Facilities Management's AI-Powered Revolution

Facilities management is a profession in flux. Buildings are aging, as are their staffs. As older technicians retire from the field, younger ones entering expect to work with high-quality tech tools and in many cases are disappointed. Meanwhile, owners and operators are under growing pressure to identify and implement energy-saving solutions, embrace efficiencies and adopt protocols that improve air quality, limit carbon footprints and boost sustainability.

Against this backdrop, artificial intelligence looms as a challenge to old ways of doing things—and a huge opportunity. Many of these problems could be solved with the right access to data and the correct AI algorithms. In this white paper, we probe the promise AI-enabled software offers to facilities managers, exploring the transformation now underway and the revolution to come.

Advancing Facilities Management

"Facilities management has traditionally been manual and reactive," observed Mithilesh Ramaswamy, a senior engineer at Microsoft. "But it's shifting toward proactive and data-driven operations." The integration of AI-powered software is reshaping traditional facilities management processes, cutting costs and boosting efficiency.

In the near future, experts say, facilities management will benefit from the arrival of automation-focused breakthroughs. AI-driven robotic janitors and inspection drones will autonomously clean building facilities, pinpoint potential hazards and inspect HVAC and electrical systems. The industry will also see the arrival of tech-powered security enhancements. AI-powered access control systems will leverage facial recognition and behavioral analytics to bring about greater security.

Proactive management

"Facilities management has traditionally been manual and reactive," observed Mithilesh Ramaswamy, a senior engineer at Microsoft. "But it's shifting toward proactive and data-

driven operations." The integration of AI-powered software is reshaping traditional facilities management processes, cutting costs and boosting efficiency.

In the near future, experts say, facilities management will benefit from the arrival of automation-focused breakthroughs. AI-driven robotic janitors and inspection drones will autonomously clean building facilities, pinpoint potential hazards and inspect HVAC and electrical systems. The industry will also see the arrival of tech-powered security enhancements. AI-powered access control systems will leverage facial recognition and behavioral analytics to bring about greater security.

No AI-enabled enhancement in facilities management is poised to yield bigger benefits than the move from reactive to proactive, data-driven operations. Not long ago, facilities management was often about keeping daily operations running smoothly by fixing equipment when it broke. These days, it's more focused on smart technology to monitor and predict equipment malfunctions.

Take the case of a large office building that suddenly loses its air conditioning at the peak of midsummer heat. "Normally, the facilities team would scramble to figure out what went wrong," said Christian Hed, chief marketing officer at Dstny, a Brussels-based provider of cloud-based business solutions.

> "Upskilling employees to comprehend AI insights rather than just responding to alerts should be an operator priority. AI can cut through the noise.
>
> —
>
> **Arvind Rongala**
> **Edstellar CEO**

> “The future of energy optimization will depend on AI systems to analyze occupancy patterns and to dynamically modify building environments.
>
> **— Adam Yong, Software Developer**

“But with AI, the system could have predicted the failure days in advance and the team might have fixed the issue before employees noticed a problem.”

Edstellar, a corporate training services company, can attest to the value of predictive maintenance. The company trained a retail client’s team on AI technologies that cut equipment downtime 40 percent. “This will be the norm,” predicted Arvind Rongala, CEO of the Lewisville, Texas-based firm. “Upskilling employees to comprehend AI insights rather than just responding to alerts should be an operator priority. AI can cut through the noise.”

Algorithms identify irregularities instantly rather than going through maintenance logs. Armed with those analytics, a property manager can give higher priority to a flickering light in a busy lobby than to a sluggish elevator in a little-used wing. As Rongala put it, “Efficiency is intelligent triage, rather than speed.”

Facilities management is also morphing from reactive maintenance to predictive automation. AI-powered analytics are allowing property managers to detect issues before they escalate, cutting downtime and reducing operating costs, according to Adam Yong, a Kuala Lumpur-based software developer with a background in AI-driven automation.

Smart sensors and IoT integrations enable real-time monitoring of and automated adjustments to security, lighting, heating and air conditioning, and other systems.

In the next three years, AI is likely to enable facilities management to become almost entirely predictive, according to Yong. "Machine-learning modules will refine anomaly detection, making maintenance schedules more precise," he said. "The future of energy optimization will depend on AI systems to analyze occupancy patterns and to dynamically modify building environments." Organizations that fail to adopt AI-based facilities management will be hit with increasing costs and reduced efficiency, he added.

Asset tagging will become increasingly prevalent, experts say. This process of attaching a unique identifier to the asset, such as a barcode or QR code, helps staffs track and manage assets and maintain records more accurately. "IoT sensor costs have dropped significantly, enabling predictive maintenance that prevents costly failures before they happen," said Sean Miller, chief revenue officer with Scottsdale, Ariz.-based Lessen, which provides commercial and residential property maintenance solutions.

Facilities are increasingly looking to manage outdoor and indoor green assets. With AI's arrival, managers no longer need to hire companies to conduct manual inspections and reactive maintenance. "In the past, we might get a call for emergency service or negotiate an ongoing maintenance project, and the main factors were budget, timing and scope," said Michael Kenins, CEO of Vista Tree Management, which maintains greenery for properties in the Toronto metropolitan area.

"Now what's being added is impact, greater refinement (and) specificity of prescription of services and expected outcomes, as well as questions and dialogue around how to maximize benefits of green infrastructure and identify different scenarios and options," Kenins observed. Facilities managers are under

pressure to explain and quantify all aspects of their work, and AI "is giving us the ability to respond to that pressure and to leverage other opportunities."

For instance, AI has enabled improved reporting, ensuring that green infrastructure is optimized for cost efficiencies, long-term forecasting and social responsibility goals. Tools such as geographic information system (GIS) mapping, diagnostic software and sensors are helping facilities managers make smarter, data-driven decisions.

And facilities management is moving from reactive models to more predictive and proactive approaches. "While the tools existed before, AI puts them into the hands of facilities managers directly, even without a technical background," Kenins said. "It allows them to monitor building systems, environmental performance and green infrastructure in ways that weren't possible before—even a year ago."

Automating routine tasks

AI-powered software is freeing facilities management of both guesswork and the need for manual oversight. Natural language processing allows managers to give voice commands for real-time updates.

"AI-driven automation will optimize supply chains by being able to predict inventory needs," Yong said. "AI in facilities management automates diagnostics, improving operational efficiency." In the future, facilities management software will handle complex decision-making, he added. AI will analyze multi-building datasets to recommend long-term strategies, factoring in regulatory changes, sustainability goals and cost-saving measures.

AI can now handle a variety of tasks and provide information that helps inform facilities management decisions. According to Rafiquzzaman Khan, co-founder & COO of Berlin-based Micoters German, these include:

- Monitoring space utilization data to recommend reconfigurations that enhance efficiency
- Learning from tenant behaviors to enhance comfort
- Identifying opportunities to reduce carbon footprints and help advance sustainability efforts

AI-enabled process automation can help managers stay on top of major building systems. Facilities management software with AI capabilities can automate everyday tasks, such as inspection scheduling, maintenance tracking and building system data evaluation.

Roofing provides an excellent example. "A roofing company would achieve automated service requests while conducting real-time roof condition monitoring and sending predictive maintenance alerts (preserving) roofs in their best state through minimal human intervention," said Daniel Roberts, CEO of Rexburg, Idaho-based Lava Roofing.

Remote management is another benefit of automation. Imagine a facilities manager enjoying a well-earned holiday at the shore. Then a phone buzzes with an alert about an overheating factory water pump. Rather than rushing back to the site, the manager only needs to "tap a few buttons on an app, adjust system settings remotely and prevent a shutdown—all while sipping coffee at a beach café," Hed said.

Customized interactions represent yet one more benefit. AI is enabling personalized experiences informed by the tenants' historical preferences, reported Carson Berish, Lessen's senior vice president of product. Asset optimization will enable property managers to extend asset lifespans and automate decisions about whether to repair or replace an item. Moreover, AI-powered emergency and disaster response systems will scrutinize severe weather and other events in real time to initiate response strategies, Berish said.

Boosting speed and efficiency

AI also enhances the expanding technological sophistication of residential properties. Residents often ask building management how to operate their intercom or give guests access to smart locks. AI technology fits these types of requests "100 percent" because it enables residents to access training videos and documents, said Jack Ross, chief technology officer at Montreal-based Olymbec Investments Inc. As he pointed out: "If a tenant says, 'I don't

know how to use the intercom," the AI can respond by saying, 'Here's a manual on how to use the intercom. And how can I help with any of your other requests?'"

Olymbec added additional operational efficiency by tying its Yardi Facility Manager module to time and attendance software and payroll. Workers are paid only "if the time is connected to a work order," Ross noted.

Rexford Industrial Realty Inc. has used Yardi Facility Manager for five years to assist in monitoring maintenance records. The software is integral to managing the substantial share of the company's portfolio that's triple-net leased. Tenants must show proof of completing the monthly maintenance they're responsible for.

In the past, this task might have been reactive. Instead, "this system gives regular reports, informs when maintenance is due and allows us to have open and regular communication with our tenants and vendors," said Kelly Diep, director of property operations for the Los Angeles-based industrial REIT. "Staying on top of maintenance and keeping these buildings Class A leads to customer satisfaction."

Also contributing to customer satisfaction is the AI-enabled capability to handle predictive maintenance. "Having more trigger points letting us know equipment is about to end its useful service life, and being able to replace equipment before it does, is important," Diep added. "It goes back to open communication and transparency with tenants."

More enhancements

AI can improve facilities management in a variety of other ways, as well. A few include a move to integrated, self-regulating ecosystems; the opportunity to reap additional

revenue by selling energy back to the grid; and improved indoor air quality. And the benefits will increase as adoption expands and machine learning enables facilities managers to arrive at more informed decisions about the spaces they manage.

In the near term, fully autonomous smart buildings will be increasingly prevalent. "This shift will move facilities managers from managing individual systems to overseeing integrated, self-regulating ecosystems that require little, if any, human intervention, leading to increased efficiency and reduced manual involvement," predicted Erin McDannald, CEO of Baltimore, Md.-based Lighting Environments and its sister company, Environments. "These systems can monitor building performance continuously, identifying inefficiencies and suggesting optimizations proactively."

Energy savings will increase through autonomous adjustments of HVAC systems, lighting and other core building infrastructure, all based on real-time data, she added. These tools will allow buildings to become energy producers, reducing costs and properties' carbon footprints.

"With the potential for grid decentralization in the future, facilities will be able to sell excess energy back to the grid, creating new revenue streams," McDannald said. "AI and IoT sensors optimize the smart grid for real-time energy management, improving efficiency." In addition, AI-enabled HVAC systems improve air circulation and the use of purifiers, cutting health risks, she noted. Similar advances in smart lighting minimize eye strain and enhance worker focus.

What's on the horizon

At the current rate of progress, AI tools will look much different in a few years than they do today. Are there

> “With the potential for grid decentralization in the future, facilities will be able to sell excess energy back to the grid, creating new revenue streams.
>
> — Erin McDannald, Lighting Environments CEO

technologies on the drawing board today that end users will be able to leverage soon? Yes, says Donovan Garner, Yardi senior director of occupier solutions.

It’s interesting to hear a group of university officials express hopes about the benefits of an AI-powered future, he reflected. An official might seek to feed the summer school schedule into AI, getting a sense of preventive maintenance needs and asking AI to produce a maintenance schedule so facilities staff can move those tasks forward.

“Three years from now, that will be standard. … You’ll be able to predict what faults will happen, where they will happen,” he said. “Building automation systems where more things are automated will only increase in number. Will a technician even have to show up?”

Building security and access control, which is often still manual, promises another growth area. “The surveillance systems haven’t become tight enough that people are comfortable as it is,” Garner said. “Where we’re going is to make them comfortable enough with the surveillance that fewer manual steps will be needed.”

A common goal for owners and managers is doing more with less, a priority at a time when well-trained workers are often in short supply. Recent studies reveal that about 70 percent of facilities professionals regard recruiting and retention as significant challenges. The growing need for specialized skills to handle complex building operations is ratcheting up the competition for technicians. When teams are shorthanded, it can lead to repairs and maintenance delays, higher energy consumption, greater equipment expenses and inefficient equipment operation.

For all these reasons, residential properties have begun leveraging AI to make recommendations that enable residents to check on and fix their own appliances

and systems. That saves management from reflexively dispatching a maintenance team member. "Maintenance people always talk about how much of a backlog they have," Garner added. "So if you can push those small things out and have them focus on what is really critical, it will save them a lot of time."

AI-powered facilities management promises maximized equipment lifespans, more automated systems, higher rates of energy efficiency, healthier indoor environments and enormous savings. There's one more that may be the most valuable of all. As Garner put it: "Building owners will see greater rates of happiness among tenants, fewer turnovers and increased occupancies."

AI'S AUTOMATION EDGE

Automation of routine tasks has been a boon for Olymbec Investments Inc., a Montreal-based investor in the U.S. and Canada and an early adopter of Yardi Facility Manager software.

"Every one of our road crew has the software, and that is the definitive way they are given their work orders," said Jack Ross, the company's chief technology officer. "Our tenants put in a ticket for a work order, it flows to our dispatch and it turns immediately into a work order assigned to an employee or a third party." To check on the status of a ticket, tenants can go to Yardi CommercialCafe, just as multifamily residents can when they visit Yardi RentCafe. And when work is complete, the tenant or resident gets a satisfaction survey.

Olymbec counts on AI to help its staff deal with technical challenges and maintain properties more efficiently. Team members access the preventive maintenance and work orders via the same mobile app. Inspections appear as regular work orders that inform technicians about the timeline.

"If your preventive maintenance is coming due in two or three days, it will say the inspection must be done in that time frame," Ross noted. "If the deadline is missed, another whole set of alerts is triggered."

Olymbec's capacity to handle building issues has become a tenant attraction and retention tool that the company shares with prospective tenants during property tours.

"Internally, we can react much faster, because property managers are watching the tickets of their buildings, can see all the tickets open for their properties and can communicate with tenants and have a hand on the heartbeat of their buildings," Ross reported.

Tenants have more flexibility, too. Rather than calling in, they can open a ticket on their mobile phone or desktop. "And they can follow up without human interaction, managing the flow of the work themselves."

If you're ready to see Facility Manager in action, reach out to request a personalized demo.

yardi.com/facilitymanager | sales@yardi.com or (800) 866-1144

YARDI

©2025 Yardi Systems, Inc. All Rights Reserved. Yardi, the Yardi logo, and all Yardi product names are trademarks of Yardi Systems, Inc.

04/04/2025