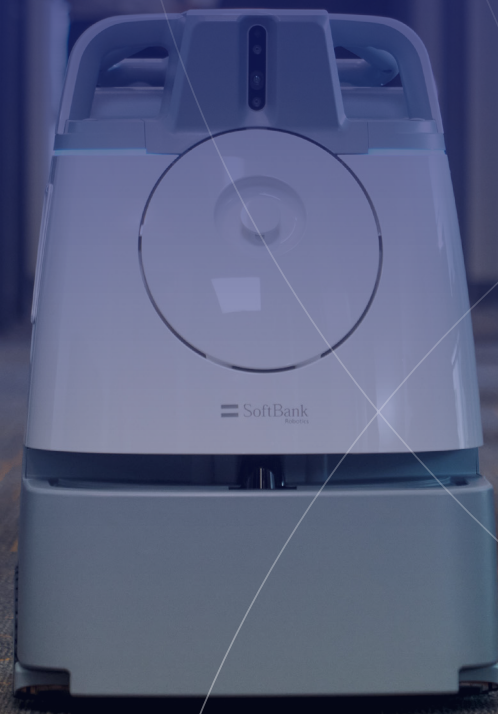


# How to train the human (and machine) workforce of tomorrow

By Angela Johnson Culver and John Borden





**Before the first occupants arrive, a facility technician reviews a diagnostics summary generated overnight. A rooftop HVAC unit shows a subtle pressure variance, which might not have triggered a work order in a traditional maintenance model. The issue is identified early, scheduled for inspection, and addressed before it affects building operations.**

Elsewhere in the building, a cleaning technician adjusts their route based on real-time occupancy patterns, while an operations manager reviews system alerts and assigns follow-up work through a centralized workflow platform.

These scenarios reflect a broader shift underway in facility management: the integration of connected systems with a workforce trained to interpret and act on real-time data.

In recent years, facility operations have become more complex as buildings generate increasing volumes of data. Sensors, automation systems, and analytics platforms provide deeper visibility into performance, but the effectiveness of these tools depends on the people using them. As a result, the conversation is no longer just about adopting new technology, but about preparing the workforce to use it effectively.

## Why human-machine collaboration matters

The benefits of data-enabled facilities are well established. Organizations that leverage connected systems can improve uptime, enhance occupant experience, and operate more efficiently. These systems can identify anomalies earlier, support more proactive maintenance strategies, and provide a more comprehensive view of building performance.

However, technology alone does not deliver these outcomes. Predictive insights must be interpreted, validated, and acted upon by trained professionals. A system-generated alert only becomes valuable when a technician understands its significance and takes appropriate action. Likewise, dynamic workflows are only effective when frontline staff are equipped to adapt their routines in response to new information.

In practice, most facility environments remain human-in-the-loop. Systems detect patterns, but people make decisions. Without adequate training and support, organizations risk underutilizing their technology investments and limiting the value these systems can provide.

## A new operating model for facility teams

Traditional maintenance workflows often rely on scheduled tasks or reactive responses. Technicians complete work, document it after the fact, and move on to the next issue. This approach can limit visibility across teams and delay the identification of recurring problems.

In more connected environments, workflows are becoming more integrated. Technicians receive alerts in real time, respond in the field, and document their work through mobile tools. This information feeds directly into centralized systems, creating a continuous loop between detection, response, and historical asset data.

This shift improves visibility into system performance and enables more informed decision-making. It also allows organizations to move from reactive maintenance toward more proactive and predictive approaches, reducing unplanned downtime and improving overall reliability.

At the same time, it changes the nature of the work itself. Automation reduces time spent on manual documentation and routine tasks, allowing technicians to focus on activities that require judgment and expertise. It also provides access to data that was previously unavailable, such as complete maintenance histories and performance trends for individual assets.

## Preserving institutional knowledge through data

One of the most significant challenges facing facility management today is the loss of institutional knowledge as experienced professionals retire. Skilled technicians often develop an intuitive understanding of building systems over time. They recognize subtle changes in performance and address issues before they escalate. This accumulation of practical knowledge is rarely documented.

When these individuals leave, that knowledge can be difficult to replace.

Digital systems can help address this gap by capturing and organizing information that was once informal or undocumented. Maintenance activities, system performance data, and recurring issues can be recorded and analyzed over time, creating a more accessible knowledge base for current and future teams.

While this does not replace experience, it provides a foundation that helps organizations retain critical insights and make more informed decisions about maintenance and capital planning.

## Upskilling the workforce

As facility operations become more data-driven, the skill sets required of technicians are evolving. In addition to mechanical and technical expertise, professionals must now be able to interpret performance data, navigate digital platforms, and manage work through integrated systems.

This does not mean replacing traditional skills but building on them. Technicians still rely on hands-on knowledge of equipment and systems, but they are increasingly supported by tools that provide additional context and insight.

In practice, this shift requires training that goes beyond basic system use. Technicians must understand how data is generated, what it represents, and how it should inform decision-making. They also need to be comfortable working within digital workflows, from managing work orders to documenting activities in real time.

For example, consider a scenario where performance data indicates a gradual increase in vibration in a cooling unit. On its own, the data point may not seem significant. However, when viewed in context, such as historical performance trends and known failure patterns, it can signal an emerging issue.

A trained technician can interpret this information, inspect the equipment, and address the problem before it leads to failure. This approach not only prevents disruption but also improves efficiency by reducing the need for emergency repairs.

Technicians who develop these capabilities are able to identify issues earlier, respond more effectively, and manage a broader range of responsibilities within the facility.

## Preparing for the future of facility maintenance and operations

Smart building technologies, robotics, and AI are becoming more common across the built environment. However, their effectiveness depends on the people who operate and manage them.

Rather than replacing skilled professionals, these technologies serve as tools that enhance their capabilities. They enable teams to focus on higher-value tasks, improve system performance, and make more informed decisions.

Despite this potential, many organizations have yet to fully invest in the training and development needed to support this transition. Addressing this gap requires a balanced approach: upskilling experienced professionals who understand existing systems, while also creating pathways for new talent to develop practical, hands-on expertise.

Organizations that align technology adoption with workforce development are better positioned to realize the full value of their investments. In these environments, data and human expertise work together to improve operational performance, support occupant needs, and strengthen long-term asset management.

To speak with an ABM expert, visit [ABM.com](https://www.abm.com) or call **866.624.1520**.

### ABOUT THE AUTHORS



**Angela Johnson Culver, PE, PMP, MBA** is the Vice President of Solutioning at ABM Industries and frequent contributor to *ABM Perspectives*. She leads the development of integrated facility strategies that align building performance with business outcomes. A licensed Professional (P.E.) Industrial Engineer and certified Project Manager with more than 20 years of experience spanning engineering, operations, and integrated facility management, Culver specializes in technology-enabled service delivery, portfolio optimization, and performance-driven workplace solutions across complex environments. Culver also serves as a Trustee for the IFMA Foundation, advancing the facility management profession through education, workforce development, and industry innovation.



**John Borden** serves as President of Engineering at ABM, where he leads a nationwide team of over 10,000 engineers. He is responsible for driving long-term financial growth, expanding ABM's best-in-class capabilities, and unlocking revenue opportunities through cross-functional collaboration, innovation, and strong client partnerships. With nearly 30 years of experience in facilities and engineering services, John has a proven track record of delivering results for Fortune 500 clients. Prior to joining ABM, he held senior leadership roles at several leading companies, including CBRE, CH2M Hill, EMCOR, and Siemens Building Technologies. Most recently, he served as President of the Global Workplace Solutions Energy & Resources Sector at CBRE, where he led the company's Oil and Gas segment. His expertise spans operational excellence, safety leadership, and the development of inclusive, high-performing cultures. John holds a Bachelor of Science in Mechanical Engineering from Rensselaer Polytechnic Institute and is a graduate of Wharton's Advanced Management Program.