

Trends driving the transformation of building systems

 By [Neil Cameron](#)

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Building efficiency is being reinvented by connected-building technologies. Building equipment and systems are becoming more integrated and intelligent, offering building owners and facility managers more effective tools to help them improve building performance significantly.



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Driving the transformation of building systems and building management are four cross-industry trends: visualisation, machine-to-machine (M2M) communication, mobility tools and analytics.

In South Africa, as elsewhere globally, these four trends already impact our daily lives and have seen the emergence of new business models in multiple industry sectors. These technologies are revolutionising how we gather, analyse, visualise, and deliver data - and how we act on it.

They have helped create a new generation of connected buildings that link equipment, systems, and data sources inside and outside the facility with powerful control systems and sophisticated software applications, creating a network with the facility team at its centre.

Advancements are vital

Advancements in industry-specific equipment and systems are a vital part of this evolution. Three advancements stand out:

1. A new generation of building automation systems (BAS) that delivers greater knowledge and control;
2. Smart equipment brings intelligence to building devices, boosting building performance; and
3. Cloud-based technologies and solutions enhance management of buildings and portfolios.

The true advantage of these improvements is not only that they bring greater efficiency and control, but that they also capitalise on technology trends to make them more adaptable to user needs.

The BAS is an essential tool for many facility managers. An advanced BAS serves as the command and control centre for the facility. Information pours in from all parts of the building - settings, current readings, and alarms from occupied spaces and from inside complex equipment. An open BAS not only controls HVAC equipment, but also connects to the lighting, security, fire, and other systems. The challenge, however, was that facility managers did not have the time or expertise to leverage all this advanced functionality.

Leveraging technologies

The next generation of BAS is focused on leveraging new and existing technologies to deliver a system that works the way facility owners and operators work. It is more accessible, harnessing the power of advanced analytics and data collection and focusing on more sophisticated and user-friendly interfaces and data visualisation. These advancements in BAS bring insights into building performance that will enable even further reductions in energy use and operational costs, while still delivering a comfortable and safe environment.

Smart equipment is a vital component of connected buildings. Smart equipment brings intelligence to individual devices in the field. It's what enables a lighting controller to report its performance, including any problems or malfunctions, to a facility manager via an interface on the equipment or a software program the facility manager accesses on a computer or mobile device.

What smart equipment means is that facility staff no longer have to visually inspect each piece of equipment to detect operating issues so they can more quickly determine where to focus their efforts. This ability to predict and diagnose problems and provide or propose solutions is considered a game changer as it increases the ease and cost-effectiveness of taking corrective action before a potential problem affects a building's performance.

Analytics can solve problems

Analytics is playing a bigger role everywhere. Buildings generate vast amounts of information but many facility managers lack convenient ways to turn the flood of data into actionable information. Analytics software can help solve that problem.

Data from BAS sensors, smart equipment, and meters can be aggregated and analysed alongside data that originates outside a facility, such as utility bills, and information that affects a facility's operations, such as weather forecasts or energy prices. This rich cache of data offers users a bigger picture of their building operations and efficiency, making it easier to manage operations and achieve energy and other goals.

The building efficiency revolution is well advanced where connected building technologies are being deployed: visualisation tools improve insight and proactive response, M2M communication enhances facilities professionals' ability to manage, mobility tools help facility managers stay connected and analytics turn building data into actionable information. These benefits are already within reach and organisations in South Africa are beginning to engage with the opportunities being presented to improve facility performance.

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