technologies. Share data for communal benefit when it's appropriate to do so, to contribute to public databases or local initiatives."

What performance indicators should real estate professionals prioritize when communicating with stakeholders?

"At the moment, the emphasis is on carbon emissions. Therefore, you should concentrate on reducing energy and carbon outputs throughout construction, demolition, and building operations. When looking ahead, asset managers should embrace advanced technologies beyond sensors, incorporating biometric and surveillance data to help with reporting. Alongside this, make sure to prioritize ethics; maintain transparency regarding data collection, usage, and sharing practices."

> When looking ahead, asset managers should embrace advanced technologies beyond sensors, incorporating biometric and surveillance data to help with reporting.

Could you share your insights into the successful strategies you've seen for harnessing data analytics and artificial intelligence in real estate?

"Real estate often keeps successful strategies private. However, some companies like TfL (Transport for London) utilize vast amounts of data safely and effectively, by automatically anonymizing their datasets, ensuring privacy. This was particularly useful in identifying high-traffic areas when aiding COVID response planning. In terms of Governance and AI, initiatives like the London data board showcase innovative approaches, in particular when looking at what they plan to do in the future."

How can effective communication and collaboration strategies be established to ensure everyone benefits from data-driven improvements to smart buildings?

"I believe there's currently a lack of collaboration between data owners and occupants. Involving occupants from the start of the technology implementation fosters shared ownership of data use. Embracing embedded surveillance technology with occupiers' consent could revolutionize the way we live and work, and failing to do that ethically could lead to reputational damage and legal issues. This collaborative approach ensures societal benefits, allowing people to use their homes and offices to their full potential."

> Involving occupants from the start of the technology implementation fosters shared ownership of data use.

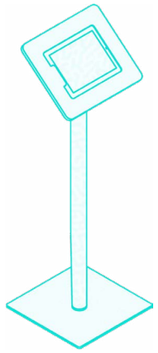
How can real estate professionals leverage data from smart buildings to contribute to their environmental goals?

"In the era of in-building sensors, it's important to view your data as a valuable resource for energy efficiency. The focus now isn't just how to get data, but what the data is and why it's been collected. It's crucial to align with GDPR principles, but to also consider how your data can do further good. Think about contributing to public databases like the London Datastore, or collaborating with local authorities or schools. "

> The focus now isn't just how to get data, but what the data is and why it's been collected.

Watch Dr. Chadwick's full interview for the full story.

Dr Sue Chadwick, Digital and Strategic Planning Advisor, Pinsent Masons



Communicate smart building benefits

Effectively demonstrate tangible benefits to occupiers and investors.

Effectively communicating your building's benefits needs to be a fundamental part of your smart strategy. A building that embraces smart technology sets itself at the forefront of the competitive real estate market. However, this means very little if occupier and investor decision makers are unaware of the benefits your building offers.

WiredScore's Accredited Professionals are experts in developing and promoting a building's commitments to digital connectivity and smart technology. They provide insights and advice on how to set your building up for success by embracing smart technology, and can support you in communicating the benefits to occupiers and investors.

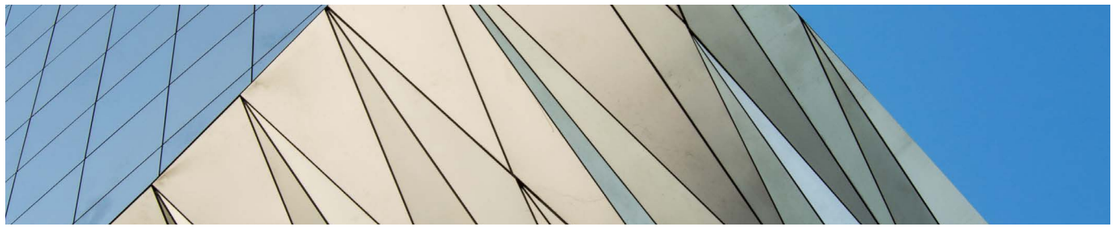
"One of the challenging questions we face is, 'how do you prove to the market that you have a great building?'. Having an independent party like WiredScore come in and offer a certification like SmartScore, really does help provide that validation. It proves that this building doesn't just say it has a great experience, it's actually thought through the whole experience and is delivering on its promises.

Another trend we see in the market is that many occupiers are thinking very hard about what it means to be in the office. We're hearing that it's being able to have an exceptional experience, a streamlined experience, and it's easier to do things thanks to digital tools. Employers are looking at how they can provide an interesting and productive experience.

Many of the tools that SmartScore certification looks for in a building do just that. They make an occupier's day better. At the same time, they also make life easier for the facility teams. These teams can operate a lot more efficiently with automation as they can offer support to occupiers in real time.

This speed is an attractive feature when someone is looking to identify whether or not they're going to move into a building. It means we know that the facility management teams are operating efficiently and are offering good value for money.

When working with investors, we see them put a significant amount of money into making a building that can deliver efficiently and sustainably. Taking that a step further and being able to evidence that through an independent certification really helps convey to the market that this building does what it says it was going to do.



We've seen evidence in the past that if a building has a WiredScore certification, it can command a slightly higher rent premium. That's often very attractive to investors when they are putting a significant amount of capital into delivering a great building with an outstanding experience."

Claire Callan, Smart Building Technology Advisor, WSP

"In my experience, when developing a smart building, different stakeholders are making both emotional and rational decisions based on cost, impact and ROI. We all know the pain of having to stick to a budget - it's not endless! So building decision makers have to balance the cost and the benefits.

When it comes to developing smart buildings, it is essential to communicate the value opportunities as early as possible. If a key stakeholder doesn't see the value of choosing smart solutions, they are likely to move the focus towards something like an improved interior instead, or something else they believe occupiers want. In addition, user convenience from public Wi-Fi or digital signing is still underexposed. It looks like the market is still focusing on the E in ESG, not the Social or Governance part.

Due to increased costs of energy and regulations, the smart measuring of energy and air quality has become a default within the program of requirements. However, these reports are not always granular enough to provide reports and insights for the tenant regarding energy consumption.

It takes all of the stakeholders to see the use of smart building technology. However, if they do not introduce the full potential of smart buildings at the early stages, it's not the end of the discussion. You can implement smart technology into an existing building and still enjoy the benefits it offers.

This is an important message to communicate to smart building stakeholders, and it's not the only one. Being able to market and brand your building as 'smart' is a powerful step, but you must also consider how it can help you meet regulations and provide user convenience.

Smart technology that can help you to improve energy efficiency, for example, gives you a head start in reaching government-set targets. You can also use these methods to reduce your carbon emissions across your portfolio and achieve both your ESG+R goals, and those of your building users.

At the end of the day, tenants and visitors are looking for a building that comply with regulations. If an occupier is choosing between two different buildings, and you can prove your building's better from an experience and regulatory standpoint, they will be more likely to choose you."

"I think that, for many years, there was a lot of marketing 'fluff' around smart buildings. It was all about these great gadgets and futuristic ideas without showing tangible results. Today, we should be using the tools we have to really improve our communication around the benefits of a smart building."

Eddy Klercq, Service Manager, Building Connect

Some of these key benefits are technology's role in achieving ESG+R goals, how the buildings can attract employees to come back to the office, and how the building is future-proofed for future investment.

I believe smart building technology has a lot of value over the whole lifecycle of real estate, and I see the value of smart building technology spanning between two parties, investor and occupier.

Firstly, having technology attracts potential occupiers to the building, and encourages current occupiers to stay. Secondly, it helps with operational efficiency. Technology helps us save on operations costs and helps us reduce our carbon footprint. And finally, it future-proofs the building, making it more flexible, and reducing the amount of investment needed over time.

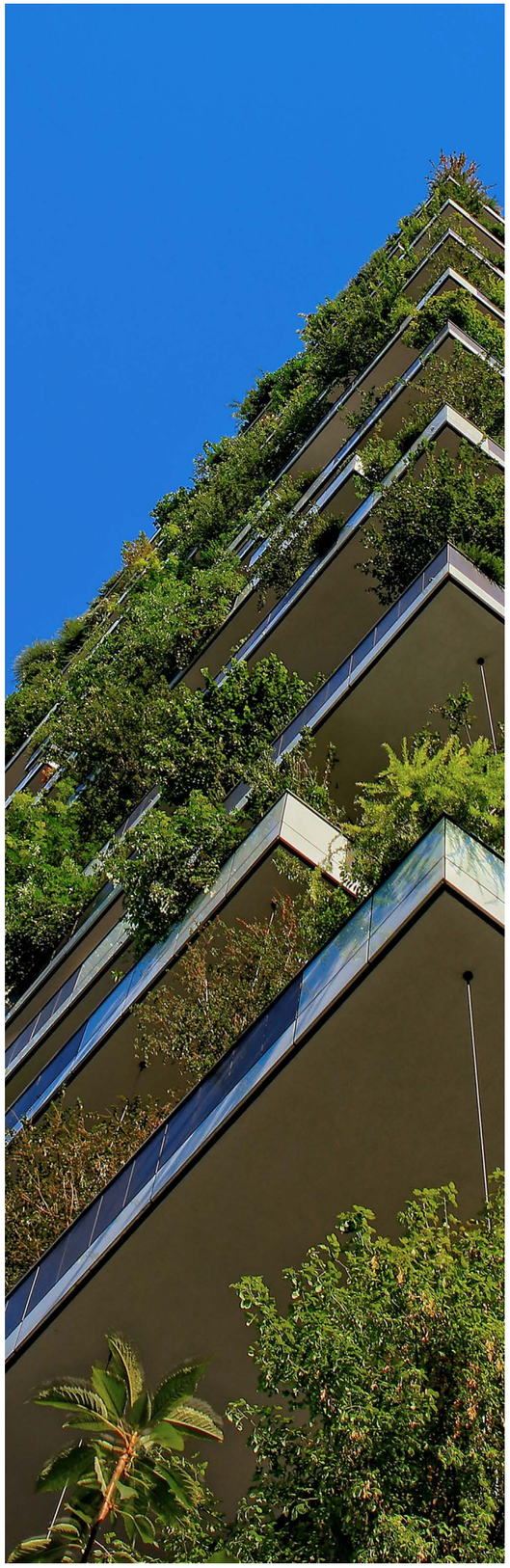
If you are an Asset Manager and you're thinking of how to effectively communicate your smart building technology to occupiers and your future occupiers, start with them. They are trying to attract people to come back to work, they are trying to gather data on how their office really works, and they are trying to figure out what's coming next.

We can show occupiers that their business will be more successful in our smart building by effectively communicating the solutions we have to address their problems."

Renata Hartle, Director of Technology Solutions, Colliers

What does the future hold for smart buildings?

Smart technology is constantly evolving. Here are a few predictions from WiredScore experts of what we could expect in the coming years.



The adoption of smart buildings will become the primary response of both landlords and occupiers to the shift to hybrid working. These innovative spaces have the potential to draw employees back into the office environment by offering an experience that surpasses the comforts of remote work.

Smart buildings, designed with a user-centered focus, promise an inspiring, highly productive, and healthy work environment, complemented by sustainable features. In the evolving real estate landscape, buildings that fail to adopt user-centric smart technology, geared towards improving occupiers' lives, risk losing occupancy and value at a rapid pace.

The future of workspaces is undeniably intertwined with the evolution of smart buildings, ensuring a dynamic and engaging work environment for the modern workforce.

William Newton, MD & President

I see the future of smart technology growing in three ways. Firstly, data-driven cost savings. Asset managers can benefit from a data-rich environment and make data-driven decisions on a larger scale. Benchmarking helps asset managers identify inefficiencies and areas for improvement. By comparing building performance data, they will find new opportunities for significant cost savings through energy efficiency, predictive maintenance, and streamlined operations.

Secondly, scalability and integration. As the industry shifts from proprietary to open protocols, more integrations will be made available. Interoperability standards and protocols are laying the groundwork and making scalability and integration easier. These standards ensure that different devices, sensors, and systems can communicate with each other and be managed through a common interface. Asset managers would have more solutions to choose from, and avoid lock-in situations.

Finally, we can expect to see better asset lifecycle management. Smart buildings with predictive maintenance and improved energy efficiency reduce operational costs and extend equipment lifespans. This reduces the carbon footprint associated with the manufacturing and disposal of new equipment. Asset managers can then align asset lifecycle management with sustainability goals, enhancing asset value and minimizing environmental impact.

Freya Yang, Lead SmartScore Building Technology Engineer

A lot of companies in the real estate world have made a lot of money in the past doing things in one particular way. The frequent disconnect between the 'C-suite' and employees, like Asset Managers, contributes to the classically slow progression of change in our market. Building solutions need to recognize their diverse audience and ensure they are fostering a wider understanding of the benefits of smart technology, addressing many different pain points.

Looking forward, I hope to see the adoption of smart technology in buildings increase in pace. It's no longer a case of 'if' a building should have tech-capabilities, but 'when'. Smart technology offers a safety net for a building's resilience, ensuring it is fit for purpose both today, and a decade from now. At a time when every dollar is scrutinized and every business move needs to be carefully calculated, I see this reward vastly outweighing the risks.

Arie Barendrecht, Founder & CEO

As we have entered the era of smart building adoption, with the industry consolidating on the core set of smart building use cases, exemplified by our SmartScore certification v2 scorecard, the innovation within the industry shifts from focusing on the 'what' to 'how'.

This shift has anchored the conversation in discussing the best ways to scale smart buildings globally. The industry has moved from a broad exploration to enabling innovative use cases across all layers of the smart building framework.

Various economic, political, and societal factors are accelerating this adoption, with evolving climate and energy legislation acting as significant catalysts. For instance, regulations like New York's Local Law 97 necessitate detailed energy data collection and consumption reduction.

The push for a return to office work is further reinforcing the demand for high-performing spaces, seamless employee access, and digital amenities. In this landscape, smart integrated technologies are becoming indispensable. Landlords without these technologies risk being labeled as laggards, emphasizing the urgency for their adoption to ensure competitiveness and meet occupier expectations.

Will Brouwer, Global Product Manager for SmartScore certification

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