

Facing HVAC challenges? Smart equipment for building efficiency is here

 By [Neil Cameron](#)

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With greater energy efficiency topping the wish list of facility and energy management executives globally, four cross-industry tech trends are having a transformative impact on building systems: visualisation, Machine2Machine (M2M) communication, mobility tools, and analytics.

They add up to smart systems that give facility managers greater control and efficiency, taking them a step closer to their objectives by enabling them to drive dynamic improvements in building performance.

The prospect of smart equipment preventing problems and addressing the chronic issues that plague building operators has caught the attention of building owners and facility managers. In a recent Johnson Controls survey entitled "Where Can Smart Equipment Technology Reduce the Headaches?", 70% of respondents rated the ability to predict and diagnose problems and provide or propose solutions as a game changer.

Visualisation, M2M communication, mobility tools and analytics enable connected buildings to work seamlessly with how facilities are managed today. Visualisation tools - like graphical dashboards that automatically aggregate and update data - drives insight and, consequently, improvements in building performance. M2M communication enhances facilities professionals' ability to manage, while mobility tools help facility managers stay connected and analytics turn building data into actionable information. These advances are captured and leveraged in a new generation of building automation systems, smart equipment, and cloud-based technologies.

The command and control centre

Today, advanced BAS serve as the command and control centre for facilities, incorporating not only controls for HVAC equipment from a variety of manufacturers, but connecting to the lighting, security, fire and other systems. In essence, it's allowing building managers to manage their facilities rather than the individual systems. This power comes from the advancements within individual complex systems, as much as their ability to now share data and "talk" to one another.

The ability of new systems to predict and diagnose problems, and provide or propose solutions addresses a number of pain points common during installation, commissioning and operation of this equipment - specifically in terms of managing performance over time and maintenance over the life cycle of the equipment.

Unplanned maintenance and technicians' inability to isolate issues are high-impact issues, as is the lack of equipment knowledge among service personnel, the difficulty of maintaining optimised operation, and control through the building's life

cycle.

So how can smart equipment alleviate these challenges?

The following features are game changers:

- The ability to predict and diagnose problems, and provide or propose solutions;
- Self-optimisation of systems;
- Ability to report performance and efficiency;
- Automatic location, identification and integration with components within the same subsystem; and
- Ability to self-configure.

Tracking optimal performance against actual performance, ensuring quicker repairs and parts replacements, integrating quickly and easily with existing equipment, and alerting operators to potential issue or downtime are all capabilities that can be highly beneficial.

Performance and integration issues are being addressed by manufacturers as it is the key to the competitiveness of their offerings. Many of these capabilities are now being offered as part of service offerings or as features built into the equipment.

For example, Panoptix, Johnson Controls' facility management platform monitors performance of equipment in near real time, benchmarks it against similar industry installations and alerts users if anomalies are detected, or if performance indicates need for preventative maintenance. In addition, the software and user interface on Johnson Controls' HVAC equipment is tailored for ease of use, with graphic depiction of performance for ease of comprehension by facility administrators. Its systems are built on open systems and optimised for integration with common and legacy building automation systems.

HVAC equipment is, typically, a long-term purchase that impacts on the business in many ways. It affects the quality of the work environment, impacting productivity and efficiencies, but may also be vital in manufacturing, industrial and retail setting to operations, and the preservation or creation of products. As such, it can present considerable risk - or advantage. To leverage new opportunities to lower costs and optimise operations, select the right partner and ensure your equipment has a smart technology roadmap.

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