

TrueOccupancy
by irisys




The Truth About Workplace Occupancy

REAL WORLD APPLICATIONS AND BENEFITS
OF OCCUPANCY DATA ANALYTICS

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“The smart building boom is bringing about huge benefits for business. **This next chapter in real estate innovation merges sophisticated technology with building management strategies to empower the organisation’s most valuable asset, its people.**”

— YIZHOU CHEN, GENERAL MANAGER AT IRISYS

SHAPING THE WORKPLACE OF TOMORROW

Smart buildings have shifted from futurist vision to bricks-and-mortar reality—but the true potential of the technology at the heart of this shift is only just being realised.

The UK's office market is in flux and currently undergoing its most significant transformation since the mid Twentieth Century. The communications revolution and the growth of industries that primarily rely on knowledge workers is driving new demand for a human-focused approach to the optimisation of real estate assets, built on smart technology.

The Workplace Advantage report from The Stoddart Review finds traditional workplace real estate strategies entrenched in the desire to improve space utilisation. For [James McHale](#), Founder and MD at independent smart building research firm [Memoori](#):

“Space optimisation is an obvious use case with a demonstrable return on investment. If you can work out that 40% of the desks are never, or rarely, used there is a clear and obvious saving to be had. Then you can make some clear decisions on how the space could be better utilised, for example, whether to sublet it or get rid of it altogether.”

However, in today's knowledge economy competitive advantage comes from people as opposed to assets. Existing workplace environments are not providing employees with the spaces they need to perform at their best, both individually and collaboratively, and requirements for long-term business success are extending beyond optimal workplace density.

This is a reality reflected in [Leesman Index](#) research, which suggests only 53% of UK and Ireland employees agree that their workplace enables them to work productively.

A highly mobile and skilled workforce will increasingly choose employers based on the experiences and support they provide. This means there is a distinct need for competitive businesses to adapt to demands and today's modern dynamic of the workplace. As flexible working, activity-based design practices and the workplace-as-a-service become the new 'normal', the effectiveness of the workplace environment will shape future success.

Economist Duncan Weldon believes that smarter use of the UK's office space could improve productivity by as much as 3.5% – a boost in human impact that would bring an extra £70 billion into the economy.

Building and facilities managers have previously had limited ability to understand how the workplace is being used—leading to excessive energy use, uncomfortable working environments, over and under crowding, and reactive maintenance.

Now, innovation in construction practices paired with digital transformation, namely the growing sophistication of the Internet of Things, has opened up a world of opportunity for businesses to design smart buildings and 'connected' workplaces that elevate the employee experience.

One key driving force that's powering this transformation is occupancy data and analytics.


Improvements in sensor technology are enabling organisational leaders and, more specifically, facilities managers to accurately measure and interpret occupancy data.

This deep level of analysis can be translated into tangible strategies that not only improve space utilisation, but also drive additional human benefits across the business.

This eBook examines those real world benefits, the potential applications of occupancy data and analytics, and provides insights into the future of the connected workplace.

WHAT IS OCCUPANCY ANALYTICS?

In the context of facilities management and optimisation, occupancy analytics refers to the study of data collected by smart devices or other manual applications in order to measure the movement of individuals throughout a building or site. The aim is to enhance the space for efficiency and utility while also meeting key business goals such as improved sustainability, cost reduction, and better business performance.



“We are reaching a tipping point in the evolution of the workplace. Building owners and operators are becoming far more interested in increasing occupant wellbeing and productivity, whereas, a short while ago, the main focus of technology in buildings was to optimise energy use.”

— MEMOORI, OCCUPANCY ANALYTICS AND IN-BUILDING LOCATION BASED SERVICES 2017 TO 2022

THE REAL WORLD BENEFITS OF OCCUPANCY ANALYTICS

Adoption of occupancy data technology is helping businesses to achieve valuable outcomes for both building efficiency and human productivity.

Any workplace environment that actively supports a happy, satisfied and engaged workforce will yield better employee output.

Take for example, Activity Based Working, a strategy that unpacks and reimagines traditional workplace design to provide employees with various workstations that meet the specific requirements for certain tasks. Bridget Hardy, Strategic Advisor on Smart Working at the Department for Work and Pensions, believes this type of mobility is central to productivity.

“Saving real estate costs by increasing occupation density is a false economy if it results in cluttered, noisy ‘one-size-fits-all’ environments that frustrate people and actually hinder effective work. The key to increasing density effectively is mobility—with the freedom to choose, coupled with a choice of environments that suit different types of work and people’s preferences.”



88% of highly engaged employees have the option to choose where in the office they work based on the specific task(s) they need to do.

— STEELCASE

Before companies can adapt, they need to understand how existing spaces are being used, and the needs of the people who use them. It all comes back to that classic adage from corporate pioneer Peter Drucker: *You can’t manage what you don’t measure.*

“Anyone can make an assumption about how a building is being used, but it’s data that gives clarity,” says James McHale. “The application of occupancy data solutions needs to be outcome-focused. It sounds simple, but success is based on what you want to do, what you want to measure, and what you want to achieve.”

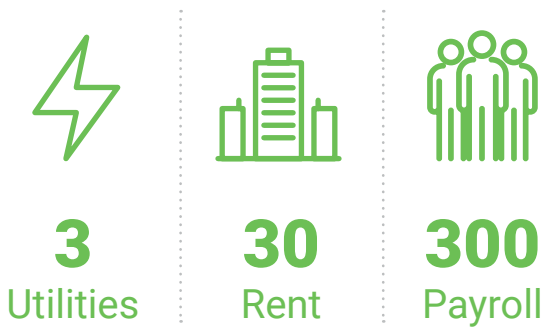
Redirecting focus onto the people who consume the workplace, is a key priority, especially when considering the widely accepted '3-30-300' rule.

As explained by property firm JLL, "the 3-30-300 rule illustrates the average order of magnitude between a company's costs for utilities, rent and payroll (*all per square foot, per year*)". This indicates the financial impact that people have on building management costs, but also represents a glaring opportunity for business leaders to optimise real estate costs.

While a 10% increase in energy efficiency equates to annual savings of £0.30 and a 10% decrease in rent saves £3, the rule suggests a 10% increase in productivity is worth anywhere up to £30. JLL's 2018-2019 Occupancy Benchmarking Guide also reveals that 40% of office space—typically the second greatest cost for organisations—is vacant at any one time.

If this figure were to be attached to the output of the workforce (i.e. 40% of employees were unproductive at any one time) the cost to the organisation would be even higher.

Productivity is quite simply the most valuable outcome for real estate and facilities managers to consider.



For those businesses ready to embrace occupancy data and analytics to better serve the workforce, National Grid's "Smart Workspace Initiative" (SWS) represents a case in point which clearly demonstrates key uses and benefits of the technology in practice.

COST REDUCTION

Key contributing factors to annual savings included the consolidation of National Grid's property portfolio and the closure of costly, under-utilised locations. Increase in space utilisation (15%) and workplace capacity (27%) also contributed to reduction in overheads.

ENHANCE EMPLOYEE SATISFACTION AND EXPERIENCE

Analytics is also used to improve the workplace experience, empowering employees to navigate around a location and optimise their workday. National Grid employees were tired of queues at the cafeteria, analytics helped them adjust their schedules to avoid busy times.

INCREASE EMPLOYEE PRODUCTIVITY

The SWS optimised workspaces and office environments to enable employees to perform at their best. For example, developing workspaces that encourage and support modern methods of working and promote flexibility, collaboration and creativity that drives innovation.



£8million annual savings



8% increase
in employee productivity



8% increase
in employee satisfaction

— KEY RESULTS FROM NATIONAL GRID'S
"SMART WORKSPACE INITIATIVE"

IMPROVE MEETING ROOM MANAGEMENT


The solution for a common corporate issue. Occupancy analytics provided National Grid with the insight to facilitate better booking systems and the installation of break out spaces for small meetings that would previously require an entire meeting room or large conference room.

DECREASE ENERGY USAGE

Data analytics unlocks proactive facilities maintenance, and the ability to consistently monitor and optimise HVAC and lighting to reduce downtime, and excessive usage. National Grid experienced a 16% decrease in energy usage as a result of SWS.

MEET COMPLIANCE REGULATIONS

Workplace design built on occupancy analytics also helped the facilities team to ensure that legal and health & safety regulations such as insurance, fire and risk, are being considered and met.



“The industry can be quite conservative in many ways and people can be resistant to change. However, we’re starting to see larger companies pushing at those boundaries, and **those leading from the front have a fantastic opportunity to reap the multiple real world benefits of occupancy data and analytics.**”

— SIMON CARTER, MANAGING DIRECTOR AT ANTICUS CONSULTING

TURNING OPPORTUNITIES INTO REALITY

Companies are only just beginning to scratch the surface when it comes to the application of sensor technology. Opportunity is on the horizon.

Through the application of occupancy analytics, companies can look closer at their workspaces and how they're being used. This enables them to take an objective approach—trumping assumptions with data—to uncover tangible opportunities for enhancement and differentiation.

National Grid reviewed specific areas of its building to identify potential sensor locations. Sensors were placed in areas where meaningful data could be derived from occupant activity to help meet predetermined objectives.

Paired with the detailed research conducted by the SWS team, this initial examination made the benefits appear 'real' for the first time.

Where office space was concerned, sensors would track real-time occupancy, desk availability for busy/quiet spaces and wayfinding. In the main entrance and lift lobby the focus would be on visitor wait time, visitor tracking and lift/elevator control. Sensors would also be used to monitor environmental factors such as lighting and HVAC, and utilisation of key on-site facilities.

"The first thing to think about when you're looking at occupancy, or any other tech-powered strategy for that matter, is to try and understand how you might deploy the system," says Simon Carter, former Head of Corporate Property at National Grid, who headed up the SWS. "This stage is a bit of an education process in a way because it helps you understand what's important and exactly what you are trying to get out of the programme."

OFFICE SPACE

- Real-time occupancy
- Desk availability
- Busy/quiet areas
- Wayfinding

OFFICE ENVIRONMENT

- HVAC control
- Lighting control

MAIN ENTRANCE AND LIFT LOBBY

- Visitor wait time
- Visitor tracking
- Lift + elevator control



OFFICE FACILITIES (E.G. GYM)

- Real-time usage

RESTAURANT

- Queue monitoring
- Food preparation

WASHROOMS

- Cleaning scheduling

CONFERENCE AND MEETING ROOMS

- Right number, right size
- Real-time availability

Workplace map demonstrates potential real estate opportunities where occupancy data could be used to measure and enhance a building, and its services.

REALISING A NEW VISION FOR THE WORKPLACE

Occupancy analytics isn't an isolated strategy, it's a widespread change management programme that runs to the core of the organisation.

Once opportunities have been identified, companies can begin to build a clear people-driven vision for the workplace that aligns with this purpose—a vision anchored to the hidden patterns of real world usage that human observation and other forms of measurement routinely miss.

National Grid ran a pilot to assess initial data and provide concrete evidence to support the business case. The pilot gave stakeholders the chance to input at every touch point, which proved all-important during a process which would involve the disruption and migration of large workforces, as well as ensuring they were engaged throughout the change programme.

“The pilot was aimed at confirming the ‘ambition’ of the project,” Simon Carter explains. “We engaged 250 people from different departments and differing worker types including engineers, shared services, finance, legal and knowledge workers. It provided the property team with invaluable insight and helped us to preempt and mitigate the risks involved.”



Employee desks are only in use 50% of the time during the working day.

— GALLUP

The roll-out of the SWS at National Grid led to the optimisation of workspaces, the office 'environment' and popular facilities. Simon continues, "We developed reports for each space being analysed within the buildings being monitored. The analysis gave us everything we needed to make proactive changes, and if spaces weren't being used efficiently we'd look to close them."

OPTIMISING THE WORKPLACE AT THE NATIONAL GRID:

WORKSPACE: MEETING ROOMS

Occupancy analysis revealed that most meetings were between two, three or four people, and that employees were booking rooms with capacities much higher than the number of attendees.

Greater variety was introduced to the workspace, including significant amounts of breakout space with casual meeting areas, while an online booking system was linked to the space occupancy system.

The new system didn't allow double bookings and rooms were offered to reflect and accommodate the number of people requested. 'Off site' bookings were also restricted and all meetings were brought in-house, enabling a business case to be developed for the redesign and refurbishment of the conference suite.

This all resulted in fewer demands for more rooms or space, time saved looking for available rooms, an increase in employee satisfaction, and further reduction in costs.

"Meeting rooms are valuable assets, but organisations often do not have the correct thinking and systems in place to maximise their utilisation."

SIMON CARTER, MANAGING
DIRECTOR AT ANTICUS CONSULTING

ENVIRONMENT: HVAC

National Grid used the data obtained from their occupancy systems to manage the already fully automated HVAC system more efficiently. Floorplates were hot in some areas and cold in others, and staff complaints were fairly high. The system ran on a 'vanilla' basis aimed at holding the temperature and humidity levels at a standard level throughout the day and week.

The system would close down overnight, regardless of occupancy levels.

The team were able to see, on a building by building basis, overall occupancy levels - for example, occupancy rates were at their lowest on Thursdays and Fridays - and change the settings of the HVAC systems to match. These insights ensured the building environment was the best it could be at all times, promoting employee and customer satisfaction and a reduction in carbon emissions.

OFFICE FACILITY: RESTAURANT

The organisation was aware of employee complaints, mainly in relation to the queuing time to use the on-site restaurant. The general consensus was "You need more staff". Many also believed there was not enough seating in the restaurant, even though kitchen staffing levels and food/service quantities were standard across the breakfast and lunch time periods.

National Grid were able to identify when people went to the restaurant and how the queue profile changed over time—they noticed a daily spike between 12:00 and 12:20. They were also able to determine how many people were in the restaurant by measuring entry and exit points.

Staff were made aware about the queue times and busy periods for the restaurant through notice boards and building wide bulletins, which encouraged people to change their habits.

In addition, occupancy data showed the restaurant was being used for larger team meetings, this information was used to ensure these meetings didn't continue into the lunchtime period.

The outcome meant the kitchen was more capable of meeting demand and there was less stress on employees. Staff satisfaction increased and use of the restaurant increased to such an extent that National Grid were able to make the facility self-funding.



49% of employees in average performing organisations are not satisfied with their onsite restaurant service.

— LEESMAN INDEX



63% of employees in high performing organisations are satisfied with their onsite restaurant service.

— LEESMAN INDEX

CREATING A TRUE CHANGE MINDSET

As is the case with any change management programme, companies will come up against barriers to success. Simon Carter highlights three key challenges for companies adopting an occupancy analytics strategy and explains how to overcome each one to boost occupier engagement, and the overall effectiveness of the programme.

CHALLENGE #1: UNDERSTANDING WHAT TO MEASURE

One common and easy mistake companies make is *over-measuring*. Effective occupancy analytics isn't defined by how elaborate the network of sensors is within the building, or the volume of data a company collects, but rather the quality of data it collects.

Simon believes less is more, even for businesses with multiple sites.

"Companies should focus on where they can extract usable data from. Taking a considered, zonal approach is cost efficient and just as effective as placing sensors everywhere. Of course, it will be different for each business, but the approach should be based on objectives every time - *what are you trying to learn?* - otherwise the end result is reams and reams of data with little to no meaning."

"It's easy to get carried away with trying to monitor every seat, every workstation, but what you need is usually a zonal approach."

SIMON CARTER, MANAGING
DIRECTOR AT ANTICUS CONSULTING

CHALLENGE #2: SEPARATING PERCEPTION FROM REALITY

“When we started the initiative at National Grid, what quickly became apparent was that there were often huge discrepancies between *people’s perceptions* of how the workplace is used, and *the reality* of how it is used,” Simon explains. “It’s important that you think about both aspects during the process, because one is a physical change and the other is a mindset change.”

Where an employee might think more space is needed, that perception may be based on a single experience or touch point they’ve had with the workplace. While space might seem scarce during a large team meeting - at other times overcrowding may not be an issue. The solution comes in demonstrating that reality to the employee and, rather than increasing the overall office space, figuring out how to better support large team meetings, or reduce these ‘friction points’ which often live in the forefront of employees’ minds.

CHALLENGE #3: DATA PRIVACY CONCERNS

People are rightly cautious of new data gathering technology, especially in light of legislation such as GDPR and growing awareness around corporate data strategies. While some occupancy sensors still capture and process information that is personally identifiable, others can provide companies and employees with complete anonymity.

“Trust is hugely important in this sense and there are a number of actions companies can take to allay concerns around the technology,” Simon adds. “National Grid used a combination of thermal (body heat) and infrared ToF (Time of Flight) sensors which provide extremely accurate, not personally identifiable data. It’s also important to communicate this information internally.”



THE TRUTH ABOUT WORKPLACE OCCUPANCY

THE TRUTH ABOUT WORKPLACE OCCUPANCY ANALYTICS

The future of the workplace belongs to those with an 'always improving' mindset, a keen eye for detail and a calm objectiveness in the face of widespread digital transformation.

In 2018, Memoori projected that commercial office space would follow a similar trajectory to the overall commercial buildings market, in both market growth and overall adoption of occupancy analytics technology systems. In fact, systems sales in this space are expected to rise to \$4.6 billion by 2022, up from \$1.54 billion in 2017.

While still in its relative infancy, the technology is showing rapid growth, and there's little doubt it will prove a pivotal fixture in the future of smart buildings and the workplace at large.

It presents an opportunity for corporate organisations to both outpace competitors from an innovation perspective and adapt building design to empower the heartbeat of the business, it's people.

"Workplace experience affects employee attraction, retention and collaboration, and there are studies which go a long way to proving that. But the ability to approach building technology with flexibility and change in mind really depends on who you are as an organisation," explains James McHale.

Rather than a one-off sink or swim initiative, occupancy analytics should be perceived as a bespoke long-term work in progress, centred around a rigorous ambition to continually measure, adapt and optimise with the occupiers front of mind. "Space itself is a journey, not a product. It's a permanent beta trial, which means you are enabling change long after the space is 'finished'," says Neil Usher, Chief Partnerships Officer at GoSpace.

Companies driving that change will unlock untapped potential for progress.



InfraRed Integrated Systems Ltd, generally called Irisys, is the largest global provider of people counting and real time queue management solutions. True Occupancy brings that expertise and technology to the world of smart and connected buildings. Our products accurately measure occupancy to equip building and facilities managers with the insight required to optimise the workplace and compete amid market innovation and widespread digital transformation.

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