



Connect. Respond. Transform.

**Healthy Building
Technologies**

COVID-19





Note from our CEO

With the end goal of becoming 'COVID-19 Secure', back to work preparations for every employer and building owner will present them with challenges they have never faced before.

The risk of transmission can be up to 20 times higher when people are indoors and in close proximity. Overlaying this with the fact that the risk of transmission is several times higher in environments where air quality is poor - it really does highlight the need for better indoor environments.

We firmly believe that transitioning toward healthier and safer buildings, consequently reducing transmission risk, will be led by data driven technology solutions. Many have asked what we are doing, exploring how smart building technologies can be used to safely reoccupy their spaces. This distills down to monitoring people and their work environment.

Occupancy monitoring in buildings has long been a valuable tool, but the COVID-19 pandemic has now made it a necessity. The focus on social distancing measures in the workplace is increasing. However it will be near impossible for these measures to be enforced without access to real-time occupancy data.

Similarly, air quality in buildings has long been a cause for concern, with the current pandemic having undoubtedly accentuated the need for healthier indoor air. Small virus particles can stay airborne for hours and can be transported long distances, carried by air flows in rooms or the air ducts of ventilation systems.



Note from our CEO

The Building Engineering Services Association have acted upon this issue, advising that strategies using clean air technologies should be adopted by every healthcare facility in the UK. It is more essential than ever for steps to be taken to improve air quality inside buildings.

In the following document, we outline some of the best-practice solutions we are seeing, centred around a proactive rather than reactive approach. We do not believe that warning signs and hazard tape will provide the surety and risk mitigation that people strive for.

Using state of the art smart building technologies, we can create healthier buildings and safer workplaces to help become 'COVID - 19 Secure'.

I do think it is important to stress that you can use your own software, hardware and data sources to achieve your COVID secure objectives. Although we do have our own software platform - we are 'hardware and software agnostic' - we work with clients to use the best and most appropriate solutions for their circumstances and objectives.





Gary Cottle

Metrikus Overview

Metrikus is a unique software platform that helps you understand and optimise your building's environment, maintenance, usage and health. We can connect all of your building's assets and sensors into a single digital platform and provides you with **24/7, real-time information** on all aspects of your estate that are relevant to you.

We have already helped many of our customers gain useful insight into many areas, including occupancy monitoring, indoor air quality monitoring, and the health of a building's physical environment.

The Metrikus platform allows you to:

-  Aggregate all data in real-time, and access a set of powerful and easy to use visualisation tools that display this data effectively, at any scale on a single dashboard or heatmap.
-  Publish the results to your dashboard and back to the BMS as feedback or commands. This allows you to create bespoke alerts and/or automated actions.
-  Scale to any number and type of users, buildings, sensors and applications quickly and in a highly cost-efficient way.
-  Flexibly plug in any prior or new sensor, asset or BMS. This makes our platform fully future-proof and backwards-compatible.

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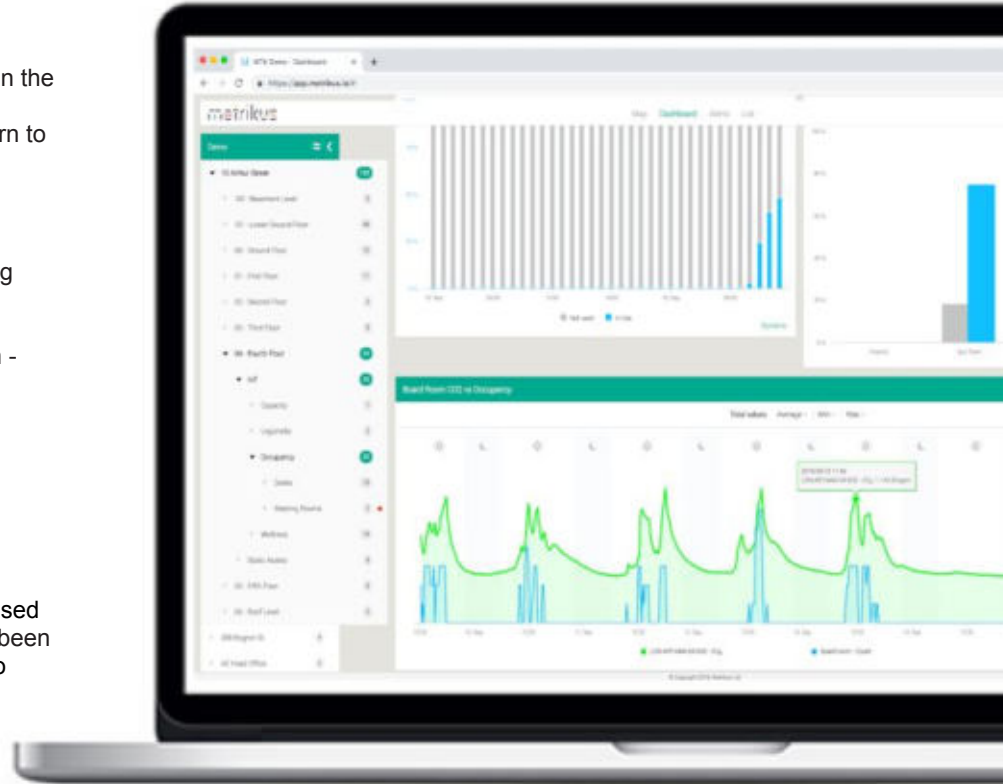
Prioritise Healthy Buildings

Employers (and landlords) are responsible for managing the risk of transmission in the workplace. Until a vaccine is available, building occupants will need significant assurance that their place of work is as safe as it possibly can be, in order to return to work.

The big issues that workplace providers face are:

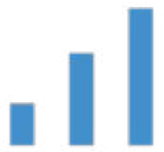
1. **Preventing infection coming into the building:** screening and cleaning people and goods as they enter the workplace.
2. **Cleaning the workplace:** anything that can retain and transmit infection - people, lifts, doors, surfaces, the air.
3. **Re-thinking engineering controls:** structural changes to air quality - temperature, humidity, dust, and air circulation.
4. **De-densification of the workspace** - imposing and maintaining social distancing regulations.

COVID-19 has demonstrated the multifaceted ways in which technology can be used to manage these factors, and the value of smart building technologies has never been as significant. The hardware agnostic nature of the Metrikus platform allows us to take advantage of all of these new technologies, with our platform being able to connect and aggregate data from multiple hardware solutions.



COVID-19 Technologies

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- 02 Meeting Rooms
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- 04 Indoor Air Quality
- 05 CFD Simulations
- 06 Engineering Solutions
- 07 Alerts & Notifications
- 08 Compliance and Assurance



01

Monitoring Desk Spacing

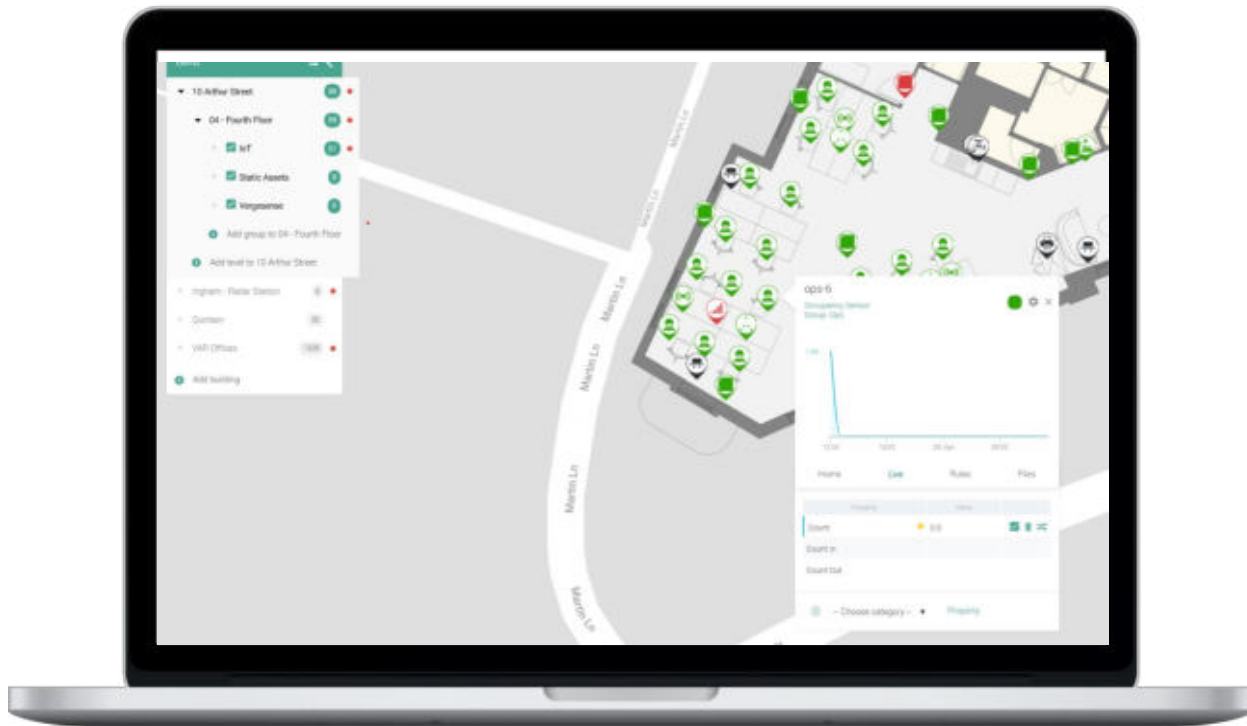
Understand and control how your space is being used, making it essential for upholding an effective social distancing policy and providing a safe and healthy environment in which to work.

Easily recognise whether desks are occupied or vacant and automatically detect when employees are sitting too close to one another.

Use our red amber green system to detail available and unavailable spaces for both staff and manager use.

Track historical departmental desk usage to ensure occupancy is remaining at policy levels over time.

Create heatmaps with live data to identify particularly busy areas.



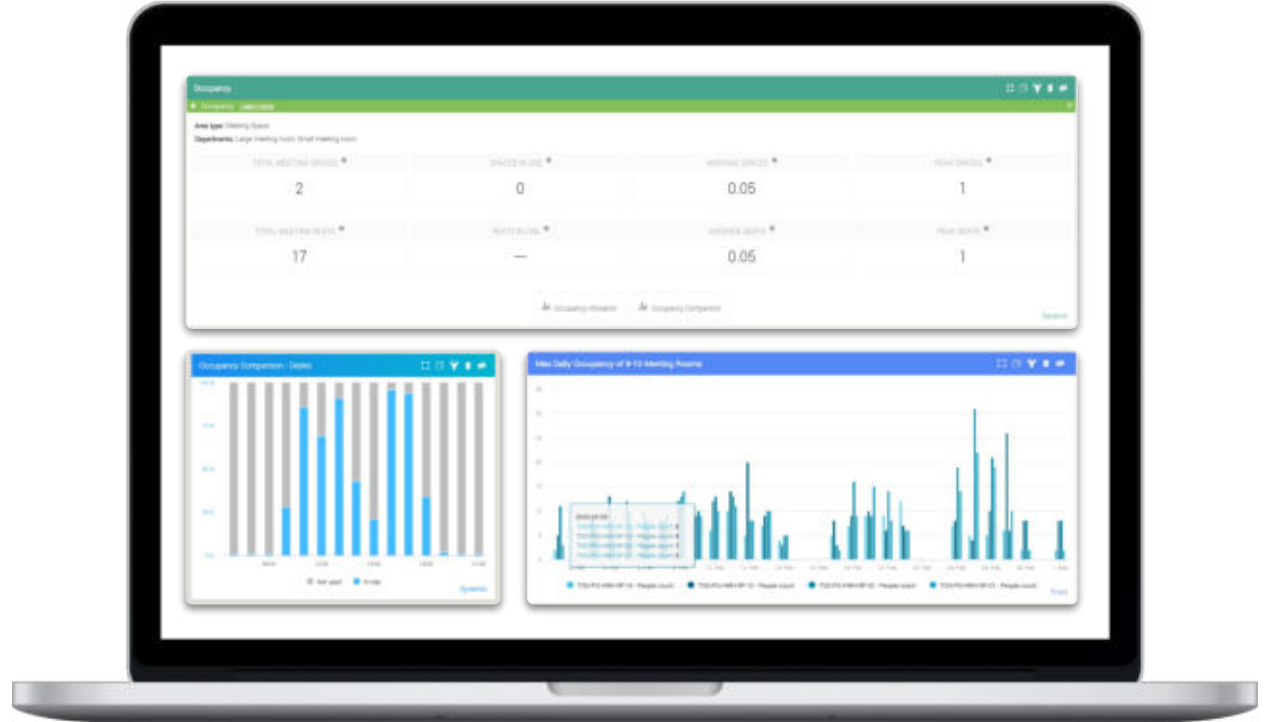
Monitoring Meeting Rooms

Track the average and peak space utilisation across all meeting rooms to ensure average seats usage does not get too high.

Analyse people flow and utilisation over the course of the day to identify peak hours where social distancing may be most at risk.

Track daily and historical occupancy of individual meeting rooms to identify unusually busy rooms and check whether capacity rules on rooms are being followed.

Identify empty meetings rooms to ensure maximum utilisation of your space.





03

Track Maximum Occupants By Floor



Monitor the live capacity of each floor alongside key building occupancy and compliance metrics for managing health and safety requirements.

Identify overcrowding and relocate employees to different floors to maximise social distancing measures and minimise transmission.

Occupancy data can also be used to inform a staggered employee schedule. Many companies are considering assigning employees alternate work hours in order to limit the number of people in the office at any given time. If companies can understand how many people are in different areas of the office, they can create time-based allotments accordingly.

Indoor Air Quality

Air quality in buildings has long been a cause for concern, but the COVID-19 pandemic has accentuated the need for healthier indoor air. Virus droplets can remain airborne for hours and travel significant distances.

Industry and Government guidance has stated that transmission 'through the air is sufficiently likely that airborne exposure to the virus should be controlled', through 'changes to building operations, including the operation of heating, ventilation and air-conditioning systems'.

Our approach is unique in that it combines molecular air purification hardware with a comprehensive real time monitoring platform - there is no other offering as comprehensive. **The hardware is unique in that it combines D-orbital Nano Oxide (DNO) with high efficiency particulate air (HEPA) filters to trap and kill the virus**, and any other harmful waste, cleaning down to a microscopic level. The key difference being the eradication and risk reduction through zero secondary release (the failing of most air-con systems and other air purifiers). This technology is certified to H1N1 standard, with the filter up to 10 times more efficient than standard carbon filters

The other significant benefit to this approach is its cost effectiveness - improving air quality for all environmental factors, and reducing contagion risk for between £1 and £2 per square foot. This system ensures that the most 'at risk' areas are identified, and units moved to then provide flexible localised purification where it is needed most.



05

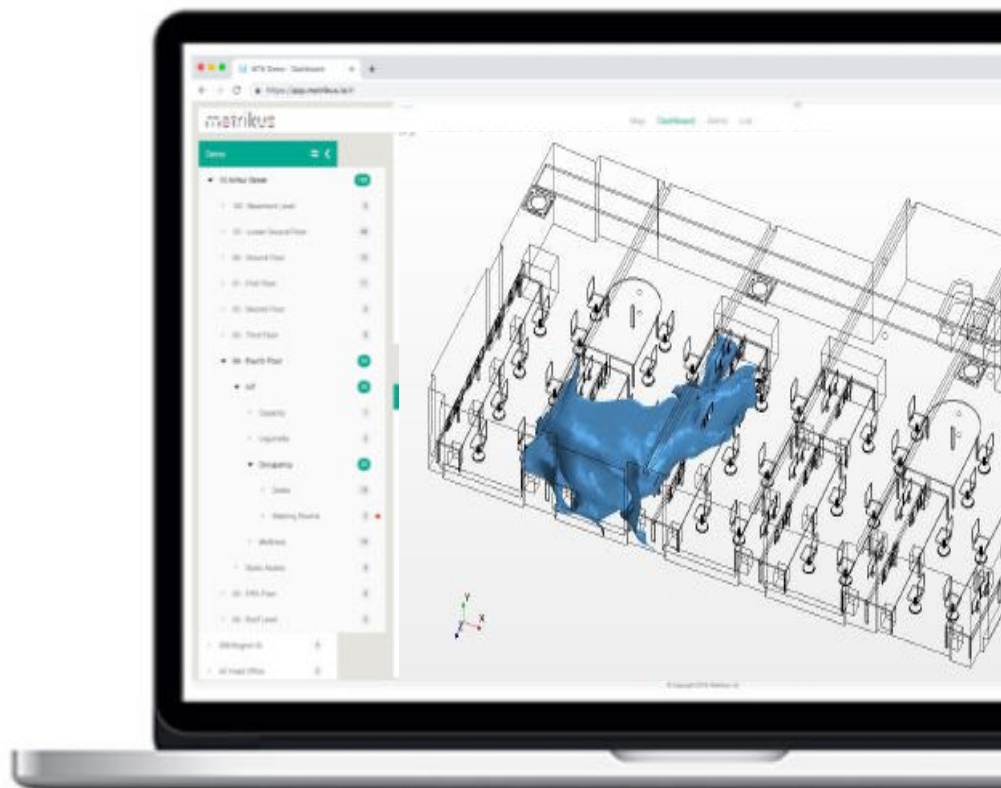
Computational Fluid Dynamic Simulation

Baseline Computational Fluid Dynamic simulation to build risk register of a building in terms of infection transmission risk vs specific building layout and aircon configuration.

Build a baseline CFD model for your building and floor layout, from entrances to communal areas, to desk seating arrangements.

Run large data simulations to overlay the layout of the building with various air con settings and methods of risk mitigation to build a risk register.

Identify highest areas of risk to focus engineering solutions toward.



06

Engineering Solutions

Reduce entrance and visitor risk with anti viral spray barriers and core thermal cameras at strategic entry and exit locations. More than 99.9999% effective at risk reduction and mitigation.

Implement touchless access software or anti bacterial sealants on key doors, lifts and touch points to reduce contagion risk.

Implement UV cleaning in key risk areas, with robotic and machine learning functionality to provide compliance and enhanced safety.



07

Be notified when it matters

Get real-time email or SMS alerts when capacity is exceeded or when desk social distancing rules are breached. For automated cleaning robots, receive daily summaries of compliance and governance.

Trigger alerts immediately or introduce conditional rules that track indoor air quality (IAQ), number of occupants, specific space utilisation or whatever matters most to you.

Use alerts to highlight and rectify issues before they create serious impacts, making sure that key staff are notified immediately if issues arise. Prioritise who receives different alerts to ensure the right team members are notified.

Be alerted when IAQ deteriorates to actively prevent conditions that affect virus transmission.



Compliance and Assurance

Bring together a process of real time risk assessment and risk management to achieve a continuous state of risk reduction using state of the art hardware and software technology.

Data and alerts stored forever to provide audit trail, evidence, and compliance with industry best practice certification.

Gaining these certifications highlights that you are invested in the health and wellbeing of your employees. It also shows that you have been proactive in reducing the risk and spread of COVID-19, and that you are taking steps to future proof your space against any potential air quality risks.

AirRated™





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