

Smart tech for creating safer workplaces in the time of the pandemic

4th December 2020



**COVID-19 has fundamentally
changed the way that we live and work**

3 key priorities for organizations... During COVID-19



Adapt to the evolving definition of a safe workplace



Create safe working environments for employees



Complying with new regulations in an efficient and cost-effective manner

Smart tech for creating safer workspaces

The effect of COVID-19 on Singapore workforce

Since office shutdowns have occurred...

32.5%

of the workforce reported lesser
productivity working
from home

66.9%

of the workforce reported higher
stress levels since the outbreak

***Source:** [Qualtrics study: Employee Experience: The Other COVID-19 Crisis: Mental Health](#), study conducted across Australia, France, Germany, Singapore, UK and US

Smart tech for creating safer workspaces

The effect of COVID-19 on the definition of safe workplaces

Coverage of safe
workplaces in the
pandemic

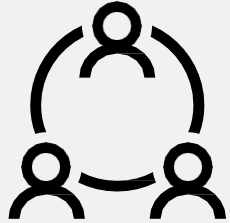
Classic coverage areas:
Physical occupational hazards & risks

&

Today's additional coverage area:
Infectious disease transmission

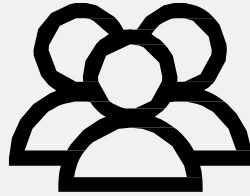
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4 key areas of mitigating disease transmission risks



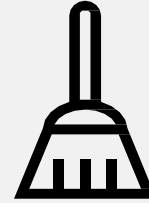
Personal measures

Social distancing measures have to be followed and enforced at all times



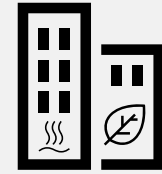
Space occupancy

Occupation limits have to be enforced in order to reduce community transmission



Sanitation

Equipment and spaces used should be sanitized at regular intervals



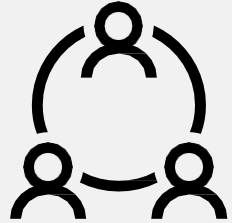
Environmental

Improving air circulation may help to reduce airborne disease transmission

*Based on MOM & WHO disease transmission mitigate guidelines, sources: [“Requirements for Safe Management Measures at the workplace, MOM \(2020\)”](#), [Coronavirus disease \(COVID-19\): Ventilation and air conditioning in public spaces and buildings, WHO \(2020\)](#)

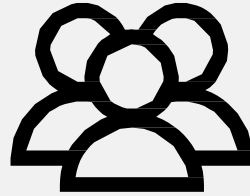
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4 key challenges of mitigating disease transmission risks



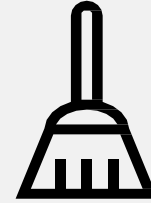
Personal measures

Enforcement is done manually and is manpower intensive



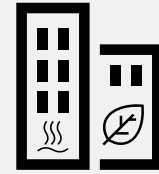
Space occupancy

Lack of data and transparency into space occupancy for enforcement



Sanitation

Lack of collected usage data for directed cleaning efforts



Environmental

Limited data points; adjustment is manual & based on anecdotal feedback

Smart tech for safer workplaces: One solution, two operating modes



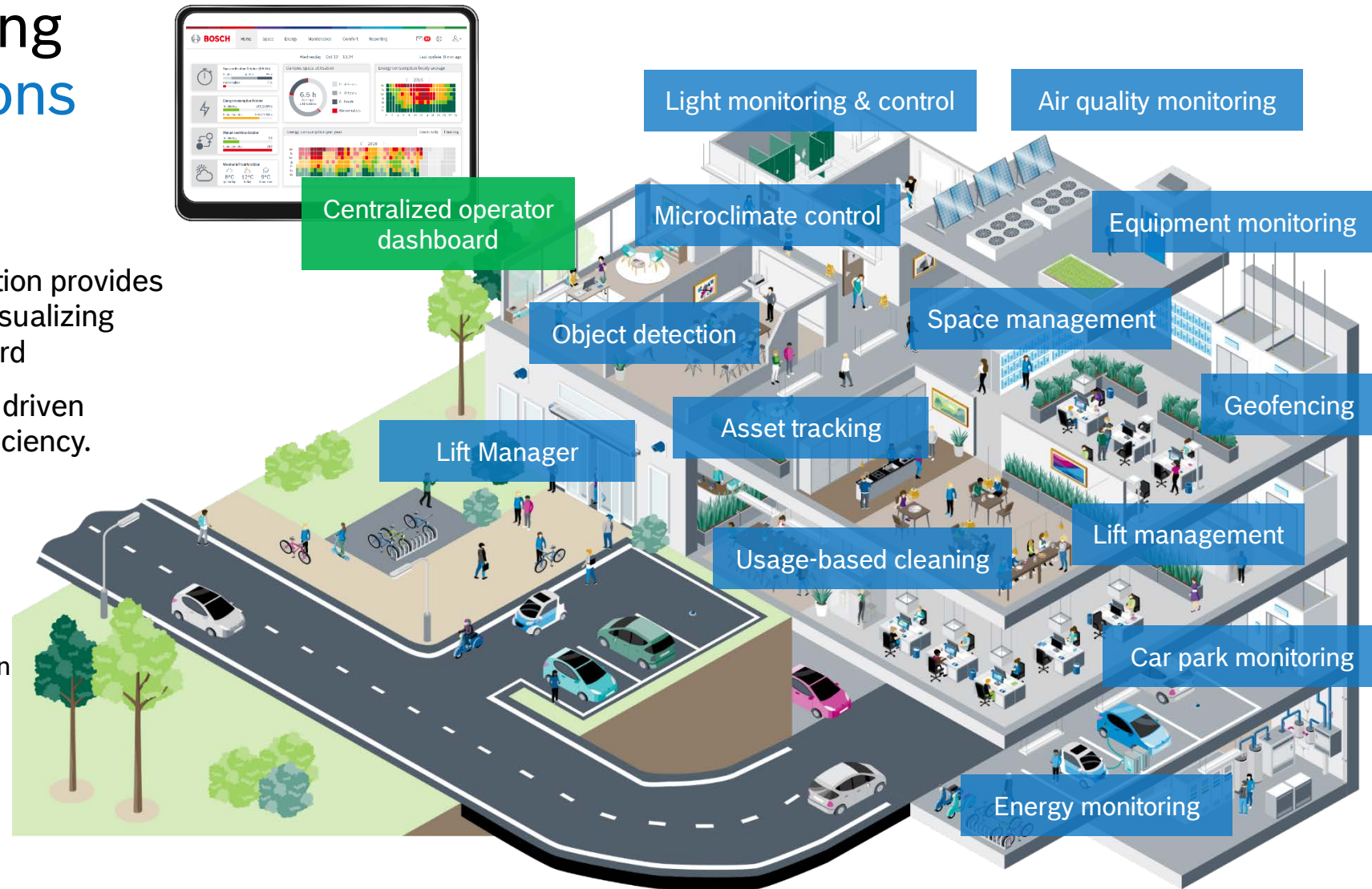
Bosch.IO Building Normal operations

In normal operations, our solution provides operational transparency by visualizing data on a centralized dashboard

This allows FM's to make data driven optimizations and increase efficiency.



For more information on use cases, scan QR code or visit:
<https://bosch.io/smart-buildings/>



Bosch.IO Building

One system for regular operations and outbreak preparedness



A. Regular operations

- ✓ Easily locate assets across the building
- ✓ Utilize efficient space management and access control
- ✓ Monitor people flow
- ✓ Optimize indoor air quality
- ✓ Improve comfort and productivity of building occupants
- ✓ Reduce energy consumption



B. Outbreak threat

- ✓ Impose social distancing measures
- ✓ Monitor compliance
- ✓ Separate dedicated areas and prevent breaches
- ✓ Trace contacts and isolate potential carriers
- ✓ Identify and disinfect contaminated areas and equipment

From Plan A
to Plan B
with a mouse click

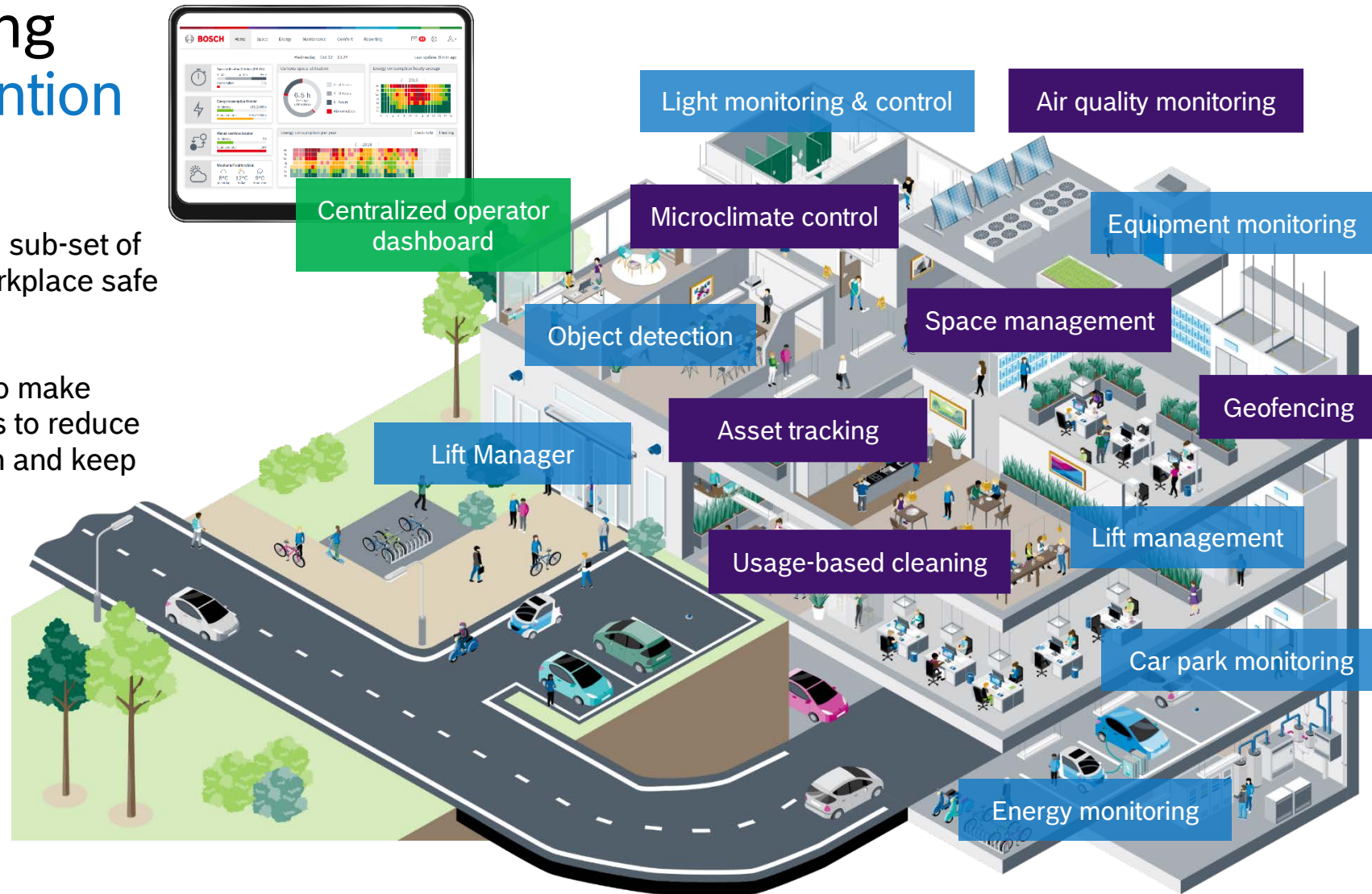
Bosch.IO Building Outbreak prevention

In outbreak prevention mode, a sub-set of use cases can help to keep workplace safe

This empowers organizations to make decisions and automate actions to reduce the risk of disease transmission and keep workplaces safe



For more information on use cases, scan QR code or visit:
<https://bit.ly/2VXmC7R>



Smart tech for safer workplaces:

Use case highlights




Smart tech for creating safer workspaces

Use case: space monitoring & occupancy tracking



To request for a demo,
scan the QR code or visit:
<https://bit.ly/342Bm9Y>



Having accurate data on space usage is critical for understanding utilization and mitigating disease transmission

Overview

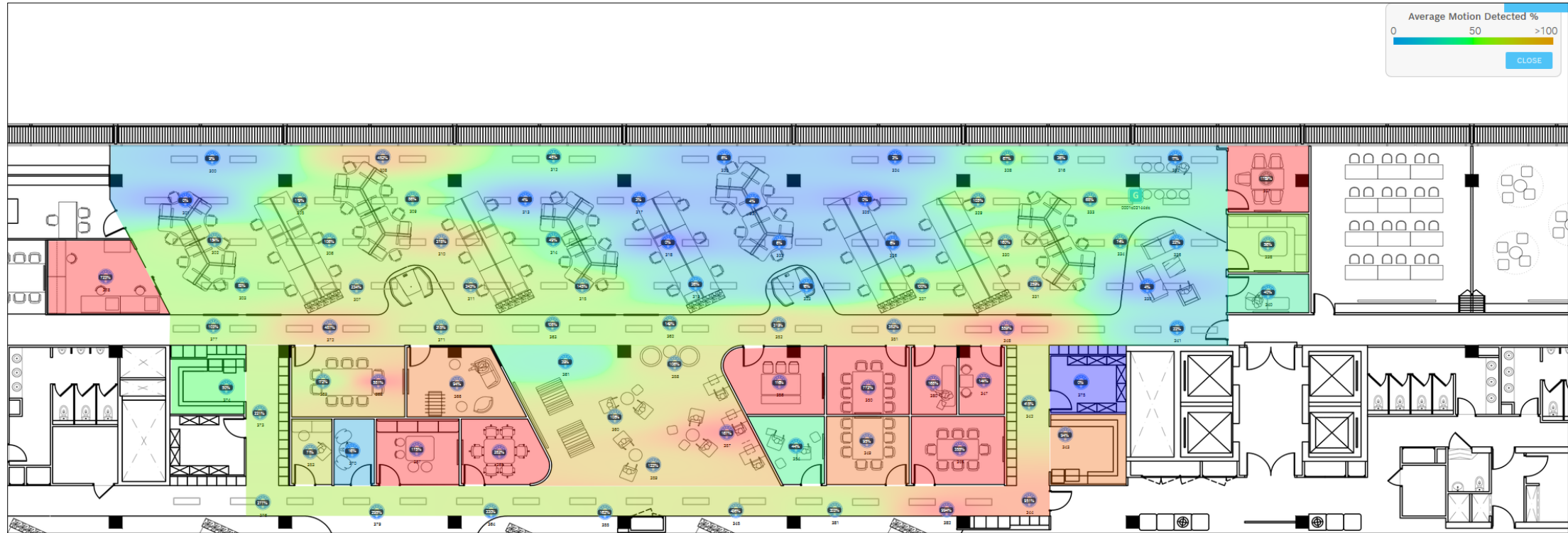
- ▶ Track space usage in real-time across multiple space types (meeting rooms, canteens, gyms, open plan offices, etc)
- ▶ Get detailed historical occupancy reports and space usage trends
- ▶ Real-time occupancy status of common facilities (e.g. gym, recreation room) available for building occupants via an app or chatbot

Benefits

- ▶ Improve efficiency by directing cleaning crews to high usage areas
- ▶ Improve space management by identifying poorly used or frequently overcrowded areas
- ▶ Reduce expenses by repurposing underutilized spaces
- ▶ Make informed decisions on office expansion or reduction
- ▶ Improve staff productivity and reduce waiting time for common facilities

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Use case: space monitoring & occupancy tracking



Sample space occupancy dashboard

Smart tech for creating safer workspaces

Use case: desk monitoring and booking systems



To request for a demo,
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Overview

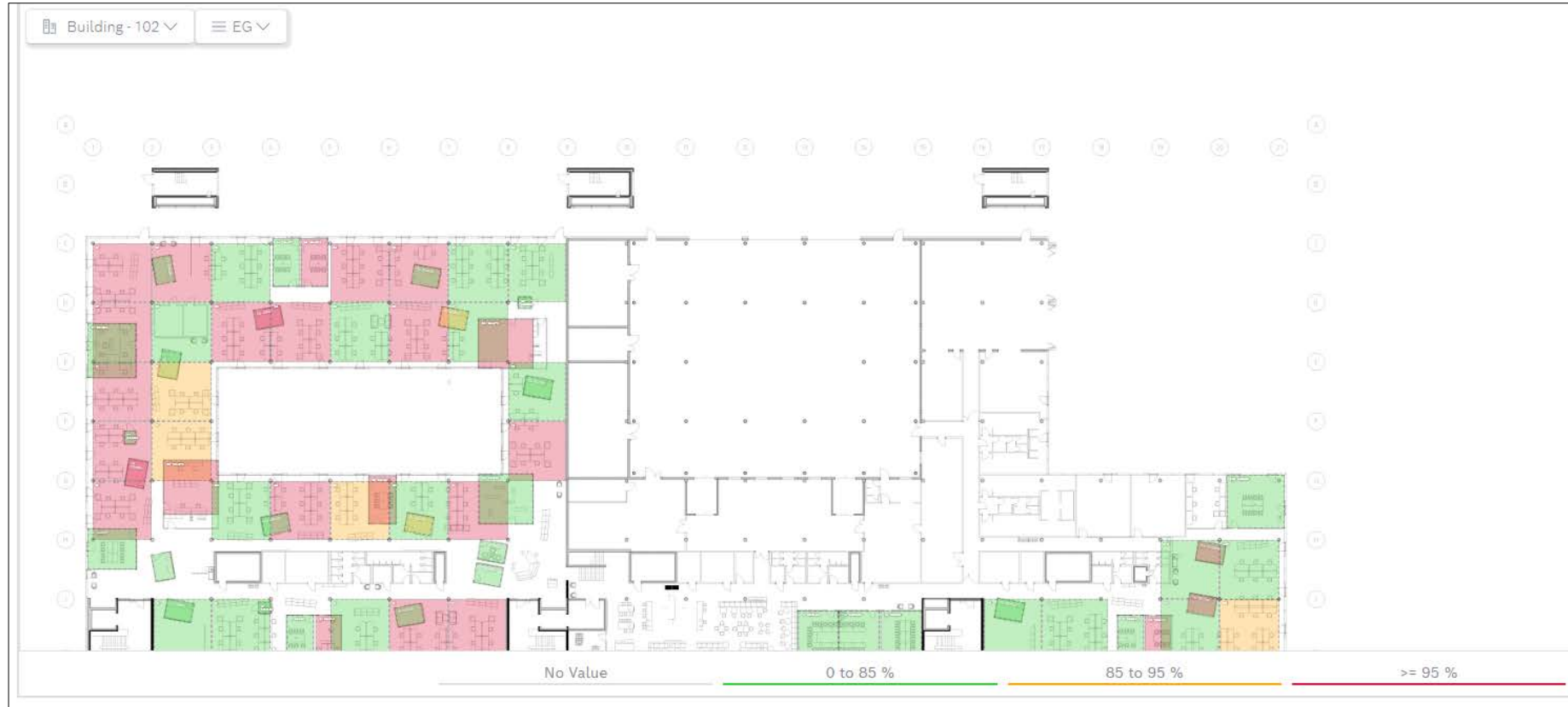
- ▶ Allows workers and employees to book office desks through an app
- ▶ Monitor real-time and historical desk bookings against usage

Benefits

- ▶ Increase efficiency by automating desk booking
- ▶ Manage office occupancy by imposing limits to comply with regulations
- ▶ Monitor compliance to social distancing in terms of leaving desks unused
- ▶ Increase cleaning efficiency by directing crew to frequently used desks
- ▶ Optimize number of desks based on actual usage, and not estimation

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Use case: desk monitoring and booking systems



Sample desk monitoring dashboard

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Use case: people tracking and contact tracing



To request for a demo,
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Overview

- ▶ Anonymized Bluetooth beacons of various forms factors can track people movement, location & time spent in proximity
- ▶ Real-time social distancing alerts are sent if beacons are detected in proximity
- ▶ Personal data can be matched to beacons for social contact tracing in the event of positive cases
- ▶ A maximum occupancy load can be set by limiting the number of Bluetooth beacons in a space
- ▶ Real-time & historical location information are available on the dashboard
- ▶ Push notifications if non-authorized beacons are detected in designated zone

Benefits

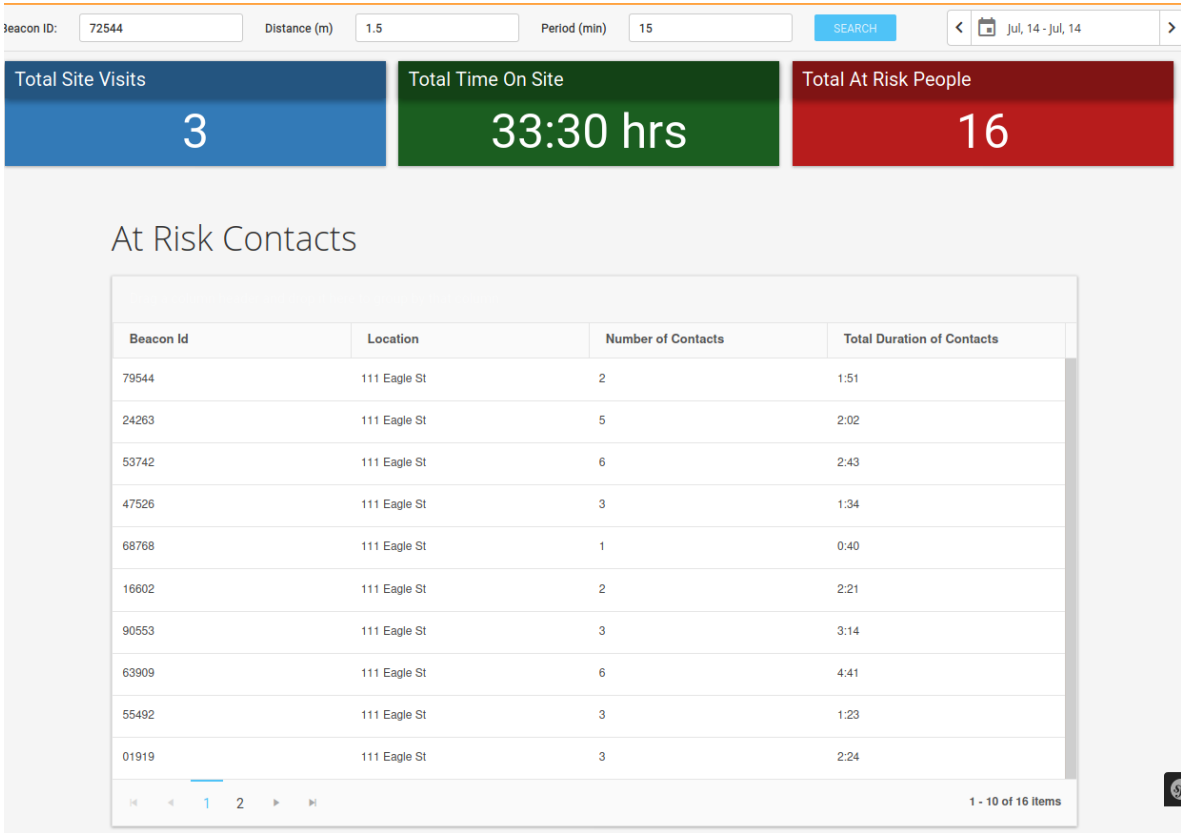
- ▶ Easily track social distancing based on Bluetooth beacons
- ▶ Increase productivity through remote monitoring and enforcement from one dashboard
- ▶ Increase security based on alerts

Smart tech for creating safer workspaces

Use case: people tracking and contact tracing



Social distancing dashboard



Contact tracing dashboard

Smart tech for creating safer workspaces

Use case: ambient monitoring - indoor air quality



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Overview

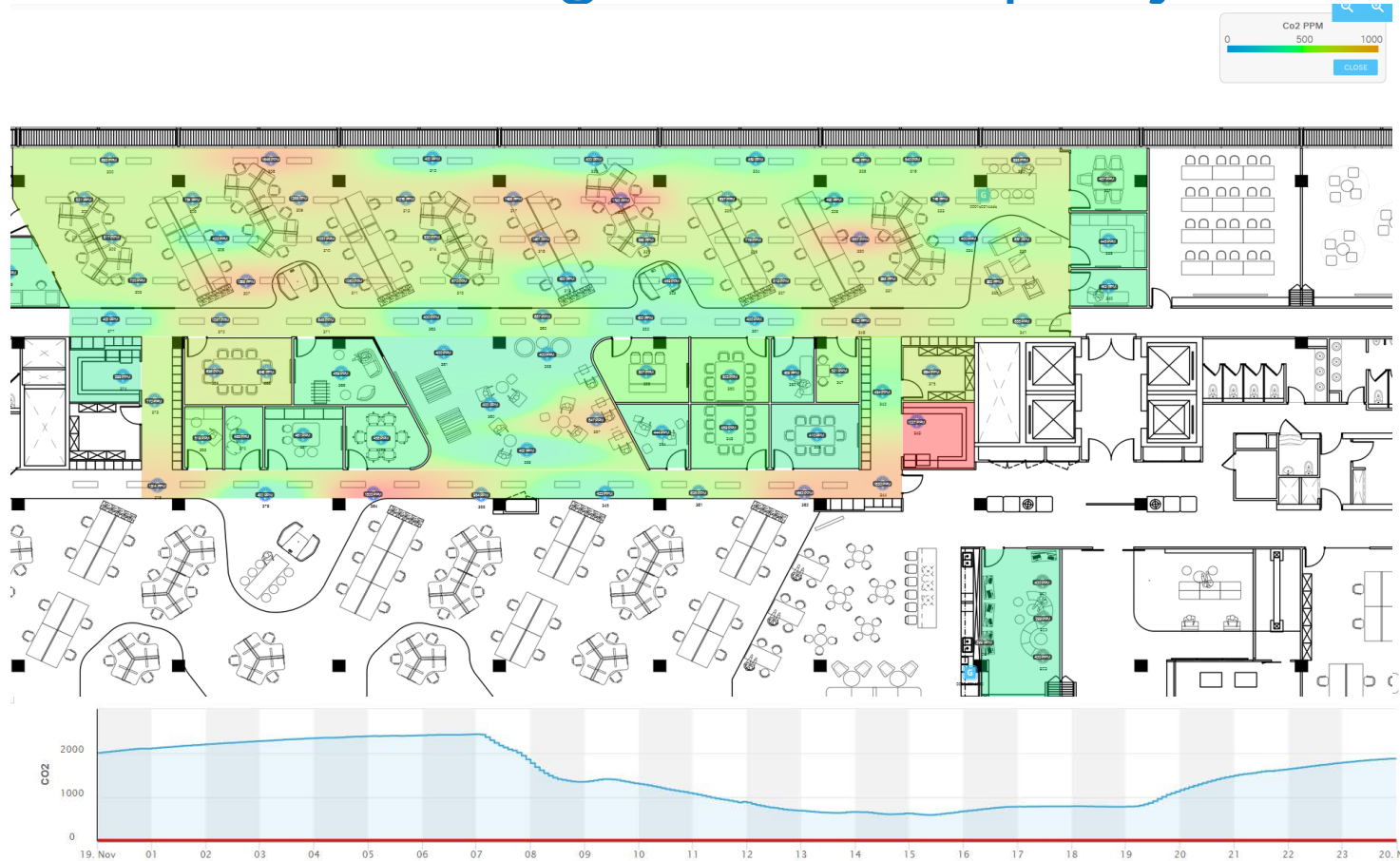
- ▶ Tracking of ambient air quality parameters:
 - Temperature
 - Humidity
 - CO₂ and TVOC
- ▶ Air quality levels displayed on the Connected Building dashboard across the floor plan with historical data available
- ▶ Alerts if the indices are outside a healthy range

Benefits

- ▶ Improve air circulation, which can help with mitigate airborne transmission of COVID-19
- ▶ Improve well-being and productivity of building occupants
- ▶ Reduce energy consumption with demand-driven HVAC usage
- ▶ Eliminate mold and mildew by optimizing air parameters

Smart tech for creating safer workspaces

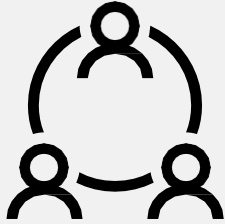
Use case: ambient monitoring - indoor air quality



Sample air quality monitoring dashboard with historical data

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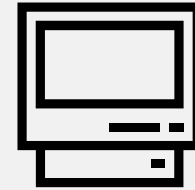
3 key takeaways about how smart tech can help



**Disease transmission
risk mitigation**

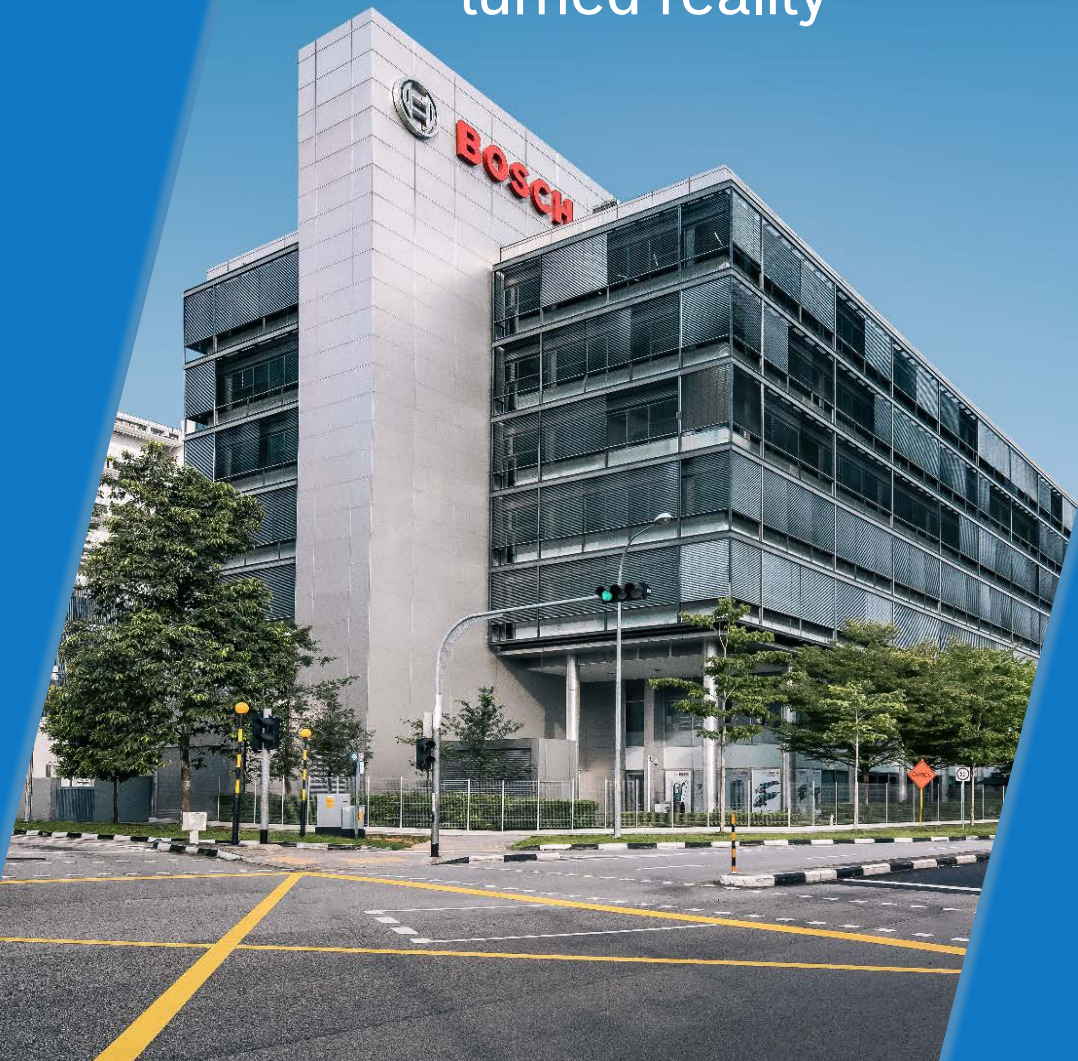


**Reduction of
operating costs**



**Increased
productivity**

Bosch Singapore campus: smart building concept turned reality



Have a look at how it works in real life!

See how we implemented IoT
use cases on own premises



- ▶ Watch the video
- ▶ Read the story

<https://bit.ly/2D7azLD>

THANK YOU

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Bosch.IO

More info:

<https://bosch.io/use-cases/building/workplace-distancing/>

Questions? Drop us an email at:

Marketing.ap@bosch.io

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