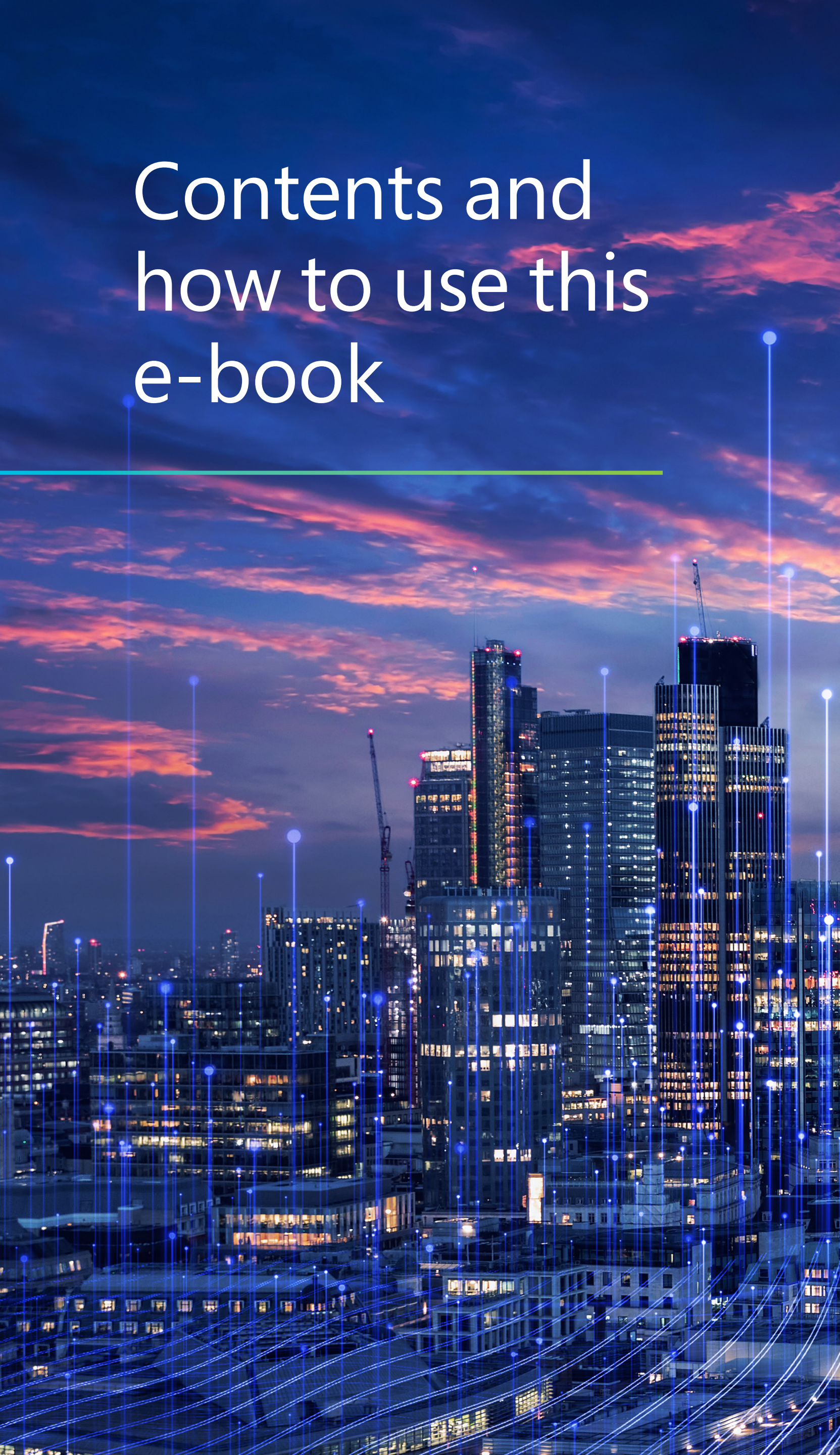# The blueprint of the future for smart, sustainable buildings

Open**Blue** Enterprise Manager empowers you to manage and analyze equipment and system performance to optimize operations and save money.

Johnson Controls

Microsoft

Contents and how to use this e-book

The digital transformation of buildings

Building management is tough

Facility managers are under more pressure than ever to save energy and reduce operating costs while increasing building occupants' satisfaction.

The tension is real. Growing global concerns about carbon emissions and sustainability practices are driving demand to minimize energy consumption and waste. To comply with tight regulations and find ways to save money, building managers must monitor and fine-tune the operation of scores of different systems and devices that operate independently and don't speak a common language. Meanwhile, building tenants have come to expect amenities that improve their comfort and facilitate productivity.

36%
of global energy use is attributed to the buildings and construction sector[1]

Up to **60%**
of energy in most commercial buildings is consumed by HVAC systems[2]

More than **80%**
of a company's value is based on its people; buildings should be designed to optimize their wellness and performance[3]

1. "2019 Global Status Report for Buildings and Construction Sector," UN Environment Programme, 11 December 2019
2. "How to achieve energy efficiency in commercial buildings: IoT-enabled solutions for smart HVAC," waylay, 15 January 2020
3. "The Financial Case for High Performance Buildings," stok, 2018

Building systems are getting smarter

Digital transformation is revolutionizing the way we make sense of the avalanche of data generated by buildings.

Smart buildings solutions enabled by IoT (Internet of Things), analytics, and artificial intelligence can generate more sustainable, secure, and effective environments. To build effective smart places, organizations need:

Secure and scalable solutions that can seamlessly integrate and aggregate data from new and legacy building systems

Meaningful, actionable insights generated from historic and predictive analytics

A holistic view of building systems' performance

Capabilities to automate equipment management and controls

Visibility into operations in real time

15-25%
of energy costs can be saved in smart buildings[4]

Up to 30%
reduction in HVAC energy costs can be realized using data analytics[5]

9%
increase in employee productivity can be gained in high performance buildings[6]

4. "Smart start for smart buildings," BIM Today, 26 November 2018
5. "Big Data: Big opportunity for smart buildings," Smart Buildings Magazine, 10 July 2017
6. "The Financial Case for High Performance Buildings," stok, 2018

OpenBlue Enterprise Manager

Introducing Open**Blue** Enterprise Manager

Open**Blue** Enterprise Manager from Johnson Controls, Inc. (JCI) enables you to proactively manage your enterprise from a single interface. The advanced, cloud-based analytics platform collects, analyzes, and visualizes building data from the edge so you can seamlessly translate insights to action.

Open**Blue** Enterprise Manager uses AI and machine learning to analyze data from a variety of sources—from building management systems to space occupancy or environmental conditions—to identify issues and faults and look for opportunities to improve performance across a single facility or global enterprise.

OpenBlue** Enterprise Manager enables smart spaces and places.**

Accelerate sustainability
Use energy monitoring and forecasting models to pinpoint inefficiencies and automate functions—reducing energy consumption and costs while addressing sustainability goals and compliance

Reduce operating costs
Identify and diagnose equipment problems to streamline maintenance and extend the lifecycle of assets

Manage building comfort
Give building occupants control of comfort and convenience features to enhance their experience, productivity, and satisfaction

Connecting intelligence to empower your people

OpenBlue Enterprise Manager collects critical data at the intelligent edge, applies powerful analytics, and delivers meaningful insights in a simple, intuitive way—so you have the visibility and control you need to optimize and transform your enterprise.
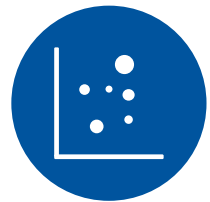
500,000+
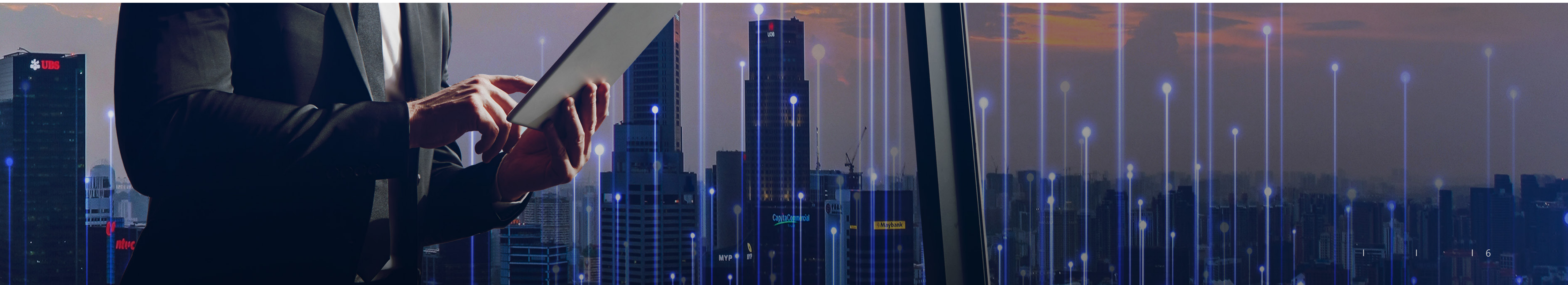data points from systems and devices at the edge

250,000+
pieces of equipment

9,000+
global rules in use for fault detection and diagnostics

1,200+
buildings

Transform your equipment, environments, and enterprises

Johnson Controls, Inc. is a global diversified technology and multi industrial leader serving customers in more than 150 countries with a portfolio of energy saving and building optimization solutions. JCI's Open**Blue** solutions unlock the power of building data for facility managers and occupants in buildings—from hospitals and corporate campuses to sports complexes, airports, and retail establishments.

Built on Azure, the Open**Blue** platform is a rich, integrated suite of digital solutions. In fact, the integration between Open**Blue** Digital Twin and Azure Digital Twins enables the first and only open platform that encompasses the entire ecosystem of building and device management with digital cloud technologies. The platform uses modeling, analytics, and digital controls to support efficient and environmentally-friendly design, construction, and management of buildings and spaces—enabling better safety and security, sustainability, and comfort.

The open Open**Blue** platform seamlessly integrates with existing building infrastructures regardless of brand, make, or model. Sold as a software-as-a-service solution, it's fully configurable and agile—with next-generation features and enhancements delivered through the cloud.

Open**Blue**

Blueprint of the future:
Built on Azure

Respectful safety & security

Impactful sustainability

New occupant experiences

Improving safety and sustainability in connected spaces

The situation

University campuses often contain a wide range of building types supported by a variety of building systems and managed separately in disparate fashion. As part of an ongoing effort by the National University of Singapore (NUS) to create a smart, safe, and sustainable campus for students, the university is pioneering several state-of-the-art smart building solutions.

The solution

Open**Blue** Enterprise Manager and the Digital Twin-powered platform is being used to enable integrated building management and serve as the foundation for energy and space optimization, predictive maintenance, and remote operations.

The results

Change the way buildings and infrastructure are designed and managed with data-driven modeling and analysis.

Monitor systems to mitigate risks, manage issues, and utilize simulations to test future solutions with digital replicas of physical entities.

Make shared spaces more safe, more agile, and more sustainable by analyzing large datasets and predicting patterns and trends.

Spatial intelligence
Digital twins enable users to digitally monitor and manage physical spaces, maximize efficiencies, and pilot new solutions securely on the Azure IoT platform.

Optimizing ecosystems end to end

The situation

When Maple Leaf Foods decided to construct a new processing plant in London, Ontario, Canada, it prioritized creating a digital ecosystem to monitor and manage building systems efficiently. The new plant will ultimately replace facilities with aging infrastructures and increase Maple Leaf Foods' processing capacity in Ontario by 33%.
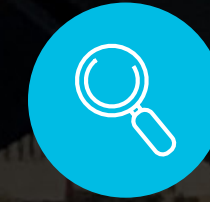
The solution

JCI worked with Maple Leaf Foods from project inception, adding Open**Blue** Enterprise Manager as a digital layer—moving facility data into the cloud to enable a single pane of glass view and management control of systems from access, security, and fire to industrial automation.

The results:

A small investment upfront allows the company to gain immediate and long-term savings by optimizing the performance, maintenance, and lifespan of equipment and systems.

Real-time monitoring and control help reduce energy consumption, water consumption, and waste.

The accessible and scalable Open**Blue** platform enabled seamless deployment of a comprehensive solution, saving time and money.

Seamless scalability

Azure enables agile, custom solutions to be built and connected quickly and seamlessly to manage your business end to end.

Johnson Controls and Microsoft
Smart partnerships deliver smart solutions

The Johnson Controls and Microsoft partnership is driven by a common goal: to digitize smarter, more sustainable buildings and spaces by leveraging the best of both worlds—Johnson Controls' deep expertise in smart building solutions and Microsoft Azure's efficient, low-cost cloud computing strength.

Johnson Controls

Johnson Controls creates intelligent buildings, efficient energy solutions, and integrated Azure-based infrastructures.

Open**Blue** Enterprise Manager helps facilities managers put building data to work, find efficiencies, and achieve their productivity, performance, and sustainability goals.

Open**Blue** Digital Twin is purpose-built with smart buildings and spaces in mind, enabling and unifying all aspects of an intelligent building: security, employee experience, facilities management, sustainability, and more.

Next-generation Open**Blue** solutions unlock new possibilities for how building managers and occupants interact with their environment.

In partnership with customers, Johnson Controls is creating self-conscious, self-healing, and occupant-driven buildings.

Microsoft

Microsoft provides the intelligent cloud building blocks to securely connect, monitor, authenticate, and aggregate data for monitoring and machine learning.

This solution is powered by Microsoft Azure—an open, scalable, and secure analytics platform.

Azure Digital Twins enables the creation of knowledge graphs based on digital models of entire environments.

The cloud-based platform provides real-time visibility, closed-loop analytics, and the ability to integrate with a range of on-premises and enterprise systems to extend the solution.

The full weight of Microsoft security helps ensure safety and compliance.

Get started today!

To learn more about the next generation of smart building solutions from Johnson Controls and Microsoft, please contact:

Ben Brown
Director Strategic Partnerships,
Global Sales and Marketing
ben.m.brown@jci.com

Johnson Controls   Microsoft

Learn more >