

BUILDING SERVICES | No. 1

The untapped potential of **data in building services**

By applying the right technology, your building can utilize existing system data to slash operations costs.



Connecting the dots

Traditional building automation systems gather data but cannot fully leverage it for a strategic maintenance plan. Analyzing the data gives operators a better understanding of conditions and enables them to better recognize anomalies.



Continuous streams of data from building systems and software applications travel through the cloud to a single, remote database optimized for analytics, thus enabling smarter and more strategic building services.

Your building automation system (BAS) gathers and manages equipment data to control building systems. Nevertheless, its utilization of that data is limited. It can't connect the dots for building operators—or even identify all the dots—necessary to maximize costs and occupant comfort.

For example, a BAS is not designed to continuously analyze trending data or boost efficiency with proactive, longer-term, and whole-building maintenance strategies. It regulates building systems but is not optimized to deliver insights about the key operations of those systems. Over time, as control setpoints, equipment and occupancy change, the routine operation of the BAS masks inefficiencies. And when systems are not fully and regularly commissioned—which is the case for the vast majority of buildings—optimal efficiency becomes even more difficult to achieve.

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Similarly, a computerized maintenance management system (CMMS) is valuable for managing work orders. But its ability to analyze data within a strategic maintenance plan and prioritize tasks for busy operators is limited and/or untapped.

Unlike traditional building services, using data offers greater intelligence into systems and operations by means of continuous analysis. The results propel building efficiency to a new order of magnitude.

Data can provide metrics on

- energy usage
- failure-causing anomalies
- code compliance
- building systems interaction
- occupant experience that impacts productivity
- emissions and sustainability
- issues that impact total cost of facility operations.

With such metrics as those in the table above, operators can prioritize system alarms and alerts because they have a better understanding of conditions and are better able to recognize anomalies. In addition, building owners are empowered to establish outcomes for their facilities and their businesses, and to create unique key performance indicators (KPIs) that prove those outcomes.

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By prioritizing tasks and automating equipment monitoring, a data-driven maintenance strategy makes onsite facility personnel more productive.



One benefit of data-powered services is lower costs for maintenance and operations as well as repair and replacement.

Get in front of the equipment failure curve

One benefit of data-powered services is lower costs for maintenance and operations as well as repair and replacement.

In addition to better energy management, continuous equipment monitoring and analysis puts building owners out in front of the failure curve. Automated fault detection and diagnosis can uncover conditions that will later lead to failure, rather than sound alarms after the fact. Early detection allows the owner to replace one faulty component before an entire assembly goes bad, reducing repair costs and equipment downtime. It also solves problems before they undermine the indoor environment, where discomfort decreases occupant productivity.

Data-powered equipment checks done remotely by a computer are another source of savings. Although a CMMS can help generate to-do lists and work orders, onsite staff members often struggle to finish all tasks accurately and promptly, especially when urgent issues requiring immediate attention crop up.

Traditional vs. Data-Driven Building Services

Analytics applied to building system data makes services more proactive and cost-effective.

Traditional Services

- Inspections

- Estimated equipment runtimes

- Onsite service to diagnose equipment problems

- Maintenance tasks driven by schedules

- Unprioritized to-do lists that are difficult for staff to complete

- Maintenance as a necessary expense

- Short-term, onsite solutions to hot/cold calls

- Start-up commissioning to detect issues at one moment in time

- React after equipment failures

- Same maintenance routines applied to all equipment

Data-Driven Services

- Analytics

- Actual equipment runtimes

- Remote service to diagnose problems

- Maintenance tasks driven by outcomes and KPIs

- Remote equipment checking leverages staff resources

- Maintenance focused on getting the best ROI for the business

- Analytics provides long-term solutions to hot/cold calls

- Continuous commissioning to detect issues over time

- Identify issues before equipment failures

- Maintenance right-sized to each piece of equipment

Moreover, in-person checks on a critical piece of equipment are only good at the time they were done. Consequently, these checks are a poor measure of the effectiveness of a preventive maintenance plan. In contrast, data-driven, analytics-based maintenance establishes priorities across systems based on their operation over time. This approach also performs checks more frequently for less cost.

Applying analytics in the building services program dispels the tail-chasing conundrum that many facility directors face—trying to respond to a whirlwind of unprioritized system alerts and anomalies. Is a particular alert a sign of an underlying issue, and if so, what is it? Is it a sign of imminent failure? Is it related to occupants' complaints about temperature or noise? Which alert should the staff tackle first?



The answers to such questions are delivered by data-driven Building Services to owners and operators. By sorting and prioritizing alerts in accordance with owners' desired outcomes and KPIs, these services turn facilities into high-performing business assets.

Find out more:

www.usa.siemens.com/buildingservices

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