

OVERCOMING 5 COMMON CHALLENGES
FACING FACILITY MANAGERS

A photograph of modern glass-walled buildings at sunset. The sky is a mix of orange, pink, and blue. A white network of dots and lines is overlaid on the sky. The title 'FACILITIES MAINTENANCE MANAGEMENT' is written in large, bold, white, italicized capital letters across the bottom half of the image.

FACILITIES MAINTENANCE MANAGEMENT

TOP 5 ISSUES FACING FACILITY MANAGERS AND HOW TO OVERCOME THEM

Whether you're in local government, higher education, real estate, or commercial business, three facts remain true. Your owned and leased facility portfolio represent your organization's largest financial asset, it's your second-largest expense, and one of your most significant long-term obligations. With so much on the line, even the smallest improvement to facility maintenance and management can result in higher-performing operations, financial savings, and a significant return on investment.

As building, space, and facility management continues to evolve, organizations across the globe are facing the same familiar challenges. From reducing costs, maximizing revenues, and proactively maintaining deteriorating infrastructure assets to destroying data silos, simplifying complex data to make better decisions, and protecting constituents, we're going to dig into the top five challenges. The goal of this guide is to help you better understand the top five issues facing facility managers and space planners today. Along the way, we'll also share tips, tools, and best practices that will help your team overcome each of these challenges and thrive in the new normal.



DID YOU KNOW?

The built environment is the single largest asset in the world—bigger than all the stocks and bond markets put together. That's a big deal.

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REDUCING COSTS AND MAXIMIZING REVENUES

01



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Facilities are often your largest asset and second-largest expense. How can your team reduce your total cost of ownership and optimize your portfolio with the data you already have?

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DETERIORATING INFRASTRUCTURE ASSETS

Stairways, signs, desks, appliances: your facilities house thousands of indoor, outdoor, above, and below-ground assets. Are you performing the right maintenance work at the right time?

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DESTROYING DATA SILOS AND IMPROVING INFORMATION INTEGRITY

Fifty two percent of real estate professionals struggle with data quality issues. How can your team share a real-time, 360-degree picture of your operations with key stakeholders?

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SIMPLIFYING COMPLEX DATA TO MAKE SMARTER DECISIONS

Data is the most valuable, ever-growing asset you have. Are you properly capturing, analyzing, visualizing, and sharing information to meet your operational goals?

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PROTECTING AND ENGAGING CONSTITUENTS

Safety, compliance, and communication are essential to facility and building operations. How can your team mitigate risk and keep stakeholders better informed and safe?

CHALLENGE #1

REDUCING COSTS AND MAXIMIZING REVENUES

Whether you're in local government, higher education, real estate, or commercial business, facilities are often the largest asset on your organization's balance sheet. As the largest asset you have and the second-largest expense, facilities have significant financial implications. Which is why they're the primary focus of most organizations. When it comes to facility management, two primary economic issues come into play: cost savings and portfolio optimization.

COST SAVINGS:

The discussion of cost savings within facilities relates to the total cost of ownership (TCO) and a focus on efficiency, cost avoidance, and the maximization of existing assets through streamlined workflows and sharing mission-critical data. To highlight the depth and breadth of challenges related to cost savings, we'll dig deeper into the three most common struggles.

1. SPACE AND MOVE MANAGEMENT

Space management is one of the immense costs incurred by an organization and a key source of efficiency. Having a GIS-centric space management solution can help increase space utilization, reduce vacancy, optimize space, and reduce the overall need for new facilities to be either built, retrofitted, or leased. All things that save you beaucoup bucks.

As for move management, relocating employees is an expensive endeavor that extends beyond the simple move, but also includes potential additional acquisitions and fit-out costs. Similar to space management, effective move management can reduce the number and frequency of transitions, resulting in a 10 percent anticipated reduction in move costs.

The most common hurdle facing facility operations is that it's difficult—if not next to impossible—to effectively and efficiently manage space or moves without a “single point of truth” that combines all your sources of clear, accurate, and actionable data. Especially if those sources of data—like floor plans and employee assignments—aren't being updated in real time.

2. WORK MANAGEMENT

Coordinating and managing the efforts of janitorial, maintenance, and operations work is a complex task for any size facility. Several times per day, work requests must be evaluated, prioritized, scheduled, assigned, checked against a part or material inventory, and eventually completed. Without an easy-to-use, end-to-end solution, coordinating and tracking your staff's efforts is going to be a sizable challenge.

Aside from the day-to-day reactive maintenance requests, your organization should also be investing heavily in proactive preventative maintenance tasks. Without a streamlined system, most organizations have difficulty focusing on proactive or predictive maintenance tasks at all, which ultimately costs more down the line.

The overall productivity of the work management process is often significantly lacking as well—but it's not the workers' faults. Booz & Co estimates that the average wrench time spent physically fixing things varies from 25-35 percent. The remaining balance of time is spent on windshield time and searching for information. Moreover, a McKinsey report found that the average employee spends nearly 2 hours a day searching for information. So, what do you think? Does your team have access to the real-time data they need?

3. CAPITAL PLANNING AND PROJECT MANAGEMENT

When you think about it, facilities are just as complicated as the human body. Establishing the condition (check-ups, tests, scans) of a particular building (patient) and its component systems and assets (organs, muscles, tissue, bones, nerves) is a fundamental part of facilities management (medicine). It's key to determining capital and budgetary planning—often a key focal point of senior management. Without a baseline asset and facility condition assessment, it's unlikely you can understand the useful life, current condition, and replacement costs for your inventory.

From building system replacements and renovations to complete campus development plans, capital projects are the mechanism to moving construction forward. Through the life of the project—from operations to design to construction and back to operations—managing information related to these projects is critical. Without accurate, easily accessible data, most organizations are losing time and money and they don't realize it.

The National Institutes of Standards and Technology found that approximately 40 percent of engineer time is inefficiently spent locating and validating information. The study also indicates that poor intersystem communication wastes approximately 30 percent of project costs. When you're looking at a \$6 million project—that's \$1.8 million down the drain. Yikes.

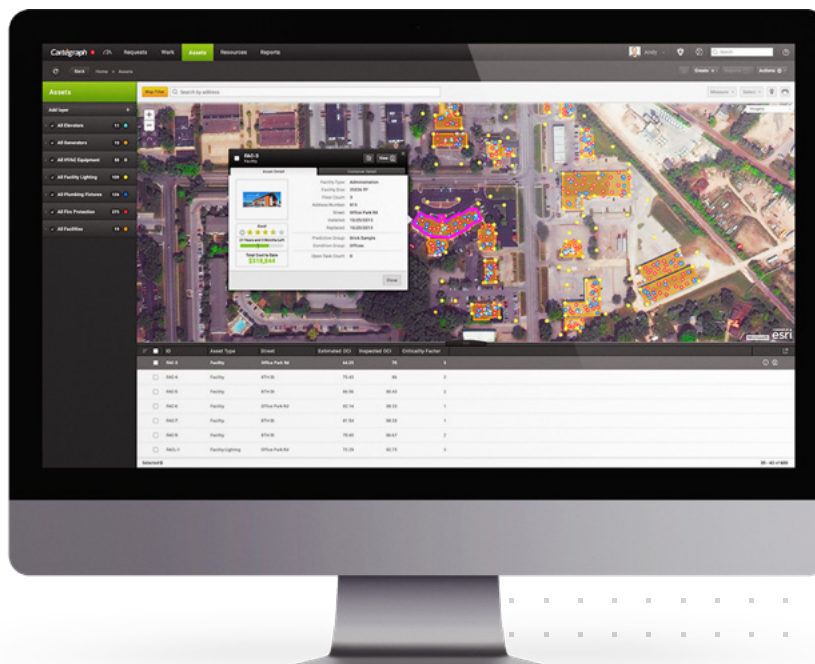
PORTFOLIO OPTIMIZATION

While cost savings are focused on the reduction of your total cost of ownership, operations, and occupancy, portfolio optimization is centered around sharpening or enhancing your portfolio and building space to maximize your revenue and mission impact. There is a growing urgency to this effort. With changes in how work is being performed—like fully-remote teams and office hoteling—traditional space utilization metrics are falling fast.

According to Accenture’s report “The Real Estate Hangover: Your Bloated Portfolio is Dragging Down Your Business,” the average firm has 30-50 percent more real estate than it needs. Carrying that much extra space creates a substantial drag on financial performance. Not only do you have capital tied up in assets and lease commitments for these properties, this “excess fat” is also bloating your on-going operational costs.

While the pressure is on your team to optimize your organization’s portfolio and reduce the costs of occupancy, you can’t manage what you can’t measure. Most teams, just like yours, struggle to move the needle because there’s low or no visibility into the data and the processes that support it.

After employees, ownership and occupancy of real estate is the second largest expense.



SOLUTION

DATA IS YOUR MOST VALUABLE ASSET

When it comes to overcoming any challenges associated with effectiveness and efficiency, accurate, real-time, and accessible data is king. After all, you can't know if something is effective if you don't measure it. You also can't identify and correct inefficiencies if you aren't regularly monitoring key performance metrics and comparing that data against similar buildings and portfolios.

To help you pinpoint where you need to start collecting or better analyzing data, begin by asking yourself the following questions:

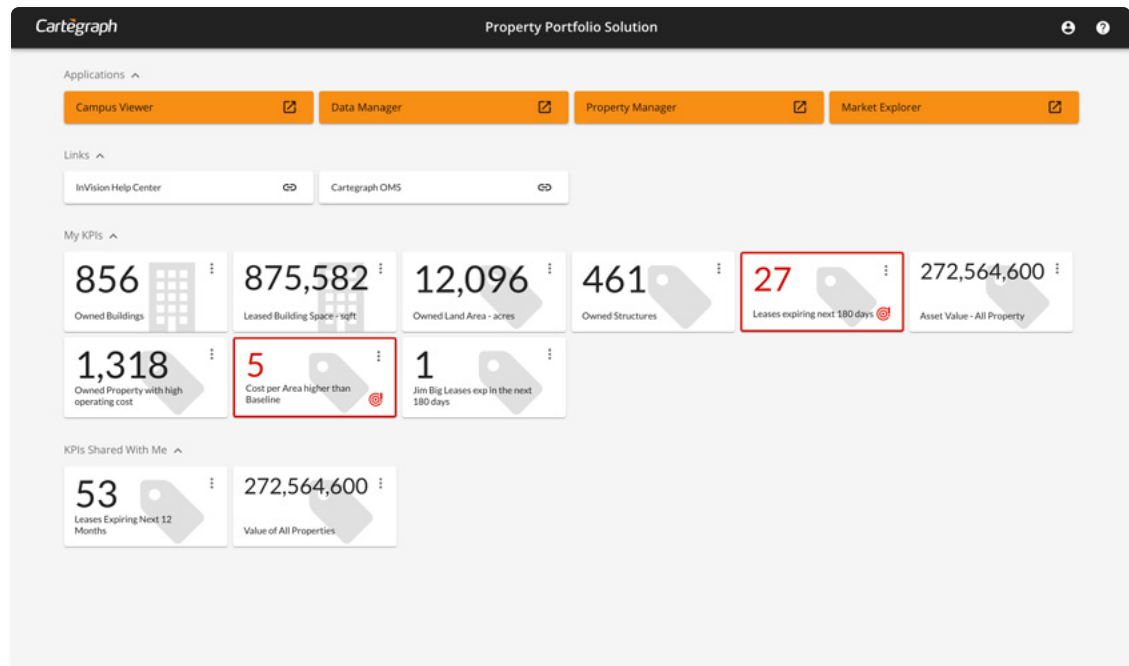
- What spaces do I own vs. lease and where are they located?
- Are my buildings and facilities near my constituents, employees, or ideal customers?
- Do we need this space at all—or is this a non-strategic space we should consider divesting?
- Is my space allocation per worker or tenant trending upwards or downwards?
- Are there opportunities to save money by managing our real estate portfolio more efficiently?
- What portions of my leased portfolio are up for renewal in the next year?
- Where am I paying more to outsource janitorial, waste, security, and other services?
- Where and when can we consolidate or expand—and what will be the impact?
- Are we maximizing the revenue-generating potential of our building or facility assets?
- What key performance indicators should my facility team be monitoring?

CHECK IT OUT

"The most unique characteristic of information as an asset is that it can be shared between any number of people, business areas, and organizations without consequent loss of value to each party... In general, sharing of information tends to multiply it's value. The more people who use it the more economic benefit can be extracted from it." — Daniel Moody + Peter Walsh: "Measuring the Value of Information: An Asset Valuation Approach."

After asking yourself or your team these questions, you should be able to identify where potential gaps in your data are hiding and what point solutions just aren't cutting it anymore. From there, it's best to focus your efforts on finding or collecting the information that's missing and organizing it within a single, enterprise-wide building and facility operations management system. Once your clean data is in your system, remember you need to outline and uphold your data management processes to ensure it will remain pristine for years to come.

From there, your team moves on to what is often the most fun and most important step: analyzing and sharing your findings with the rest of your organization. By opening access to your analytics, you're unleashing the dormant value of your data and empowering everyone to make more informed decisions across the organization.



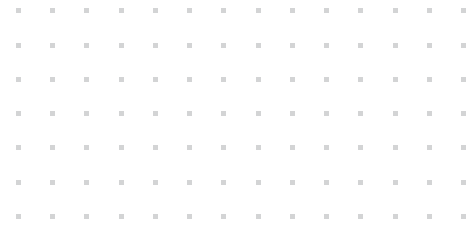
TIP:

Look for a solution that's configurable and allows you to track the metrics that matter to you most, whether that's your total cost of ownership, energy costs, deferred maintenance backlog, or leases that need to be decisioned in the next 6 months.

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CHALLENGE #2

DETERIORATING INFRASTRUCTURE ASSETS

Not only are your facilities the most considerable assets you have, but they also house an intricate network of indoor, outdoor, above-, and below-ground infrastructure assets that are essential to an organization. Parking lots, stairways, signs, and trees to lighting, desks, carpet, and appliances: your team is responsible for managing thousands upon thousands of assets. Unfortunately, most building or property managers don't have a formal asset inventory—let alone a regular asset inspection program.

Without an up-to-date asset inventory, your team can't answer the foundational questions of asset management: what do I have, where is it located, and what does it cost? Additionally, if you're not tracking individual assets then it's doubtful that you'll have easy access to asset images, manuals, warranty information, and inspection histories when you need it most. When you're not regularly tracking or inspecting your inventory, it's easy for infrastructure assets to deteriorate to the point of failure, go unused, or get misplaced, stolen, or destroyed. And, that avoidable leakage is going to cost you.



TIP:

Break down data silos by looking for a solution that's open and connected. From finance platforms and security solutions to SCADA systems and IoT devices, all your data needs to be connected.

Preserving your infrastructure assets and extending the service life of your systems may seem complicated on the surface—but again, it's always about the data. If you can track what assets you have, the components they're made of, and how quickly those components will deteriorate, you can strategically perform preventative repairs at just the right time to extend the service life of that asset.

Paying closer attention to even your smallest infrastructure assets opens the door to a boatload of benefits:

- Extended asset lifetime and increased return on investment
- Improved maintenance efficiency and effectiveness
- Increased organizational productivity
- Data-driven decision-making
- Defendable investment requests
- Increased cost savings and transparent fiscal responsibility
- Enhanced occupant satisfaction and service delivery
- Better disaster preparedness and faster response times
- Improved regulatory compliance through better and more accessible documentation
- Integrated departments, initiatives, and budgets
- Streamlined internal communication
- Long-term system integrity and sustainability
- Easy access to emergency response plans
- Faster responses to emergencies and increased safety

SOLUTION

DEVELOP AN ASSET MANAGEMENT STRATEGY

To improve the current performance of your facilities and extend the service life of every indoor, outdoor, above-, and below-ground asset, you need to intervene at strategic points in each asset's normal lifecycle. The best way to ensure this will happen is by outlining your organization's asset management strategy.

Whether you're making updates to an existing document or starting from scratch, building a sound asset management strategy can be pretty intimidating. That's why we've outlined the route you need to take to get there. When considered carefully, and followed in order, these seven essential steps will help your team create an asset management strategy tailored to the unique needs of your portfolio, campuses, occupants, and staff.

STEP 1: COLLECT DATA

Smart asset management is powered by data—current, accurate data that tells you exactly what assets you have, where they're located, and how much you've invested in them. Collecting accurate infrastructure data is crucial to making good decisions and implementing a productive asset management strategy.

STEP 2: ASSESS CONDITION

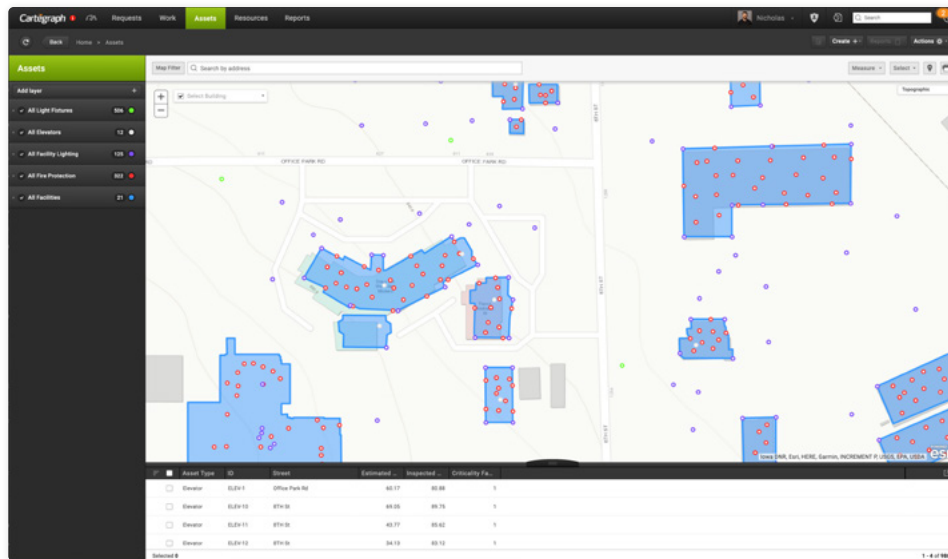
One thorough inspection can tell you how an individual asset is performing, what life it has left, and whether it's worth the money you spent on it. You can use this condition data to inform your organization's current and future maintenance needs.

STEP 3: DETERMINE VALUE

Consider the asset's purpose and place in your building's infrastructure, and what happens if it fails. Valuation is essential to your asset management strategy because it requires you to prioritize your property assets and the resources needed to sustain them.

STEP 4: GAUGE PERFORMANCE

Identify the factors that measure each asset's performance. At what point is it considered faulty or unsafe? Do occupants or visitors expect it to look good? Answering these questions reveals the baseline for maintaining an asset and helps you mitigate risk.



STEP 5: PROACTIVELY STRATEGIZE

There's a time to repair and a time to replace. Create an asset management strategy that is proactive in its scope and realistic for your maintenance team. Use data and cost-benefit analysis to help you decide what to do and when to do it.

STEP 6: PUT INTO PRACTICE

Install, maintain, inspect, and—if need be—replace. Then do it all again for every network and asset your organization has. With a well-planned strategy in play, you'll steadily improve your infrastructure and the system supporting it.

STEP 7: FOLLOW THROUGH

Smart asset management is all about patience, planning, and execution. Regular, proactive monitoring is the key to working efficiently and effectively to make sure your assets are maintained to your satisfaction.

Now that you're well on your way to developing a sound asset management strategy, it's an excellent opportunity to gut check the software and point solutions you're using. If you're struggling with paper records, spreadsheets, or enterprise systems that are slow and clunky, now is the time to start looking for a comprehensive solution that will make your life easier—not harder. If you can't quickly add an asset to your inventory, inspect it, record maintenance history, and quickly analyze that data on the go, it's probably time to start looking elsewhere.

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CHALLENGE #3

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Strategic portfolio planning, operations optimization, facility maintenance, even safety and security: historically, facility management solutions were deployed slowly and separately to solve a particular challenge. While these point solutions may have helped in the past, these legacy platforms have not grown to meet the data integration, user experience, or modern workflow demands of today.

As summarized by AGC Partners in their “[Real Estate Tech Market Primer](#),” if your organization is trying to make do with dated platforms and fragmented approaches, you’re ultimately going to face the ensuing struggles:

OVERCOMPLICATED PROCESSES

Point solutions are notoriously tricky and often require dedicated and specialized staff to support any integrations or cross-collaboration between systems. Furthermore, if that specialized employee leaves or retires, it’s going to take even more resources to get a new hire up to speed on what’s going on behind the scenes and why.

DUPLICATED EFFORTS

When integrations between point solutions are difficult or unlikely, your team is going to spend a lot of time entering, reentering, and updating the same data points across multiple systems. Not only is this inefficient process a drain on resources, you also have a greater chance of human error, slips, lapses, and mistakes. Plus, that dirty data is going to cost you big time. According to [Harvard Business Review](#), it costs ten times as much to complete a task when the data is flawed in any way as it does when the information is perfect.

QUOTEWORTHY

“You can’t use data that is inaccurate, unavailable, inaccessible, or uncertain.”

UNRELIABLE INFORMATION

When it comes to high-performance facility operations, data is the most valuable asset you have. With disconnected point solutions, you're likely to end up with data that is delayed, incomplete, or completely missing—which means you're unable to make an informed data-driven decision. If you're facing this challenge, you're not alone: AGC found that among facility and real estate professionals, 52 percent were struggling with data quality issues.

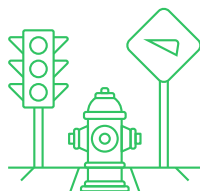
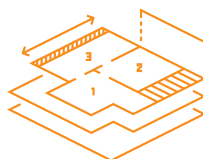
IMPAIRED ANALYSIS

According to [Francisco Forms-Sansco's survey](#) of 125 facilities managers, zero respondents felt they had “perfect as-built data” and 40 percent felt their data was insufficient, below average, or nonexistent and therefore could not be trusted. When data is siloed, you simply can't see the full, 360-degree picture of your operations. Without comprehensive, real-time information, it's difficult to make confident, data-driven decisions about the future of your organization—and that's scary. Gaps in data are also known to reduce transparency, decrease productivity, and breed distrust across an organization.



CHALLENGE #3**LOCATION-CENTRIC DATA IS THE BEST SOURCE OF TRUTH**

So, what does your team need to do to overcome the challenges associated with data silos and information integrity? You need to ditch your point systems for an inclusive, comprehensive approach to asset, space, work, and resource management. You can build that system by focusing on a simple yet powerful truth: that the location of people, places, and objects is the only attribute that all your facility business challenges and data have in common.

**ASSET****SPACE****WORK****RESOURCES**

Using location-centric, geospatial information system (GIS) data as your linchpin, your facility management system can integrate, aggregate, and organize all your existing digital or paper-based facilities information. By combining these critical data points, you'll create an accurate and accessible single point of truth. But your team shouldn't stop there. To unleash the dormant value of data, you must organize, maintain, analyze, and share that information to empower employees to measure performance and make informed decisions across your organization.

WHAT IS A GEOSPATIAL INFORMATION SYSTEM?

Our friends at Esri know a thing or two about geospatial information systems. They explain that GIS is, “a framework for gathering, managing, and analyzing data. Rooted in the science of geography, GIS integrates many types of data. It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations—helping users make smarter decisions.”

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CHALLENGE #4

SIMPLIFYING COMPLEX DATA TO MAKE SMARTER DECISIONS

When it comes to making smarter, data-informed decisions, three common struggles are bound to get in your way. Those struggles include: having too much data; not combining past, present, and future sources; and finally, not analyzing your information in an easily comprehensible, visual manner. Let's dig into each of those three categories a bit further.

TOO MUCH OF (KIND OF) A GOOD THING:

Believe it or not, there is such a thing as having too much data. Having excessive amounts of the wrong kind of data can overwhelm your team and drown your organization in a sea of meaningless numbers. The key is to focus on organizing and using your asset, space, work, and resource information to make decisions and ultimately take some form of action.

If you're not using your facility management system to add context to a situation or correct inefficiencies, are your data collection efforts counterproductive? If you aren't using your portfolio analytics to help reduce costs or advance your position in the market—then are you getting to the heart of the matter? Your team must ponder these questions and refocus your efforts to start making better progress toward your mission.

After all, the building, facilities, infrastructure, and real estate spaces are known for owning massive amounts of information. With the growth of facilities and the exponential growth in data resulting from technology adoption, that data mound is only to get bigger and more intricate.

NOT MANAGING YOUR PAST, PRESENT, AND FUTURE:

Even back in the 1800s, Charles Dickens knew there was something to consulting your past, present, and yet to come. The same goes for your buildings and facilities. For big data to make a big difference, it must combine yesterday's, today's, and tomorrow's data in all its forms.

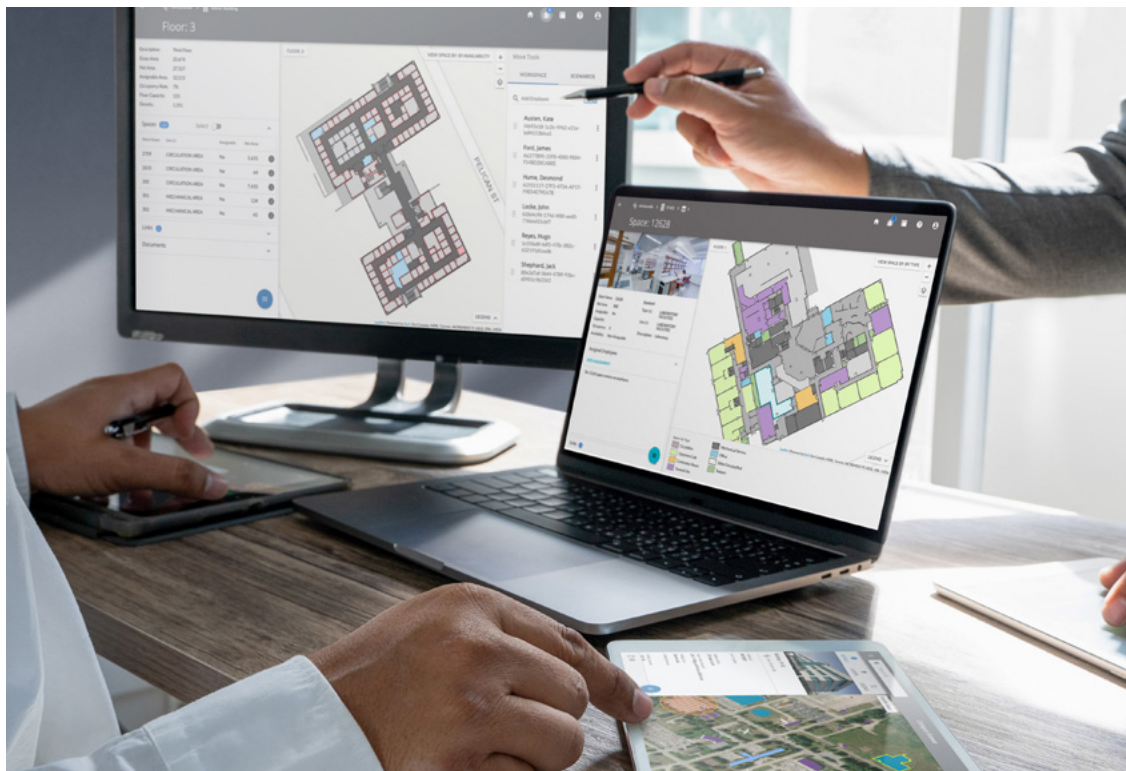
Unfortunately, as you know from earlier in this guide, most facility operations are being powered by a series of disparate building systems, property management software, third-party applications, smart IoT sensors, and more. With disparate systems, your organization can't gain a 360-degree view of a trend, challenge, or opportunity.

OVERCOMPLICATING WHAT'S ALREADY COMPLICATED:

To glean actionable insights from your facility and building management data, you first need to understand what the data is telling you. Information collecting dust in a filing cabinet, hidden in a spreadsheet, or buried somewhere across a handful of software systems isn't going to help anyone. You need to bring that information into the light and analyze or share it in a way that makes it understandable and actionable.

For starters, are you sharing critical information across a series of Excel spreadsheets, a 60-page report, or a lengthy slide deck that reads more like a novel? If so, it's time to break up the text and start visualizing your analytics. A team of MIT neuroscientists found that the human brain can process entire images 10x faster than the blink of an eye.

Furthermore, studies show that people remember only 10 percent of what they hear and 20 percent of what they read. When it comes to images, however, 80 percent of people remember what they see and do. What are you doing to improve data comprehension and analysis for you, your team, and your organizational leaders?

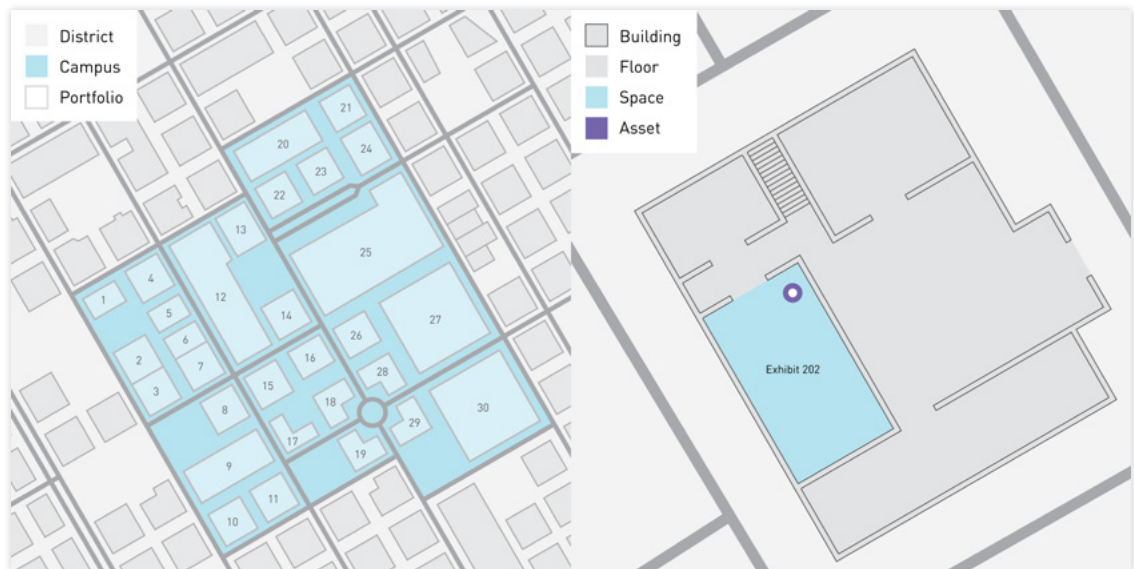


SOLUTION

CREATE ORDER AND LEVERAGE ACTIONABLE INSIGHTS

To dig deeper into your data, you need to first start by simplifying and creating order from your analytics. Leveraging a comprehensive, location-centric facility operations system can help you with just that. This powerful technology organizes information about your portfolio as layers of data linked together by that common attribute: location.

By tapping into comprehensive solutions, your team will have the power to capture, integrate, manage, analyze, and visualize all forms of information at any scale. With the ability to view information on a macro or micro level, you can create order out of the complex, disparate information you have collected from multiple systems and departments. In turn, you'll more readily identify relationships, patterns, and trends and better understand what has happened, what is currently happening, and what will happen.



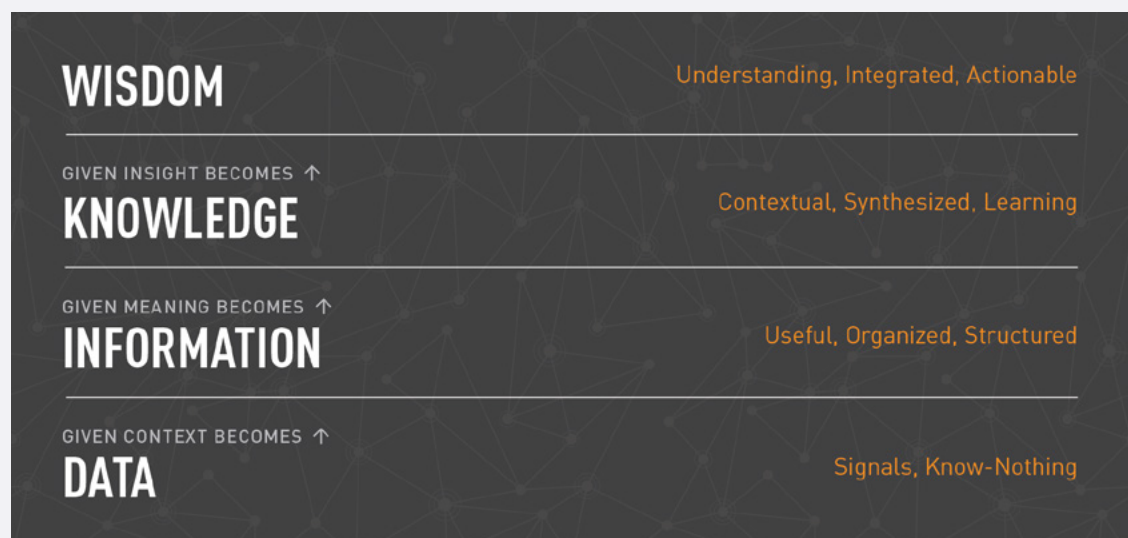
Ultimately, by using location as your organizing principle and employing solutions that have simple yet powerful analytics dashboard, report, and visualization capabilities, your team will build a fact-based decision-validation process. In turn, more data-informed decisions will help you build smarter, more connected, more engaged, and more sustainable facility operations.

DIGGING INTO FACILITY INFORMATICS

One of our favorite resources on the topic of creating, storing, finding, manipulating, and sharing facility information comes from our friends at APPA. In their “Facility Informatics Maturity Matrix Technical Report,” APPA describes the discipline of informatics as making connections between the work people do and technology that can support that work. It combines aspects of software engineering, human-computer interaction, decision theory, organizational behavior, and information technology.

The piece goes on to explain that informatics is so much more than information management: it’s information management that puts information into action. Sound familiar? It’s all about leveraging technology and management best practices to achieve better facilities operations and an improved built environment.

The goal of facilities informatics is to develop wisdom from data that best informs the decision-making process—whether that be energy, maintenance, or capital program-related and beyond. It all starts with good data. From there, the ability to relate data (information) and see patterns (knowledge) is something that must be developed over time. Finally, that knowledge is applied in some way or put into action (wisdom).



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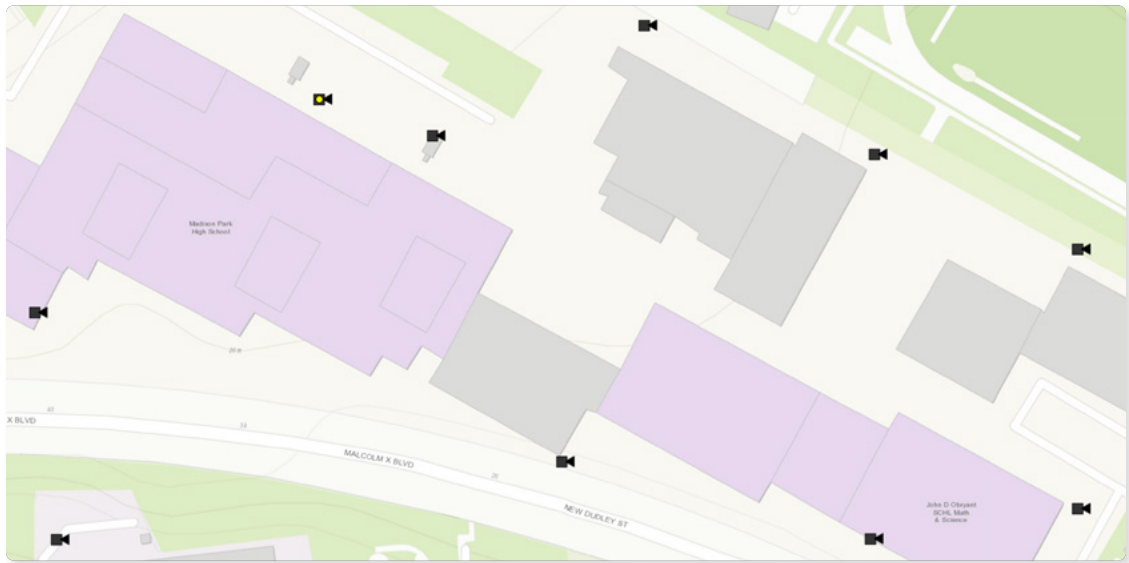
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CHALLENGE #5

PROTECTING AND ENGAGING CONSTITUENTS

Safety, compliance, and communication are essential parts of any facility and building operations. With severe implications for workforce, finance, continuity, and reputation, they are a necessary concern for every organization. Facility managers and space planners need to collaborate securely and transparently on these efforts.



To maximize the return on investment of a campus or real estate portfolio, facility managers must continuously analyze, mitigate, and respond to any risk to their facilities, personnel, and assets. To protect and inform stakeholders, most facility teams run into three challenges:

1. Analyzing a spectrum of facility risks
2. Building a comprehensive emergency response plan
3. Minimizing the impact of an incident

What do all three of these challenges have in common? The need for accurate, real-time facility, personnel, and infrastructure data. Without data, a facility operations team cannot correctly identify, assess, and prioritize potential sources of risk like accidents, natural disasters, attacks, economic uncertainty, pandemics, and more. In turn, even events with a high probability of occurring can be easily ignored by an organization simply because they aren't able to identify them.

Concurrently, if a facility management team can't list the types of incidents that could occur and organize them by the odds of that crisis occurring, then building an emergency response plan—which helps minimize the impact of an event—is not possible. If organizations don't have a plan in place, how are they going to effectively inform and protect stakeholders before, during, and after an event?

HAZARDS >>	ASSETS AT RISK >>	IMPACTS
Fire	Property Including	Casualties
Explosion	Buildings and Critical	Property Damage
Natural Hazards	Infrastructure	Business Interruption
Hazardous Materials	Supply Chain	Loss of Customers
Spill or Release	Systems/Equipment	Financial Loss
Terrorism	Information Technology	Environmental
Workplace Violence	Business Operations	Contamination
Pandemic Disease	Reputation of or	Loss of Confidence in
Utility Outage	Confidence in Entity	the Organization
Mechanical Breakdown	Regulatory and	Fines and Penalties
Supplier Failure	Contractual Obligations	Lawsuits
Cyber Attack	Environment	

***Table adapted from the Department of Homeland Security*

SOLUTION

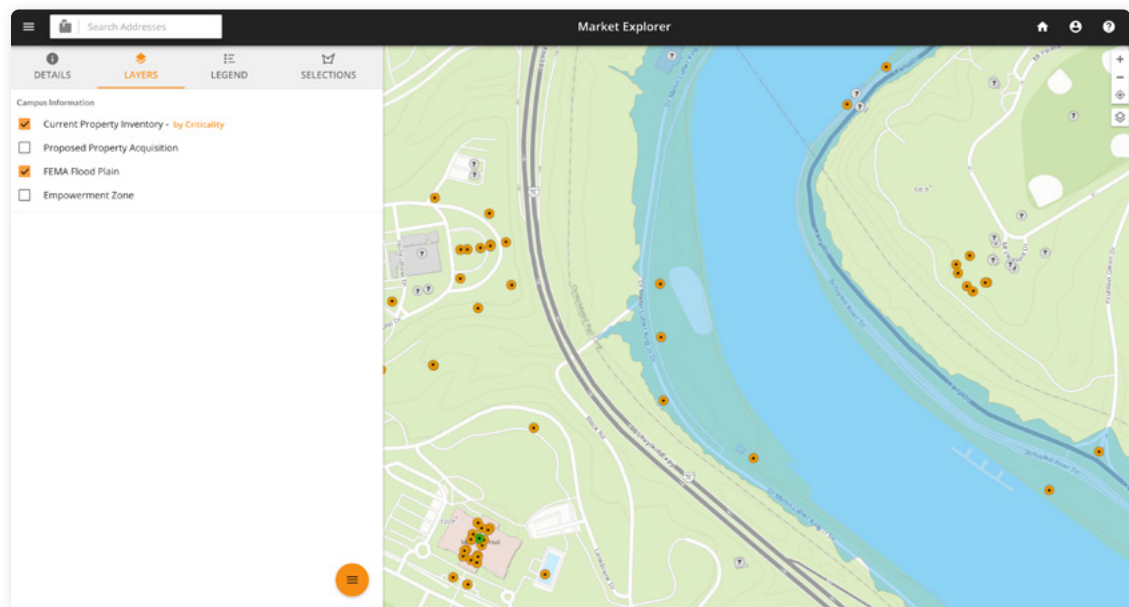
MITIGATE RISK AND INFORM STAKEHOLDERS

The foundation of mitigating risk is built on knowing what types of building and infrastructure assets you have in your portfolio, the personnel connected to each of those spaces or assets, and what hazards or events could affect those assets and individuals. To mitigate risk, the solution lies in multi-hazard risk analysis, emergency planning, impact minimization, business continuity planning, and stakeholder engagement.

MULTI-HAZARD RISK ANALYSIS:

Understanding and mitigating risk across any portfolio is challenging on many levels. That challenge only deepens as a portfolio grows to become more geographically distributed. The key to analyzing your global multi-hazard risks is to examine and leverage historic trends as well as predictive analysis.

Using solutions like Cartegraph and the Esri ArcGIS platform, you can determine natural hazard exposure—like fires, floods, landslides, hurricanes, and tornadoes—with the help of global risk datasets. To dig into site-specific analyses, your team can also use your comprehensive facility operations system to perform physical security coverage assessments, access control trend analysis, and on-going threat updates for one or more sites across an entire region.



EMERGENCY PLANNING

Once you've identified your risks, you need a plan for how to counteract or respond to them. The availability of threat-specific emergency pre-plans are critical to any organization in a number of ways. Not only will emergency plans reduce the potential incident impact on your facilities and assets, it will minimize the life-safety risk to your personnel and help you comply with workplace regulations.

It's important to remember that emergency plans are living breathing documents that need to be regularly reevaluated and updated. If your organization is working off static facility drawings and paper-based plans, then you're going to have your work cut out for you. On the other hand, if you're working with a comprehensive solution that provides real-time facility data, you can quickly update the floor layouts, personnel assignments, and location of shutoffs that are essential to managing a crisis.

MINIMIZING INCIDENT IMPACT AND SUPPORTING JOINT AID

Quick access to accurate facility information can majorly reduce the impact of any incident. Using a single, open and connected platform, your safety and security personnel can monitor multiple levels of threats on a day-to-day basis and quickly react as events unfold and information becomes available.

It's common for most security teams to use a physical security information model (PSIM) point solution. However, even the most advanced PSIMs have blind spots when it comes to visibility into the operational elements of facilities. Would your security team have access to the conference room schedule or building inspection records? Or know the location of security doors, fire extinguishers, air intakes, and other assets? By managing your facility infrastructure data in a single, location-centric solution, security personnel can reduce or even eliminate those blind spots.

For nearly all organizations, the number of safety and security personnel responding to facility emergency incidents extend far beyond internal employees. They also include municipal departments like police and fire, federal agencies, and even specialized private contractors. Whether they're on-site for a natural disaster, workplace violence, or a technological crisis, external personnel are responding to an unfamiliar environment where they need quick access to critical information—along with the appropriate security access—and the ability to share information back as well.

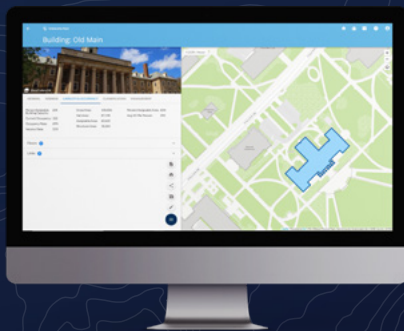


CASE STUDY:

HOW PENN STATE NAVIGATED CAPACITY REDUCTIONS

With 33 million ft² of space spread across 23 campuses, facility management is a complex process at Penn State University under normal circumstances. Amid a global pandemic, the team was challenged with helping faculty, staff, students, and visitors maintain a 6-foot physical distance. From classrooms to dining halls, thousands of students are walking the same hallways and congregating in shared spaces. Figuring out how to adjust space use and capacity to accommodate CDC recommendations is a significant undertaking.

To prepare for a safe return to campus in a COVID-19 world, the Planning Design and Properties team at Penn State used Cartegraph to apply a capacity restriction of 60-square-feet per person to offices, conference rooms, lounges, reception areas, multi-purpose spaces, and any other area that students and faculty would gather. They also drew social distancing layouts in CAD for high-priority spaces—like general-purpose classrooms and labs—and made all these images available to all users on campus.



Beyond COVID-19 planning, the Penn State team is embracing key performance indicator dashboards to monitor facility performance and space optimization. They track the number of active buildings, the amount of square footage available, assignable square footage, and more. They also keep an eye on open office space by building to see which buildings are under- or over-utilized.

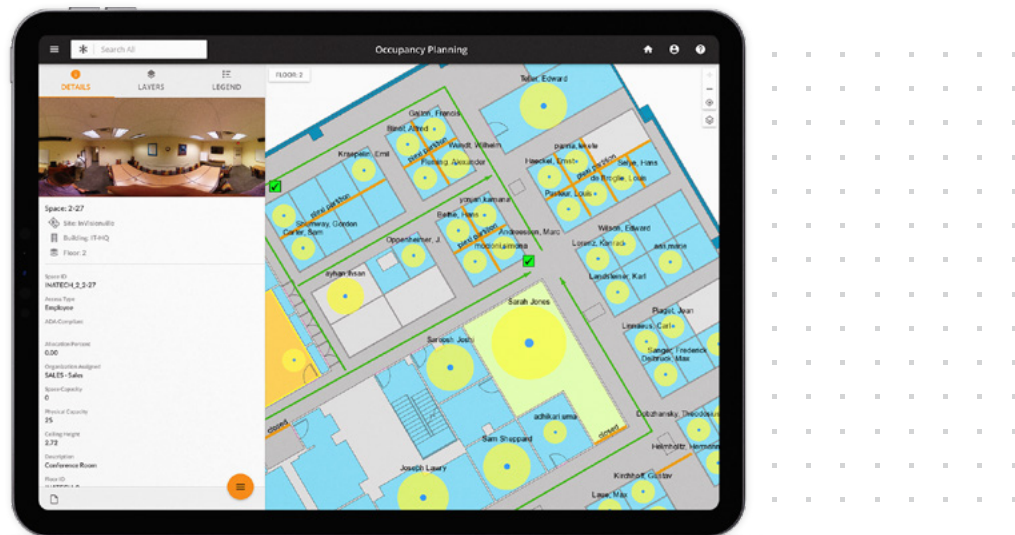
“We use KPI cards to identify invalid items. For example, we can see when we have rooms with too many people assigned to them based on capacity or a non-assignable room that has someone in it,” explained Alex Gentry, Penn State programs manager. “We pass that information to the admin areas to clean up the data and keep everything up to date.”

Interested in hearing more from the Penn State team? [Check out their on-demand webinar.](#)

STAKEHOLDER ENGAGEMENT

To keep your occupants, constituents, employees, and visitors safe, you need to inform and empower them. In a mobile-first world, your organization is expected to provide stakeholders a consumer-quality experience. All you need to enhance your digital storytelling is your building and infrastructure data, and a virtual mapping solution like Esri's ArcGIS StoryMaps.

With the help of maps and apps, your facility management team can share the locations, events, procedures, and trends that matter most to your stakeholders. Using interactive maps, photos, and videos, your organization can guide, inform, interact with, and even impress visitors right from their desktop computer or personal mobile device.



Most commonly, facility management and space planning teams are using these mobile-first channels to answer the many “where” questions personnel have about the environment they visit or occupy. Those visualizations and instructions include access to:

- Maps that include photos of building exteriors and interiors to guide and inform stakeholders.
- Interactive directories that help visitors find people, places, and things—indoors and out.
- Wayfinding directions to help occupants find their way around campus and through buildings.
- Points of interest such as food, public safety, parking, printers, and workspace assignments.
- Links to calendars and schedules for pertinent shared spaces.
- Requesting and notifying maintenance or security about experiences, issues, and observations.
- Self-guided tours that share details and facts about a particular facility, space, or asset.

TOOLS AND PARTNERS TO HELP YOU ON YOUR JOURNEY

Lewis and Clark. Marco Polo. They're all renowned explorers, but do you know what else they had in common? They leveraged the right equipment and tapped into trusted guides to help them navigate uncharted waters. For example, with the latest high-performance building and infrastructure technology you can now:

- Track how quickly you respond to building or property maintenance requests.
- Gain visibility on spending—and whether you're on track with your budget.
- Analyze facility data to find opportunities to improve space utilization.
- Drive more efficient portfolio operations with real-time dashboards.
- Prepare budgets and build data-driven capital improvement plans.
- Measure the ROI of your maintenance methods and plan accordingly.
- Run projections to see the impact of budget on the condition of your facilities.
- Decrease the time it takes you to plan and execute moves.
- Reduce your total cost of ownership with detailed reports.

Outdated or disjointed software solutions are no longer efficient, nor sufficient, for meeting modern facility and building management goals. Here are 8 characteristics you should look for in your operations technology:

1. USER-CENTRIC DESIGN

When choosing software for your team, consider the ease of use and intuitiveness of its design. A clean, simple interface allow office staff and maintenance crews to concentrate on the task at hand, rather than trying to muddle their way through clunky software that makes tasks more difficult to manage and complete. You don't want your team wishing they were still using paper forms and spreadsheets or refusing to use the new system.

2. MOBILITY

The system you choose needs to provide optimal power and functionality for your mobile workforce. Look for a system that performs as well, or better, on a mobile device as it does in the office. That way, whether someone's working from home, on-site doing a space audit, or in the basement completing a maintenance request, they'll have everything they need to complete their work accurately and on time.

3. DATA-ORGANIZATION

Does your current facility management software make it easy to input, view, and export data? If not, look elsewhere. Quick, easy access to well-organized data—like floors with high availability, buildings with less than 80% occupancy, or HVAC warranties ending in the next 90 days—helps your team to make and communicate smart decisions on the go.

4. ADAPTABILITY

Amid the COVID-19 pandemic, you've learned just how important this functionality is to the core of your operations. Identify your technology needs today. Now, consider how those needs might evolve five years down the road. Use that knowledge to choose a system that has the ability to expand and grow with the needs of your community and the facility operations that service it.

5. INTEGRATION

It takes more than one system to keep a government, university, or commercial campus running efficiently. High-performance operations technology is the place where those enterprise systems connect. The right system integrates easily with everything from your CAD and HR solutions to your work management and CCTV technology—and will share data with them in real time.

6. CROSS FUNCTIONALITY

A system should make it easier to connect and share information with other departments, not harder. Organization-wide thinking—along with the communication and collaboration that makes it successful—isn't possible using a system that creates data silos. When every user has access to the same data, productivity and decision-making improve.

7. AUTOMATION

To be more effective and efficient, high-performance teams must accomplish more with less energy. Look for automation features that let the system do some heavy lifting for you when it comes to data entry and repeatable actions. You'll be out creating more of an impact while the system saves you time, keeps you organized, and reduces data entry errors.

8. CLOUD-FIRST

In a world of ransomware and phishing, having confidence in your data security is a must. Look for a solution that works with a leading cloud provider (like Amazon Web Services). This will give you reliable access to business-critical information, off-site backups in case of disaster, and a sustainable path to support your data needs as you grow.

WHAT SHOULD I LOOK FOR IN A PARTNER?

Building a high-performance facility portfolio means that you have the right tools and on-going monitoring to keep your operations at peak levels. It also means choosing the right partner to help navigate the road ahead. A partnership is more than just a software purchase. It's the start of a new way to do business, and you'll need experts that can help you set and achieve goals.

Look for an organization that's as invested in your journey as you are, and one that offers a thorough combination of training, support, coaching, and consulting. Pro tip: Ask how they implement their software and whether it's handled by their internal team or a third party. If their team handles implementation directly, it's a good sign that they aren't going to abandon you after you sign an agreement with them. With the right partner, you should never feel alone. They should be beside you every step of the way.

NOW YOU KNOW

The world of facilities management and space planning is at an inflection point. The convergence of innovative technology with the economic reality of aging infrastructure and mandates to maximize returns or mitigate risk is making it possible, necessary, and virtually inevitable to evolve. The pace and trajectory of this evolution will be driven by how effectively facilities data can become actionable and drive more informed decisions.

Whether your team is trying to destroy data silos, make smarter decisions, reduce costs, maximize your infrastructure, or protect your constituents—the Cartegraph team is here to help. Connect with us at sales@cartegraph.com, and we'll partner to help your organization build more high-performing operations.

IF YOU FOUND THIS GUIDE HELPFUL, YOU MIGHT ALSO LIKE THESE RESOURCES:

ABOUT CARTEGRAPH

Cartegraph builds safer, more resilient and sustainable communities through better stewardship of buildings and infrastructure. They offer powerful, intuitive SaaS solutions that help government agencies, higher education institutions, and private companies manage their physical assets and associated operations. With Cartegraph software, users optimize the life of their infrastructure, deploy maintenance resources efficiently, and increase productivity to drive high-performance operations. For more information, visit cartegraph.com.