Planon
Building Connections

Navigating the winds of change: The future of asset & maintenance management

A guide to help your organization invest wisely from any starting point

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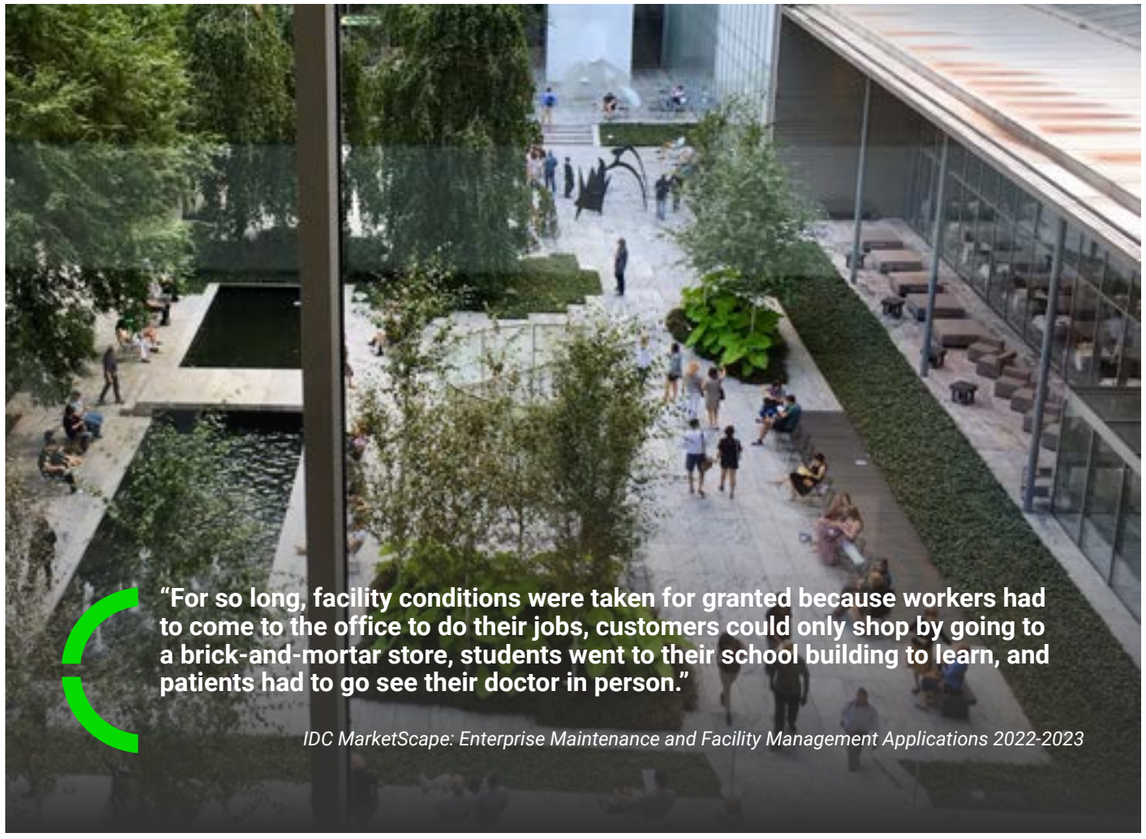
Introduction:
Workplace expectations have changed; so should your maintenance strategy

There has never been a better time to reassess your maintenance management strategy to empower maintenance teams to tackle the challenges ahead. Recent years saw rapid changes in how we work, with empty buildings and hybrid working becoming common. With low building occupancy rates across regions, good maintenance is vital to incentivize people to use healthy, safe and engaging environments – away from the home.

Can building maintenance adapt to this challenge?

To achieve this, it is essential to adopt proactive strategies. These will enable maintenance teams to better manage deferred maintenance while catering to diverse occupant needs. By adjusting maintenance practices for this new era, maintenance teams will be more adaptive, efficient, and skilled at facing the complexities ahead.

As we move through 2023 and beyond, organizations are focusing more on investing to deliver better, more sustainable building experiences for employees, customers, students, patients, and visitors. Often overshadowed by buzzier topics, it's imperative to highlight the importance of maintenance management in delivering sustainable building experiences. Data-driven IoT sensors, for instance, may generate excitement among building occupiers and facility managers alike as an enabler of hybrid workplace strategies, but ensuring their ongoing operation represents a new challenge for maintenance teams.



"For so long, facility conditions were taken for granted because workers had to come to the office to do their jobs, customers could only shop by going to a brick-and-mortar store, students went to their school building to learn, and patients had to go see their doctor in person."

IDC MarketScape: Enterprise Maintenance and Facility Management Applications 2022-2023

Workplace expectations have changed; so should your maintenance strategy

Sustainable building experiences will focus on supporting higher levels of collaboration, in-person communication, and the forming of stronger connections between customers and colleagues alike. These experiences will be derived from the integration of workplace strategy, building services, and the proper maintenance of the equipment and systems that support each of these.

This integration will require new types of asset classes for building operators and maintenance teams to master. Think of building systems that use AI, digital twins, heat pumps, microgrids, solar, and Internet of Things (IoT) based fault detection systems. Maintenance teams must be prepared to operate and maintain these new assets in the built environment.

In this e-book, we will examine the evolving role of maintenance teams, the opportunities that lie ahead, and the factors that are likely to influence the pace of change. Alongside research gathered from across the industry, we will explore interesting insights from several individuals with first-hand knowledge of how maintenance management is adapting to the built environment of today.

Section 1:
What's driving change in asset & maintenance management?

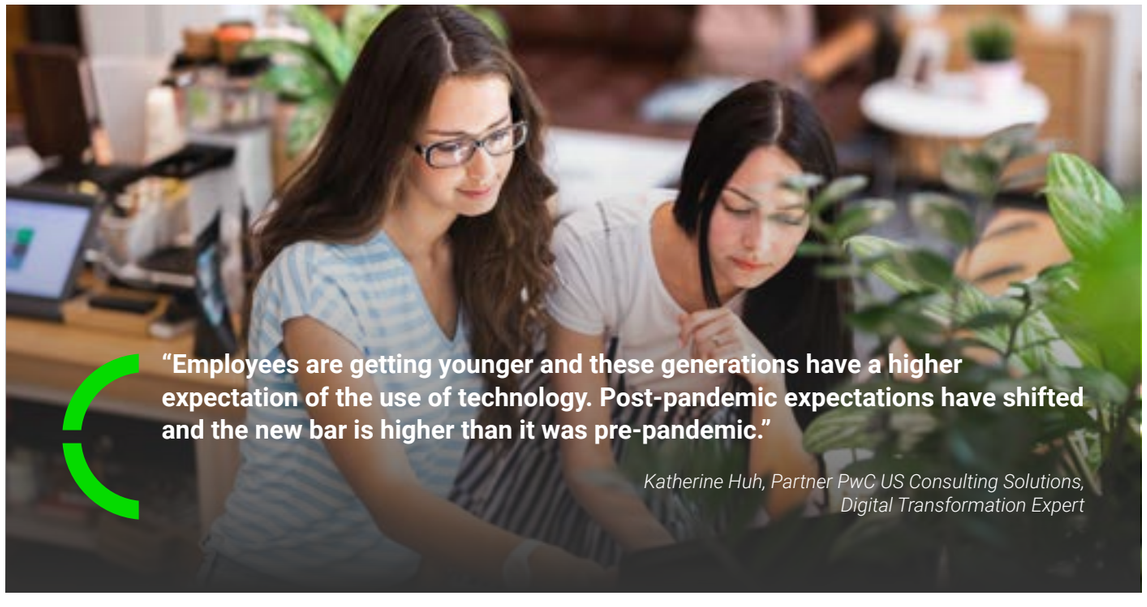
The impact of digital solutions on built environment experiences is inevitable. Building stakeholders, whether employees, guests, customers, patients or students expect as high a level of digital engagement from within the built environment as they do outside it. What's more, digitalization and buildings are a perfect match. The built environment has always generated a treasure trove of information - from space utilization to equipment performance ranges and comfort analysis. Now, building users and operators are able to more easily access, monitor, and track this information and finally put it to good use to ensure building experiences meet expectations.

Demographic shifts across the workforce

Digitalization of the built environment is a multi-generational affair, as it is undoubtedly true that younger generations are among the most accepting of the digital transition and are less likely to accept positions or stay with organizations that are clinging to traditional ways of working.

"You need to make the office worth the commute. If the air conditioning isn't working properly, it's not a good thing. If your badge isn't working, that's not a good thing. If your room reservation has been lost, that's not a good thing. If people think things aren't working, they will be less enticed to come in."

Ken Carroll, Managing Director EY US Corporate Real Estate Transformation and Technology, Smart Buildings



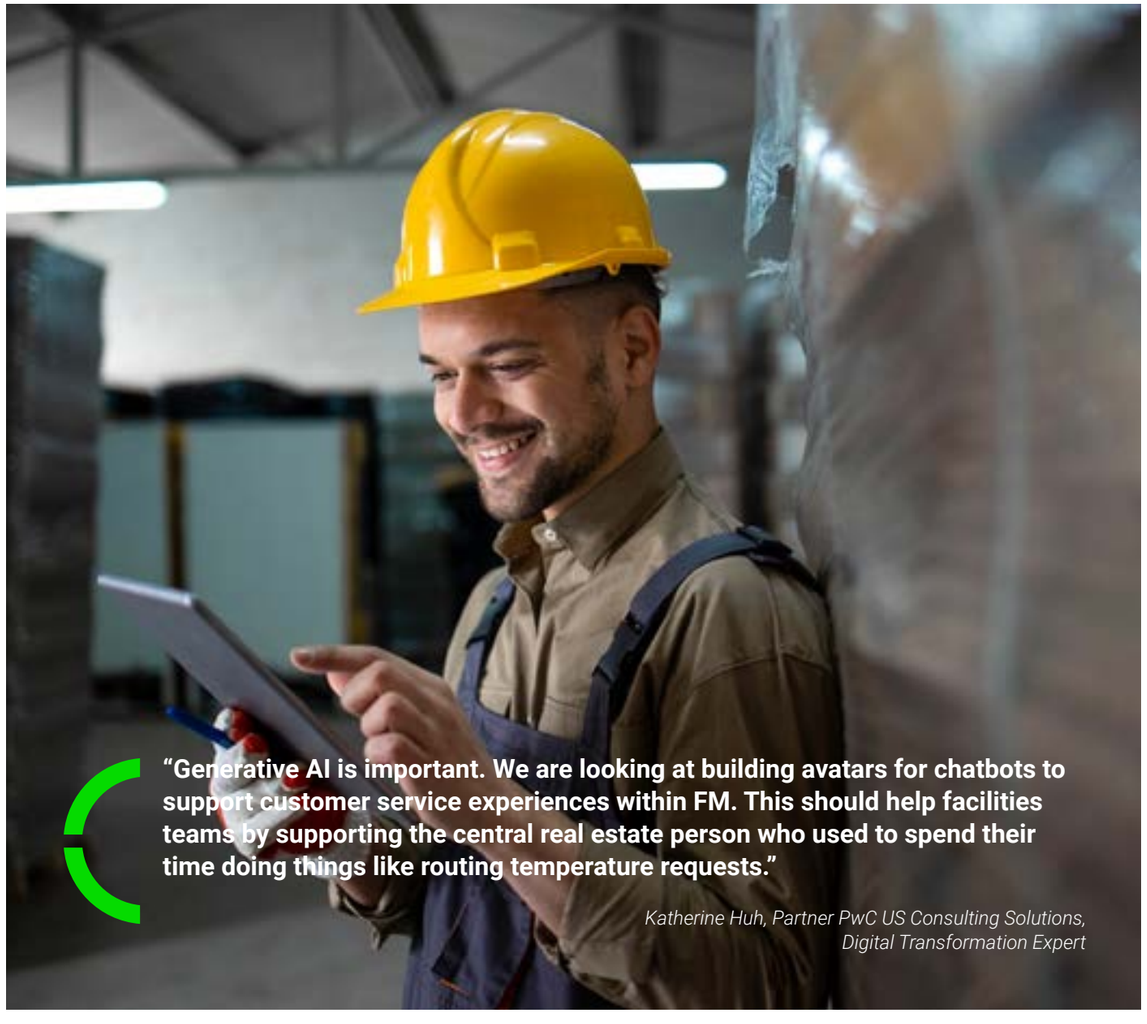
Younger employees are propelling digital workforce transformation in many organizations, regardless of industry. They are eager for the technology that serves them in their personal lives to be reflected in their workplace. For example, 71% of millennial employees admit that the extent to which an organization embraces technology or innovation influences where they choose to work.

The demographics of maintenance providers is also transitioning. Industry research finds the average age of a maintenance provider is 50 years old. This trend is occurring across in-house teams and outsourced service providers. An aging workforce will propel firms to attract younger employees and shorten the time to onboard staff. Technology adoption will be a key component of the future of maintenance service delivery.

Technology advancement is only getting faster

Maintenance teams may well be used to an evolving technology stack, but the pace of change has undoubtedly increased. Research indicated that the COVID-19 pandemic may have sped up the adoption of digital technologies by several years and the post-pandemic world shows little sign of this slowing.

The mainstreaming of artificial intelligence, as seen through the emergence of solutions such as ChatGPT, suggests the pace of digitilization will soon become turbo-charged. By 2025, for instance, it is predicted that algorithms and bots will schedule more than 66% of appointments for field service providers using automated scheduling optimization. This represents a significant increase from less than 25% in 2019.



> **"Employee satisfaction is very important. It's about being sure that what you are about to do is the right way to do something. It's about developing confidence in your knowledge and ability to accomplish specific tasks."**
>
> *Raffaella Dellarossa, Manager EY Switzerland*
> *Real Estate Strategy and Transformation Projects*

The expected acceleration of advanced technology adoption is forcing organizations to face some difficult realities. Already, **85%** of technicians feel the knowledge required to service products is changing. A similar amount (**83%**) say more technical knowledge is needed to perform their jobs and **25%** believe their companies do not make it easy for them to know what parts are needed for service visits or to find the necessary information needed to resolve service inquiries. This suggests that the job of maintaining the built environment is only becoming more difficult.

Rising pressure on facility management to provide better experiences

As if the job wasn't difficult enough, FM services customers now expect higher quality service standards than they did two years ago. Pressure is increasing on maintenance teams to move beyond the average.

Maintenance teams must embrace new solutions for predictive maintenance and building user self-service to enhance responsiveness and equipment uptime, with analytics playing a crucial role. Amidst discussions of substantial workplace changes, it's important to recognize that we're only witnessing a continual evolution of the workplace experience.

Research by the US Department of Energy shows that **55% of firms rely on reactive maintenance**, 33% on preventative, and only 12% on predictive maintenance.

Section 2:
Three things to get right when investing in maintenance technologies

Organizations need to invest wisely. Maintenance teams and service providers need to collaborate with all stakeholders to ensure the availability and effective use of maintenance tools. This teamwork will position maintenance teams as a strategic facility partner. The list of technologies available to maintenance teams to achieve these goals include: IoT sensors, smart systems, AI-based analytics, and hyper-efficiency driven automation for capturing and analyzing information to pinpoint necessary actions. When formulating your maintenance technology strategy, there are three things to keep in mind: industry, technology, organization.

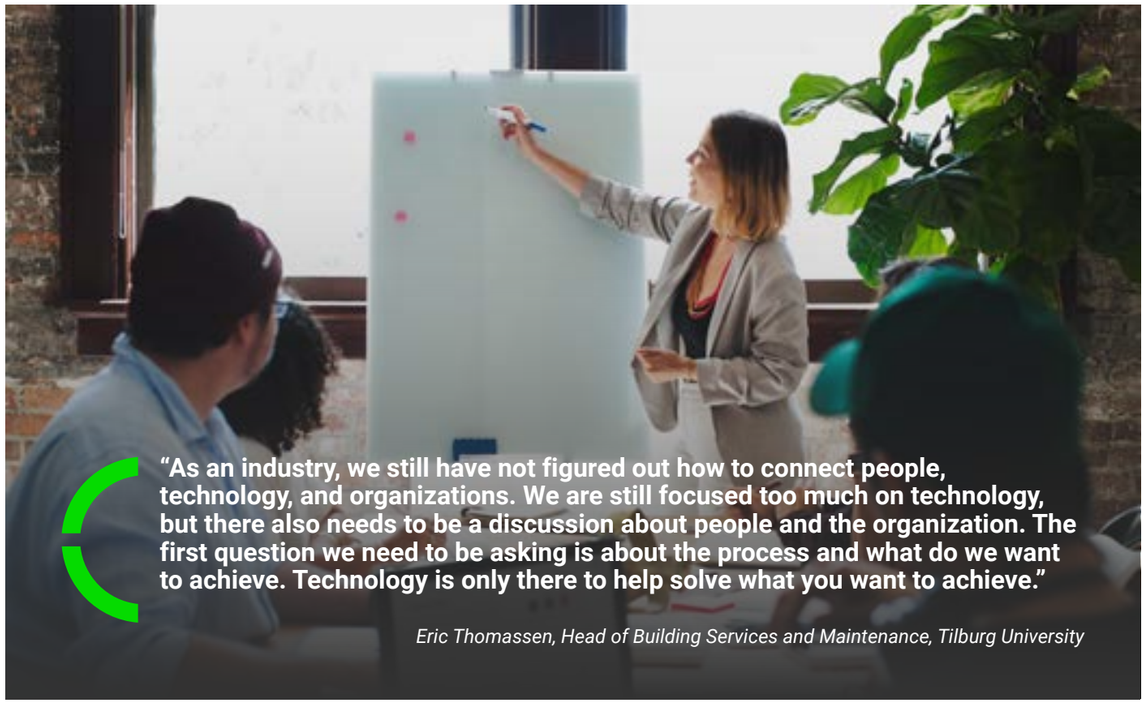
Identify and prioritize maintenance objectives

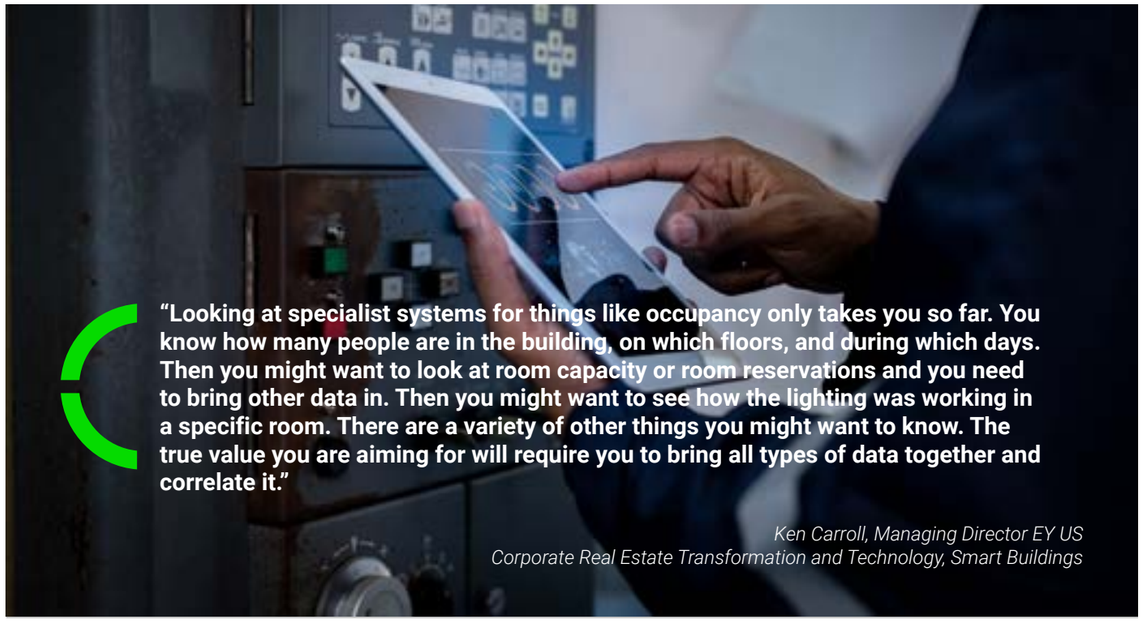
Create a balanced scorecard. This framework is used as a springboard to guide objective setting and define how selected solutions will contribute to improve maintenance processes.

The four areas to balance within the scorecard are:

- Financial Impacts
- Customer Impacts (internal customers or external customers)
- Process Impacts
- Learning, Development & Growth Impacts

Working through a balanced scorecard will help strategy teams to hone in on the right maintenance solutions that will best fit the organization's needs. And with so many maintenance management options on the market (estimates of the number of solutions currently on the market to support maintenance processes range from 1,200 to 10,000 or more globally), it's important that teams take this step seriously and spend the time it takes to pinpoint the right solution fit.





Technology integration

As digital adoption gathers pace within maintenance management, the limitations brought on by a lack of integration will become insurmountable. Siloed systems create a fragmented technology stack for maintenance teams to get to grips with. Can technicians integrate all the disparate solutions that are likely to make up a digital-first building?

Poor third-party integrations significantly reduce the benefits organizations can get from using digital solutions in their maintenance strategies. Research undertaken by Gartner, shows that half of all organizations with over 50 field technicians will own multiple field service solutions, but will miss out on 20% of the possible efficiency gains due to poor integration. This leads to worsened building experiences as teams struggle meet maintenance demands.

User adoption

Technical barriers will not be the only hurdles that organizations have to overcome as they manage digital adoption. There is some concern among technicians that new technologies are there to make them redundant and hinder their usefulness. This perception may lead to reduced user adoption of new technologies. After all, who wants to bring about their own obsolescence?

However, this perception is misplaced as technology will not displace maintenance technicians. It will support them in addressing factors such as requirements for shorter turnaround times, workforce shortages, and being able to prove achievements (such as achieving energy management goals). A Building Operating Management Survey by FacilitiesNet found that mobile improved workflow processes for 62% of respondents. Solutions improved work order response time and tracking for 73% of maintenance respondents, as well as improved workflow processes for 62% of respondents. Getting buy-in from services teams to adopt new technologies will benefit both the maintenance provider and the building occupant.

User adoption is also influenced by employee turnover. According to the 2021 Voice of the Field Service Engineer Survey by the Service Council, over 73% of technicians, aged 25-44 stated they had been in their current job for less than five years. Over 42% had been in their current job for less than three years. Frequent employee turnover may undermine the willingness of firms to invest in training programs. In the long run, this will limit a firm's ability to stay competitive in an increasingly digital environment. Notably, investing in training might curtail the rate of employee turnover by bolstering employee confidence and job readiness, while also demonstrating the company's commitment to their professional growth.

Section 3:

Finding your asset and maintenance management starting point

To effectively adapt to industry shifts and enhance your asset and maintenance management procedures, it's crucial to understand your organization's current position. Utilizing the maturity matrix framework outlined below, you can identify the phase that aligns most closely with your current approach. Afterwards, you can begin the development of an enhanced maintenance strategy that will help your organization flexibly adapt to current and future challenges.

Maintenance Management Maturity Matrix

Source: Planon

Phase 1

Reactive Maintenance Management

Your organization is most likely relying on reactive maintenance management if you do not have a clear strategy and approach to your maintenance processes and data. You handle issues as they arise through reactive processes. If your organization is relying on reactive maintenance practices, it's probably difficult to report on what's being done or prove that your maintenance practices are effective.

Phase 2

Scheduled Maintenance Management

Your organization is focused on scheduled maintenance if you rely primarily on planned preventative maintenance. Your teams use market standards to maintain assets and data, and you're working towards data being kept in a single source. You're able to do some simple reports – but you feel you could showcase so much more if your data was more structured and if everyone used the same source to input and export information.

Phase 3

Proactive Maintenance Management

Your organization is focused on proactive maintenance management if you use technology to collect, analyze, and manage maintenance activities in an efficient manner. You're able to create and pull reports for your leadership team a lot easier than you could before. You've started to realize the benefits of technologies such as sensors, IoT, IWMS and Facility Services Business Solutions (FSBS). The leadership team supports continued investments in maintenance improvements because they can see the effects with the data you are providing.

Phase 4

Data-Driven Maintenance Management

Your organization prioritizes data-driven maintenance management if you are already making strategic decisions within your maintenance processes based on real-time data. You're exploring condition-based maintenance practices and starting to identify problem areas much faster. You're able to create reliable and valuable reports for your leadership team that show the benefits of your maintenance processes. You're starting to explore how you can expand the use cases of the technologies you've already implemented.

Phase 5

Objective-Based Maintenance Management

You are focused on objective-based maintenance management if your maintenance strategy is focused on asset life-cycle management. Your processes are aimed at optimizing the value of real estate portfolios and associated assets. Maintenance costs are significantly reduced and you're able to report exactly what you've done to achieve this to your leadership team. You're using real-time data to make decisions and you're predicting needs before they occur. You're exploring how to implement new technologies and practices to make your buildings more intuitive and exciting for building users. Your team is well-versed in the technologies it is using every day.

Section 4:

Top four technology areas for improving maintenance management

Now that you've identified your organization's maintenance management maturity. You are better equipped to pinpoint which technologies you want to explore further. Here are some of the top technologies organizations are exploring, in combination with either an IWMS, CMMS, or field service management solution such as the Planon Facility Services Business Solution.

1

IoT, mobile-first, and digital twin solutions

Internet of Things (IoT) based solutions are becoming increasingly ubiquitous within the implementation of digital facility strategies. IoT-enabled devices, automation systems, and mobile tools are used to monitor and predict asset and building performance and schedule maintenance tasks. These will improve the efficiency and cost-effectiveness of data capture for maintenance operations and the speed of response times. Phases one and two will benefit from investment in these technologies.

The next stage in the development of IoT solutions is the digital twin. There are several types of digital twin implementations. These range from applications that automatically turn IoT data into actions to virtual (3D) representations of physical assets. Companies across asset intensive industries are employing digital twin solutions to monitor asset performance, identify process bottlenecks and unlock performance improvement insights. Phases three to five will benefit from investment here.

"Our energy management solutions will eventually form part of a digital twin covering our entire campus. For instance, let's say you want to dig a large hole in front of a building and you want to know what's under the ground. You have a visual of everything that's down there and know the exact dimensions. A digital twin provides a visualization of all the data we need from the get-go."

Walter Martinez, Information Technology Manager, California State University Long Beach

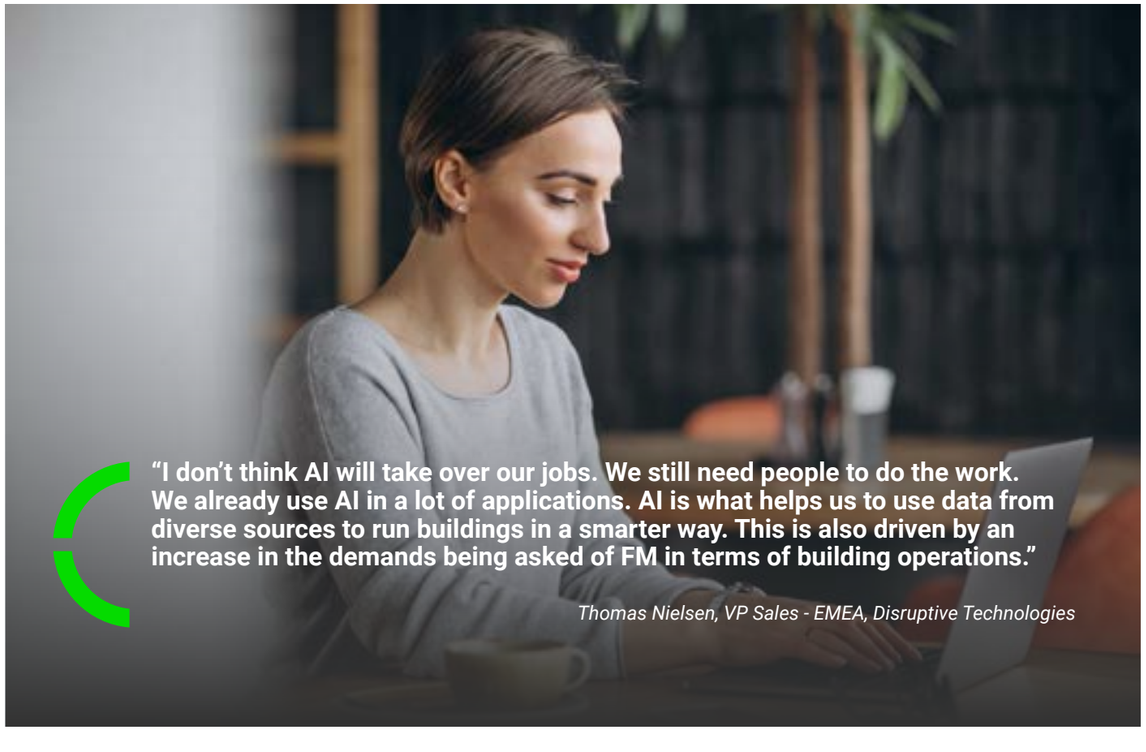
2

AI and Data analytics

The use of analytics to identify patterns and trends in asset performance will help maintenance managers to make more informed operations and asset investment decisions. Analytics tools will support growth in achieving first-time-right corrective actions by providing the right information when and where it's needed. This includes identifying the root cause of equipment performance degradation. Phases four and five will benefit from investment in analytics tools for forecasting and strategic planning.

Maintenance knowledge management is also set to be impacted by the advancement of Artificial Intelligence (AI) solutions. AI can leverage natural language processing to sort through data at speeds that would simply be impossible with relying solely on anecdotal evidence and manual processing. This will enable faster processing of technician queries before repairs are undertaken. Use of AI to mine maintenance logs and equipment user manuals for technician queries will accelerate the speed of training for new technicians, improving confidence levels and preparedness.

As use of AI within maintenance activities increases, it is important that it is not framed as automation replacing workers. In fact, AI is likely to augment the capabilities of technicians, freeing them from laborious manual tasks so they can concentrate on adding genuine value. More than 60% of business owners believe AI will increase productivity - and this is likely to manifest itself in terms of workplace maintenance. Overall, this will help businesses in Phases four and five to create better workplace experiences - allowing them to work smarter, not harder.



"I don't think AI will take over our jobs. We still need people to do the work. We already use AI in a lot of applications. AI is what helps us to use data from diverse sources to run buildings in a smarter way. This is also driven by an increase in the demands being asked of FM in terms of building operations."

Thomas Nielsen, VP Sales - EMEA, Disruptive Technologies

3 Predictive and prescriptive maintenance

Machine learning and other AI tools are advancing the development of equipment fault detection and diagnostics solutions. These will make it easier for maintenance engineers to understand when equipment will fail and schedule corrective actions accordingly or decide whether it is better to replace the failing equipment. This will reduce downtime, increase equipment lifespans, and lower total cost of asset ownership. Research by the US Department of Energy on best practices for facility operations and maintenance found that predictive maintenance activities can achieve a 25% to 30% reduction in maintenance costs, a 70% to 75% decrease in asset breakdowns, and a 35% to 45% reduction in asset downtime.

Prescriptive maintenance will extend the benefits of predictive maintenance by identifying the potential root causes of maintenance issues; enabling technicians to resolve faults quicker, confident that they are fixing the right problem. Together, predictive and prescriptive maintenance will support the business continuity aims of companies with ambitions to realize the benefits of Phase five maintenance strategies. This is especially important in sectors such as hospitals, production, telecoms, retail, offices, and high-tech.

4 Energy and sustainability

Maintenance shouldn't only be seen as a way to correct faults. Maintenance will also be important for monitoring energy usage and making improvements where relevant. Successful sustainability strategies for the built environment require effective maintenance management. As research conducted by the University of Reading explains, "although often viewed as independent challenges, an important interdependency exists between energy performance and maintenance of building mechanical systems."

Reducing energy consumption and associated carbon footprints as an operational objective will continue to grow in importance for all operations and maintenance employees. This is due to increasing regulatory scrutiny, investor ESG concerns, public advocacy and other stakeholder demands. While technologies to improve energy and sustainability performance management will benefit organizations no matter which phase they are in, the more data driven the organizations, the more benefits they will realize.

Recap

Asset and maintenance management technology selection cheat sheet

1. Know your business objectives first

Then look at how technology can support achieving those objectives. Technology should never be a goal in itself. Any attempt to implement digital solutions needs to be underpinned by the business objectives for the real estate portfolio.

2. Consider the impact of technology on your core business

Prior to embarking on a new project, assess how the technology aligns with your core business. Does it enhance service delivery by increasing efficiency and cost effectiveness? Does it contribute to an enhanced workplace experience that attracts and retains talent? Does it elevate educational experience or healthcare experience? Encountering ‘technical difficulties’ in the middle of a surgery or student exams will not be a pleasant experience for anyone.

3. Balance costs against the benefits of new technology

Although digital solutions come with a price, they should yield returns through increased operational savings, improved efficiency, and superior service delivery. All of these will add to the overall value of a building or a real estate portfolio. Technology should enhance, not hinder valuation. As data’s significance in real estate operations expands, showcasing exceptional building operations will enhance a building’s value even further.

4. Don’t forget the human element

Successful adoption of digital solutions relies on people feeling at ease with technology. This will affect the full adoption of solutions. For maintenance teams, sharing knowledge is crucial, especially in markets facing demographic shifts. Chosen technologies must aid technicians in different tasks, from prevention to acting on prediction. To be fully adopted, the technology has to be user friendly to deliver quality facility services that satisfy clients and users alike.

5. Meet building user digital expectations

People want the same digital conveniences at work as in their personal lives. Mobile apps that provide access to amenities were once viewed as nice-to-have additions in the workplace, but now they are essential. These apps offer technicians instant access to data and colleagues, while also enhancing building user engagement and productivity. These apps have now become an indispensable part of a properly functioning building. There is no turning back.

6. Plan for change management

When adopting digital solutions like IoT, AI, analytics, or digital twins, organizations must ensure that their employees understand the need for these solutions and provide proper training and support. If this step is skipped, it will quickly lead to the abandonment of digital adoption efforts. For maintenance teams, FM personnel should become the advocates for the new technologies, as they play a vital role in integrating the new solutions for better building user experiences. Involving them early in projects is crucial for success and well worth the effort.

About Planon

Keeping a company's real estate and facilities in top working order while maintaining costs at a minimum has never been more important.

You can rely on Planon to support you in ensuring that your workforce, visitors and customers have a safe, healthy, comfortable and attractive business environment.

The Planon Asset & Maintenance Management solution is comprehensive maintenance software that supports all your business needs.

Learn more about
Planon Asset & Maintenance Management

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