Work Smarter, Not Harder:

[Leverage Intelligent Data Tools]

88% of Facility Managers say that **deferred maintenance is an issue**

50% of U.S. commercial buildings are over **50 yrs old**

50% of all FM Workers will retire **by 2025**

It should go without saying that facility teams perform vital tasks directly related to the success of business operations. If people truly are the most important part of an organization, then surely the people responsible for maintaining effective working conditions and workspaces for all other employees receive tremendous recognition for their efforts, right? Actually, facility personnel tend to enjoy the status of unsung heroes. Much like athletic officials, they go unnoticed until something goes wrong.

Nonetheless, Facility Managers dutifully go about their jobs, running their facilities as efficiently as possible. In doing so, they hope to help their organizations attain their goals of increased profitability and minimized costs. Ironically, the organizational goal of minimized expense frequently results in decisions that undermine the ability of Facility Managers to efficiently and effectively maintain buildings, systems, and equipment.

The Unsustainable Status Quo

Pressures from both inside and outside the organization thwart attempts to even maintain the status quo, let alone focus on improvements. In particular, areas that hinder proper maintenance include the aging of buildings and systems, facility management workforce demographics, depleted maintenance staffs, and stagnant budgets. Therefore, the reality that most Facility Managers face is deferred maintenance. In fact, 88% of these managers agree that deferred maintenance is an issue in their facilities[1].

Unfortunately, the older a building is, the more expensive it becomes to maintain. Adding insult to injury, deferred maintenance costs skyrocket for older buildings. Within the United States, nearly half of commercial buildings were constructed 50 or more years ago[2]. For buildings between 10 and 25 years old, the average cost of deferred maintenance amounts to $55 per square foot. By contrast, the average cost of deferred maintenance for a building constructed 50 or more years ago nearly triples to $160 per square foot[3].

To compound this already strained situation, the existing labor pool for facility management is in rapid decline. For starters, much like the buildings that they manage, Facility Managers are also aging. Most alarmingly, a 2015 study determined that fully 50 percent of current Facility Managers would retire by the year 2025[4]. Similarly, a 2017 survey of International Facility Management Association members indicates that their average age is 51, and that less than 10 percent of the membership is under age 35[5].

To make matters still worse, at exactly the time when an influx of new facility personnel is required, young people seem to be opting for other career paths. Maureen Ehrenberg, currently President of Global Integrated Facilities Management at JLL, believes that at least part of the problem stems from misperceptions of the profession[6]. Also, at the 2017 Annual Conference of the American Society for Healthcare Engineering, a panel of four facility directors suggested that potential new talent is often put off by the unpredictable hours and typical lack of overtime compensation. Whatever the reason for this disinterest, the end result is a further diminished talent pool.

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Perhaps this unintentional reduction in facility staffing could present organizations with a silver lining in terms of cost containment. Indeed, some business leaders have employed a short-term staffing strategy as a result, opting to hire temporary maintenance staff from a third party to perform unplanned work. This option allows organizations to offload overhead, such as salaries, benefits, and workspace, while maintaining control over the work and entrusting repairs to specialists[7]. However, this approach merely addresses symptoms and still fails to address the root problem – an ever accelerating deferred maintenance backlog.

Additionally, many organizations have installed building management systems, attempting to automate system controls and offset the decline in staffing numbers. This move, however, has the unintended consequence of adding to the workload of maintenance staff, requiring them to manage yet another system and process multiple streams of information from multiple previously existing systems. Additionally, a BMS requires regular investments in upgrades, similar to the way personal computers and networks do[8].

In summary, the status quo is fundamentally untenable because:

- Buildings are growing older and more expensive to maintain
- Facility personnel are growing older and retiring
- New workers are not replenishing this workforce
- Budgets are stagnant or in decline
- Reactive attempts to address maintenance issues have not reversed the vicious cycle of deferred maintenance

Facility Management Is a Real Chore

55% of Facility Managers
fall into **reactive management**

Those Facility Managers who remain in the industry have plenty of work on their plates. In fact, 55 percent of these managers report being either largely or very reactive in their responsibilities[9]. Reacting to unplanned items and events costs managers 228 hours every year[10]. Another problem area that Facility Managers face is occupant complaints, which 49 percent of managers state costs them between two and four hours each day[11]. Over the course of 250 workdays a year, that figure amounts to a staggering 500-1,000 hours consumed in resolving complaints. With staff reductions so prevalent, that accounts for a significant amount of time that cannot be used to perform proactive maintenance, thereby reducing time and expense in the future.

500-1000 hours annually
spent on **occupant complaints**

Because smaller facility teams are left to contend with planned and unplanned maintenance, these personnel may justifiably feel that they are in a tough spot. However, smart facility teams recognize that they must make a stand and start somewhere. The challenge lies in prioritizing the right systems to optimize, which can then have a domino effect throughout the facility and reduce the deferred maintenance backlog.

Responding to a FacilitiesNet survey, Facility Managers ranked HVAC as the system most affected by deferred maintenance[12]. In addition, the heating, cooling, and moving of air throughout a facility accounts for half of a facility's energy consumption[13]. For these reasons, it makes sense to explore opportunities to introduce greater efficiency within this system.

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1 Labor week
for each set of **100 filters**

EQUALS

$96,153
in **deferred maintenance**

89% of Facility Managers
expect a **return on their IoT investments** within three years

Using the HVAC system as an example, it is not difficult to see how seemingly simple aspects of preventive maintenance often present hidden challenges. Looking at air filter changeouts, a seemingly straightforward task, the process includes much more than merely removing old filters and installing new ones. Process tasks include:

1. **Inspection** – inspection of current filters and inventory checks
2. **Purchase process** – purchase requisition, approvals, procurement
3. **Ordering and receiving** – PO issued to vendor, order confirmation, order inspection, placement in inventory
4. **Scheduling** – system shutdowns, personnel coordination, prep for installation
5. **Staging** – filter counts, retrieval and removal from inventory, transporting to air handler unit
6. **Installation and removal** – unpacking of boxes, removal and disposal of old filters, installation of new filters
7. **Paperwork and documentation** – recording of work completed, filter types and installation date

As if this process weren't cumbersome enough, facility personnel frequently have to check the condition of these air filters manually. Failure to perform manual checks in most facilities can result in compromising air quality and result in damage to the HVAC system. Even then, these manual checks do not provide the insights required to help facility teams reduce their maintenance efforts, ensure better protection of their equipment, and optimize system efficiency. For reasons including inaccurate system data, distrust of differential pressure gauges, challenges in proactive maintenance scheduling, and fears of perceived noncompliance, facility teams consistently change filters much too early or far too late. Therefore, air filter maintenance as currently performed fails to optimize material, labor, and energy costs.

Path to Efficiency

Fortunately, technology can help resolve this situation. As Ehrenberg notes, the right technology solution provides the right data – intelligent data – that prescribes how to perform predictive analysis. Targeted real-time system data provides insights that allow facility teams to systematically optimize their efforts and predict future maintenance needs. This Internet of Things (IoT) technology also enables facility personnel to trouble-shoot minor issues before they become major problems. In fact, equipment can directly issue its own preemptive alerts and repair requests before catastrophe occurs.

Facility teams empowered with cloud-based IoT solutions enjoy still more benefits. From a central location, they can monitor and manage systems around the globe. These capabilities drastically reduce response time and further enhance operational efficiency.

The organizations that opt to leverage this exciting technology are able to track, measure, and verify performance, while also deriving predictive insights from their systems. As a result, these firms are able to demonstrate a quicker, measurable return on investment, and continually identify and apply smart cost-avoidance techniques. Prioritizing the right systems to focus on and leveraging these intelligent data innovations minimizes the effects of maintenance staff reductions and aging facilities, thereby improving business results and occupant experience in the process[6].

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Conclusion

With the right technology solution, the specter of unplanned maintenance may be reduced or even eliminated. Also, by focusing strategically on the systems most critical to a facility's long-term health, organizations can chart a clear step-by-step path out of deferred maintenance and into a world of predictive maintenance.

When exploring options for the intelligent data required to reach this maintenance utopia, most organizations find it helpful to work with an expert partner. This expert collaboration should not only take place at the outset of the project, but also continuously throughout the duration of the relationship. Here are some tips on what the right solution and partner should provide:

- **Audit of Current State** – Thorough on-site analysis and report of findings on the most important systems, such as HVAC
- **Examination of Opportunities** – Careful, thoughtful analysis of alternatives to current state
- **Identification of Key Performance Metrics** – Agreement on indicators that demonstrate meaningful progress is being made toward operational efficiency, such as reductions in unplanned maintenance events
- **Optimization along Metrics** – Proven ability to track, measure, and make ongoing improvements to these crucial factors
- **Reporting of Performance** – Real-time information on system performance, potential problems, and insights for additional action

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