



Microsoft Sustainable Partner Solutions
Good for your business, good for the planet

HONEYWELL FORGE

ENERGY OPTIMIZATION

Honeywell Forge Energy Optimization transforms how you look at energy usage in your commercial buildings.

Start here



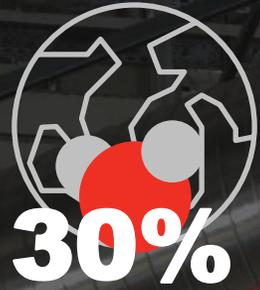
Honeywell



Microsoft

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30%

of greenhouse gases globally are attributed to buildings¹

70%

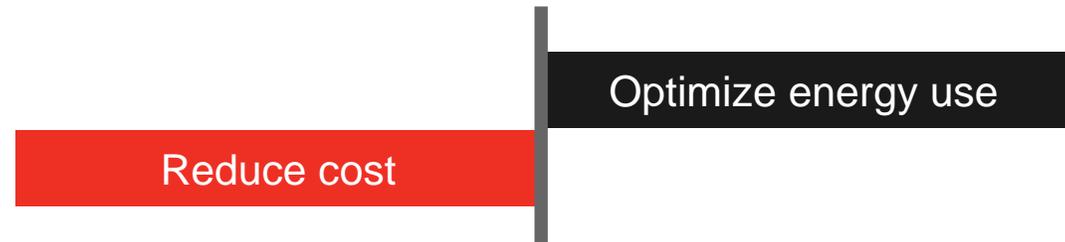


of energy in major cities is used by commercial buildings²

THE HIGH ENERGY COST OF COMMERCIAL BUILDINGS

Today's businesses are moving toward IoT-enabled building management strategies for everything from proactive asset maintenance to optimizing space. Most commercial buildings are already generating vast amounts of data, a trend that is only going to continue into the future—and it only makes sense to turn toward optimizing energy use to reduce cost to the bottom line and to the environment.

The fact is, commercial buildings are massive consumers of energy. It takes a huge amount of power just to keep them running, even when they're empty. One of the surprising findings during the pandemic, where many people were working from home instead of at the office, is that commercial building energy use did not drop very much. The culprit? The heating ventilation and air conditioning (HVAC) systems. These need to keep running regardless of building occupancy—and they're the biggest consumers of energy in commercial buildings.

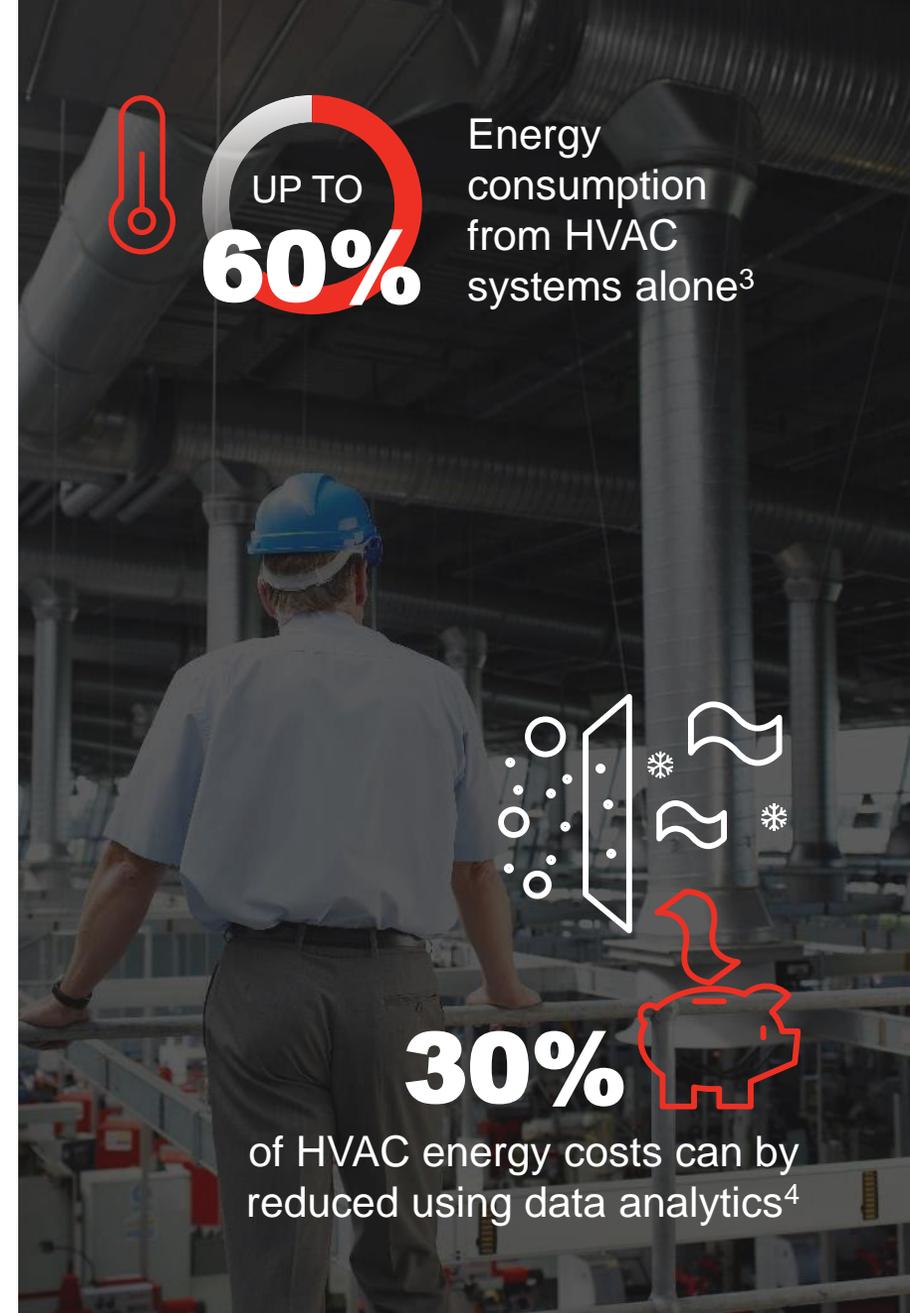
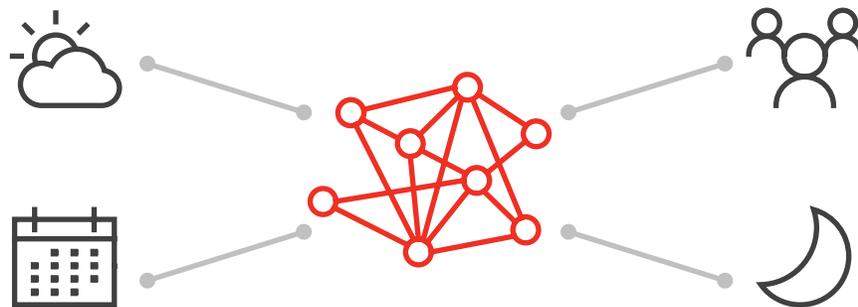


^{1,2} "Smart Buildings: Forming The Foundation Of Smart Cities," Forbes, 24 October 2018.

AUTOMATED ENERGY MANAGEMENT

However, in order to maximize energy efficiencies, individual buildings and building portfolio managers need to be able to collect, connect, and interpret isolated data about weather, building occupancy, and energy costs. Today, disparate systems, siloed operations, and different generations of HVAC systems produce isolated data that is difficult to aggregate and interpret. In addition, traditional building management systems (BMS) don't give a lot of options for making up-to-the-date energy decisions—and even if they did, most building operators simply don't have the tools to calculate all the changing variables that are required for continuous adjustment of systems for efficiency.

To help address these challenges, Honeywell Forge Energy Optimization uses continuously-learning predictive models (machine learning) and real-time conditions data—weather and occupancy—to adjust set points automatically over the entire HVAC distribution system to save energy for heating and cooling, without an impact to the occupant comfort.



Energy consumption from HVAC systems alone³



30%



of HVAC energy costs can be reduced using data analytics⁴

³How to achieve energy efficiency in commercial buildings: IoT-enabled solutions for smart HVAC," Waylay, 15 January 2020

⁴Big Data: Big opportunity for smart buildings," Smart Buildings Magazine

BUILDINGS AREN'T STATIC. **ENERGY SETPOINTS SHOULDN'T BE EITHER.**

Even though the energy requirements of buildings can fluctuate minute by minute, facility operators are still configuring systems using conservative, static setpoints because they want to ensure occupant comfort. These conservative setpoints are often set for a season and forgotten until new setpoints are keyed in months later. That means that energy optimization takes a back burner.

With Honeywell Forge Energy Optimization, you can easily connect data and systems to proactively drive energy savings while simultaneously optimizing occupant comfort.



Easy deployment

Auto-discover and seamlessly connect to any HVAC system or BMS within minutes with a system-agnostic solution using the Honeywell Forge Connect gateway.

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010101
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Smart connectivity

Capture a wide variety of data, including expected occupancy data, weather data, energy pricing, and comfort targets.



Powerful cloud

Use machine learning to analyze and combine data with deep learning about building and system dynamics.



Business optimization

Enable autonomous control by sending messages back to the BMS to make automatic adjustments at regular intervals.

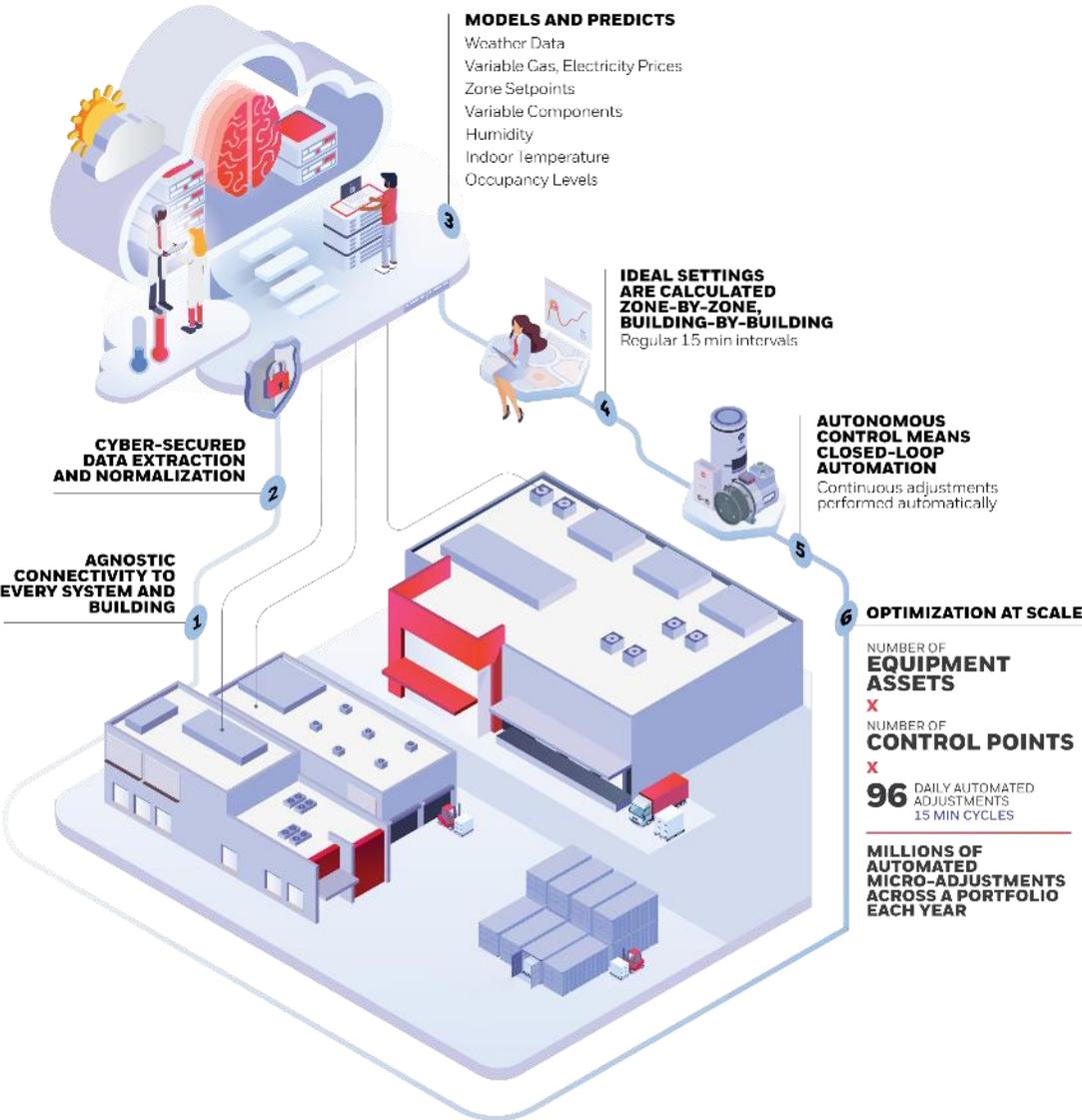


Actionable insights

Generate and visualize meaningful insights in a web-based dashboard to drive centralized and remote data-driven decisions.

HONEYWELL FORGE ENERGY OPTIMIZATION IN ACTION

Honeywell helps building and real estate portfolio managers access and use massive amounts of HVAC systems data by using advanced internet of things (IoT), analytics, and machine learning technologies to gain visibility and control over building systems across one or multiple sites, regardless of building type or industry. It is specifically designed to study energy consumption patterns and continuously and autonomously adjust systems to drive energy savings without sacrificing occupant comfort—transforming the way building portfolios are managed.





AUTOMATE ENERGY OPTIMIZATION ACROSS YOUR ORGANIZATION

Honeywell Forge Energy Optimization can help you dramatically improve the efficiency of your buildings and campuses, while helping you achieve or maintain regulatory compliance. It also works across all industries with the same level of precision and effectiveness, such as commercial real estate, hospitality, manufacturing, retail, pharmaceutical, healthcare, public sector, and education.

You'll be able to:

Increase energy savings and reduce carbon emissions without having to rip and replace systems.



Take advantage of continuous learning for continuous improvement without adding facility overhead.



Maintain—or even improve--occupant comfort without any process changes.

USE CASE: HAMDAN BIN MOHAMMED SMART UNIVERSITY

Situation

Hamdan Bin Mohammed Smart University (HBMSU) is the first and only accredited smart university in the United Arab Emirates. Its campus is on the cutting edge: highly smart and energy efficient with fully connected lighting, cooling, building management, power, and efficiency control, all optimized based on real-time occupancy. However, it wanted to see what else it could do to reduce operating costs and environmental impact—and it needed a solution that would work with existing third-party systems.



Solution

Using Honeywell Forge Energy Optimization, HBMSU piloted a closed-loop solution that evaluates the internal set-points for a building's HVAC system every 15 minutes to determine if it was running at peak capacity. By analyzing factors such as time of day, weather, occupancy levels, and dozens of other data points, the solution makes automatic, calculated adjustments up to 96 times in each 24-hour period to reduce energy consumption. Honeywell Forge Energy Optimization has been applied to HBMSU's existing non-Honeywell building management system.

BENEFITS

Reduced HVAC energy consumption by **10%**



Gained a solution that worked easily with existing systems to avoid upfront capital expenses

Achieved savings without manual intervention or any impact on occupant comfort



USE CASE: AUSTRALIAN NATIONAL MARITIME MUSEUM

Situation

The Australian National Maritime Museum (ANMN) hosts famous maritime collections and exhibitions, and conducts research and archaeology work. Its 19,000 square meter facility spans three different buildings erected in 1991. In keeping with its ethos of conservation and sustainability, ANMN wanted to optimize and modernize its building equipment and infrastructure, which dated back to original construction. However, it also needed to maintain the tight environmental controls necessary to preserve its priceless collection.



Solution

ANMN partnered with Honeywell for a comprehensive modernization program that included upgrading control systems, IoT sensing devices, new cooling towers and plant upgrades. To further drive efficiencies, the museum implemented Honeywell Forge Predictive Maintenance and Honeywell Forge Energy Optimization, which provide powerful connectivity and insights for autonomous optimization within the facility.

BENEFITS



Savings on energy consumption in the first nine months

4.5%

Additional energy savings by using AI-powered analytics to automate HVAC controls

Better management of conservation areas



HONEYWELL AND MICROSOFT: FOCUS ON SUSTAINABILITY

Honeywell is uniquely positioned to shape a safer and more sustainable future. It continues to invent and develop technologies that feature adaptable and efficient solutions to their safety, energy, and environmental needs. At Honeywell, approximately 50 percent of new product R&D is invested in solutions that improve environmental and social outcomes.

50%



Sustainability R&D



Honeywell and Microsoft are strategic partners, combining Honeywell's institutional expertise with Microsoft's long history of innovative technology that enables transformative solutions across industries. Honeywell Forge Digitized Maintenance and Azure come together to form a robust solution that is good for business—and good for the environment.

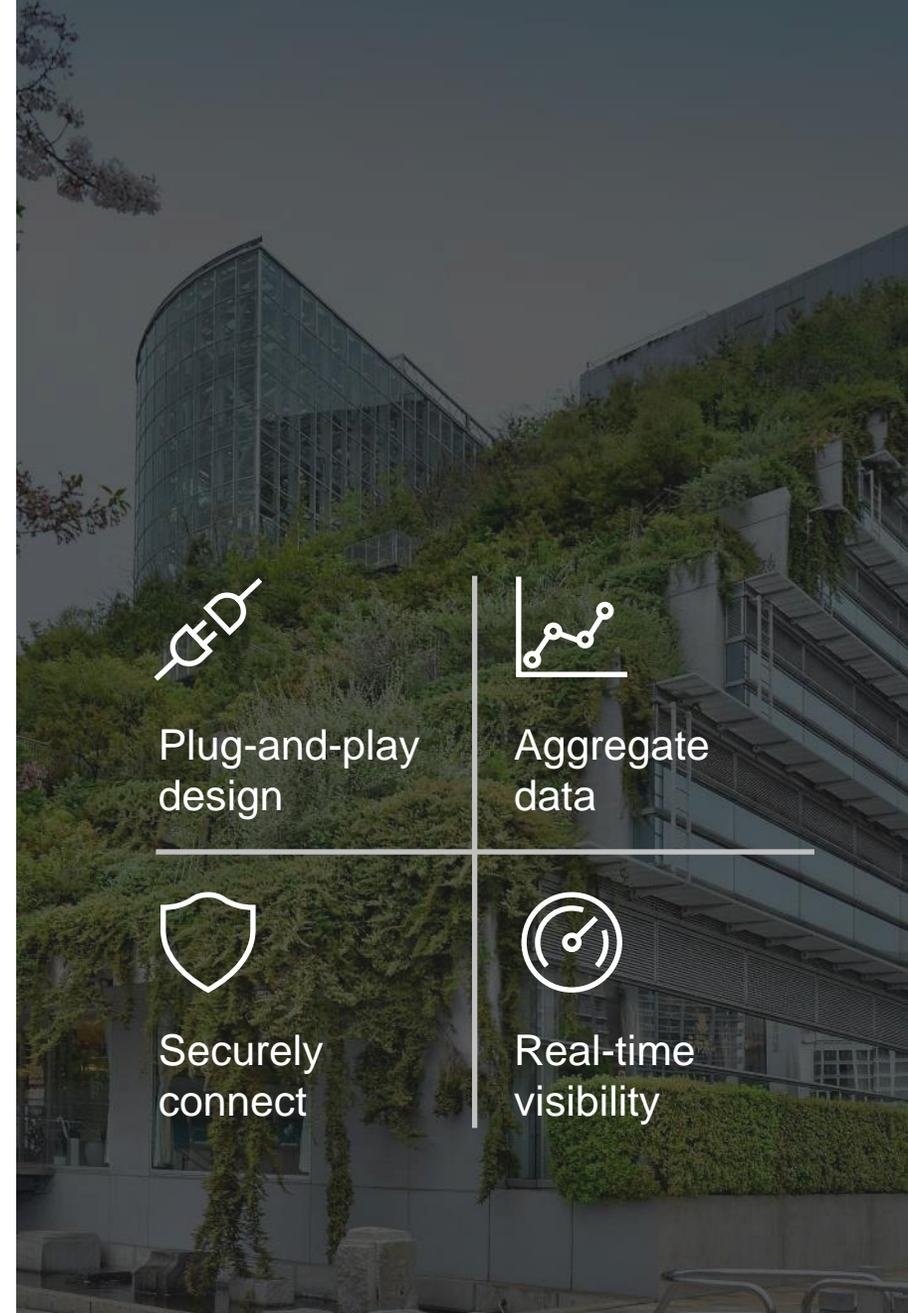
HONEYWELL AND MICROSOFT: FOCUS ON SUSTAINABILITY

Honeywell

- Honeywell Forge Connect is a unique plug-and-play design that helps ensure that all building data is quickly and accurately captured.
- Systems are optimized to auto-discover all on-site systems and drivers to support industry-standard protocols and legacy systems.
- The solution pulls data directly from any Honeywell, third-party building management systems (BMS), and external resources.
- Solutions are backed by a leader in building management solutions since 1906.

Microsoft

- Azure provides the cloud building blocks to securely connect, monitor, authenticate, and aggregate data to see how you can improve your usage of natural resources.
- You'll get real-time visibility, closed loop analytics, and the ability to provide integrations to a range of on-premises and enterprise systems to extend the solution.
- The full weight of Microsoft security helps ensure safety and compliance.



Plug-and-play
design



Aggregate
data



Securely
connect



Real-time
visibility



Microsoft Sustainable Partner Solutions
Good for your business, good for the planet

TAKE CONTROL OF YOUR ENERGY USAGE TODAY

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