Realizing Value from Investments in FM Technology:

2018 Facility Management Benchmark Survey

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Facility managers today have access to more technology than ever to support the management and optimization of buildings. Over the last two years alone, the rapid emergence of new technologies has enabled better space utilization, occupant engagement, and the capture of more granular data on buildings and their systems and equipment. Firms that focus on mature solutions also have growing choice as a host of technologies, such as LED lighting and fault detection and diagnostic (FDD) software, reach a new level of market acceptance.

Despite more access to technology and deployments of mature solutions steadily growing, many facilities departments are not yet realizing the expected benefits of technology investments. This was a top finding from our interviews with over 100 facility executives based across the United States. While the barriers to technology investment are already well explored, what specific challenges do firms face in getting value from existing technology? And what can facility managers learn from their peers who are succeeding in this area?

This study adds to existing research by reviewing the barriers that facility departments face in getting value from technology implementations. We define three stages of technology maturity: leaders, opportunists and stragglers. The research also explores the critical success factors and best practices that facility departments should consider to unlock new sources of efficiency, cost savings, and risk reduction.

This report is the second in our annual series of surveys designed to help organizations benchmark their facility management practices relative to leaders in the industry. In our 2017 research, we sought to understand the extent to which organizations are integrating energy management with facility management practices. One of the most salient findings from that research was that 86% of respondents identified data collection and analysis as a barrier to success – a fact that prompted this survey to focus on technology adoption within facilities management.
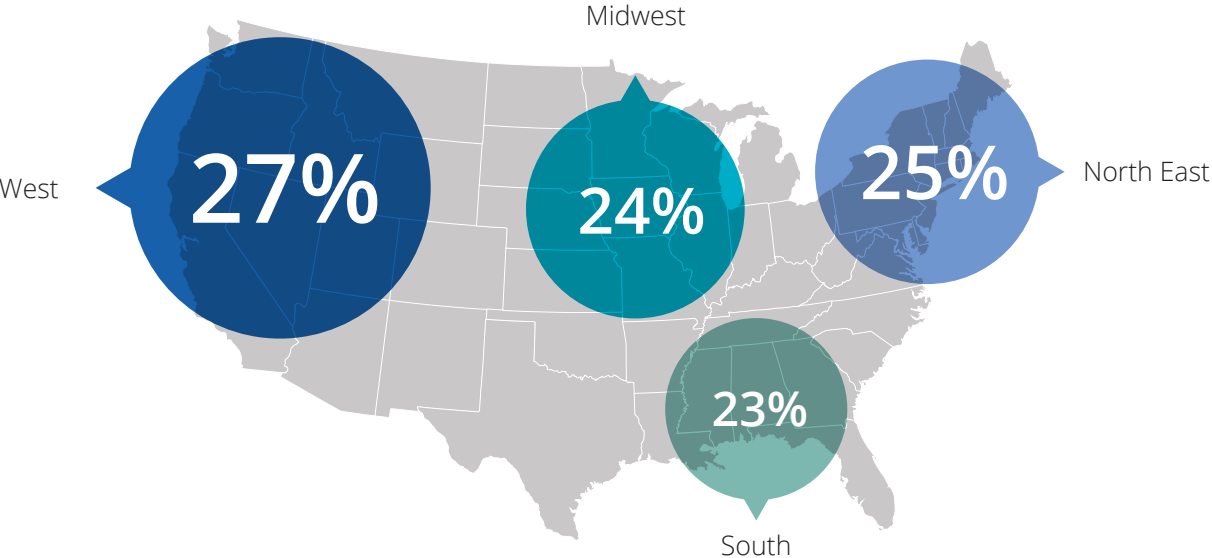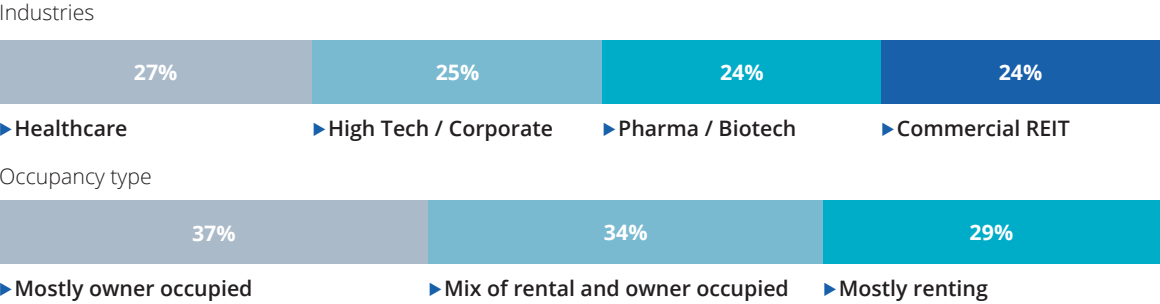
Research Methodology

To get an in-depth view into how firms are using technology and the challenges they face in realizing value, we commissioned independent analyst firm Verdantix to undertake independent, anonymized phone interviews with 100 energy and facilities executives across the U.S. Respondents spanned four industry sectors and came primarily from large enterprises with more than $500 million in annual revenue *(see Figure 1)*. Verdantix asked these respondents about the direction of their facilities management strategies, what technology they are deploying to optimize energy and facilities processes, and the top barriers to realizing expected value from these deployments.

Figure 1

▶**Interviewee Demographics - 100 interviewees**

Industries

27%	25%	24%	24%
▶Healthcare	▶High Tech / Corporate	▶Pharma / Biotech	▶Commercial REIT

Occupancy type

37%	34%	29%
▶Mostly owner occupied	▶Mix of rental and owner occupied	▶Mostly renting

Midwest

West **27%**

24%

25% North East

23%

South

Both New And Mature Technologies Offer Many Possibilities For Facilities Managers

We asked firms to tell us the extent to which they have deployed nine particular technologies for collecting and managing facilities data. We heard that:

• Most respondents have deployed data-capture devices on multiple sites.

Headline findings show that firms have made good progress in deploying energy sub-meters and sensors; 89% of interviewees have deployed them across multiple facilities or the majority of their sites. These sub-meters are a key route for firms to obtain a clearer picture of how energy dollars are being spent behind their main meter, so they can identify targeted efficiency projects or how to shift energy usage throughout the day. For example, the energy manager at the 150-acre LA Air Force campus has cited the data from 36 sub-meters deployed over 14 buildings as a key input to an energy management strategy that delivered a notable $1 million in annual savings.[1]

• Around half of firms are already using CAFM, CMMS or FDD.

Firms already have access to a huge number of software solutions that manage different aspects of real estate and facilities data *(see Figure 2)*. This research shows nearly two thirds of firms are using mature solutions such as Computerized Maintenance Management System (CMMS) software across some or all relevant sites, while over 50% use HVAC FDD software. What have been the benefits? One respondent at a large hospital was finding great value in their CAFM solution as the centralized data source for its annual Medicare/Medicaid Reimbursement submissions, while another interviewee found that their employee-facing CMMS was an efficient way to collect information

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1   www.electroind.com/pdf/submetering-2.pdf

Figure 2

▶ **Maturity Roadmap: Technologies For Collecting And Managing Facilities-Related Data**
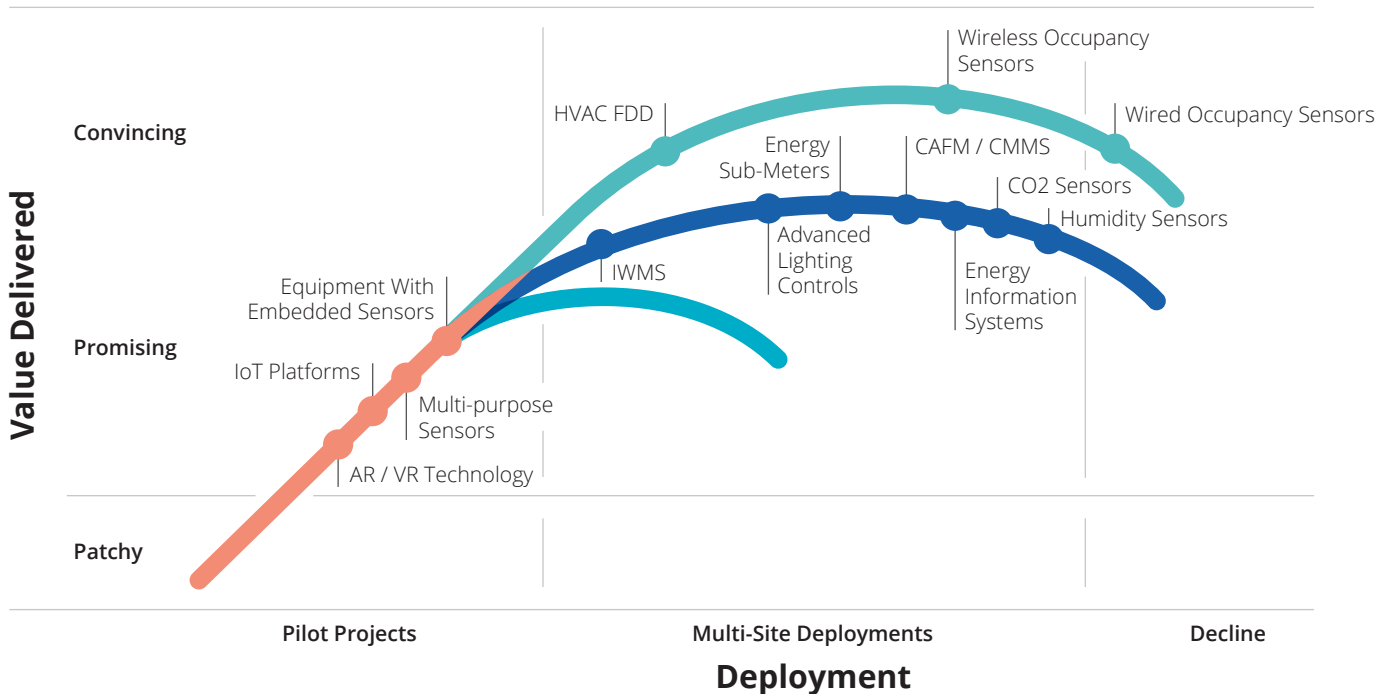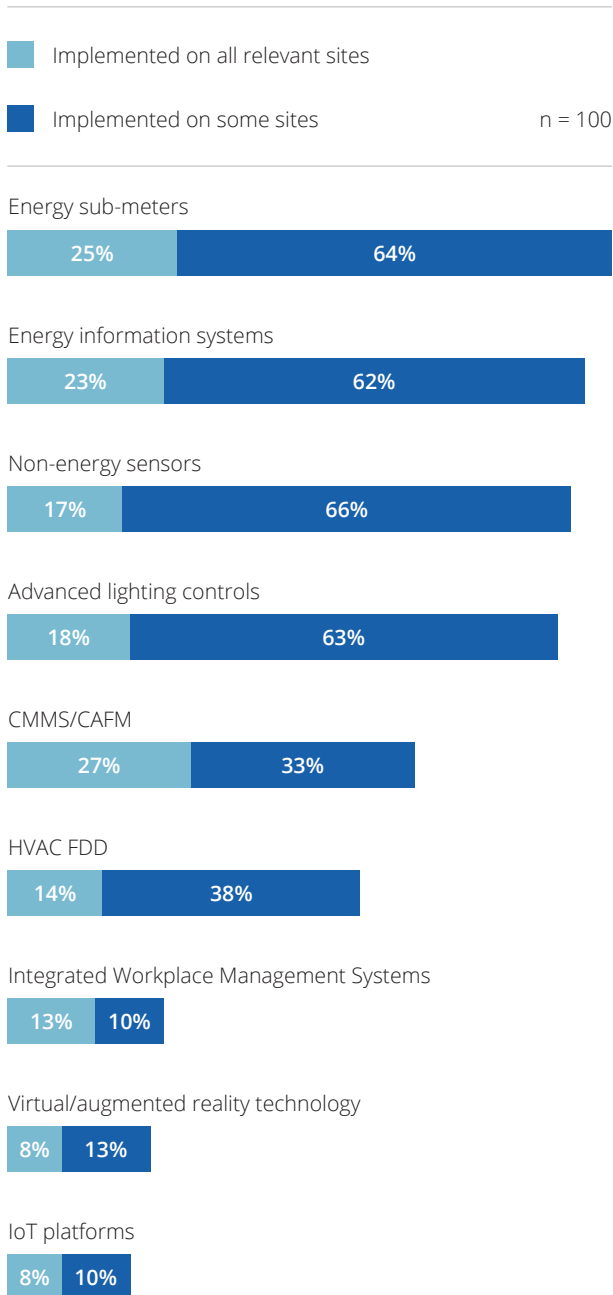
Figure 3

▶ **Firms Have Had Varying Success in Getting Value From Technology**

"Does your organization use the following technologies for **collecting and managing facilities-related data?**"

Implemented on all relevant sites

Implemented on some sites   n = 100

Energy sub-meters

| 25% | 64% |

Energy information systems

| 23% | 62% |

Non-energy sensors

| 17% | 66% |

Advanced lighting controls

| 18% | 63% |

CMMS/CAFM

| 27% | 33% |

HVAC FDD

| 14% | 38% |

Integrated Workplace Management Systems

| 13% | 10% |

Virtual/augmented reality technology

| 8% | 13% |

IoT platforms

| 8% | 10% |

about maintenance issues across the organization in order to create service requests. McDonald's franchise restaurants in New York find their FDD software helps them to proactively schedule service calls when dampers (which control the flow of air in HVAC systems) are not working correctly; such faults consume extra energy, so the proactive action helps to minimize excess energy consumption and cost.[2]

• Advanced lighting controls are now widely deployed.

The first wave of savings from lighting projects came from organizations switching from old fluorescents to LEDs. Now the trend is to combine energy-efficient lighting with occupancy sensors and controllers to find more savings via lighting that can sense occupancy and adapt accordingly. The research shows that 63% of firms now have advanced lighting controls installed at some sites *(see Figure 3)*. The benefits of advanced lighting controls can extend beyond lighting systems alone. For example, a pilot project implemented in 10 federal office buildings realized a nearly 50% reduction in lighting energy usage through LED retrofits and occupancy sensor controls.[3] Integrating the lighting controls into the building management system enabled control of ventilation rates within specific zones based on occupancy, resulting in further savings of 12% of HVAC energy use.

• Organizations are exploring the role of IoT platforms for buildings.

"Internet of Things" (IoT) platforms for buildings capture facility data from a variety of sources, such as building management systems, individual building systems, equipment and sensors, and from third-party sources such as weather data providers. Ten percent of firms told us that they are currently trialing or evaluating these platforms to help them aggregate and centralize data from many systems. Meanwhile, other firms are still holding back on investing and waiting for this technology to develop further, due to concern there will be a technology shake-out as the space continues to evolve quickly. As one firm told us: "Sensors and IoT technologies are still developing; I would not want to commit to a technology that ends up being quickly replaced by a better version."

2   www.transformativewave.com

3   buildings.lbl.gov/sites/default/files/lbnl-6887e_0.pdf

What Benefits Can Facility Managers Realize Through Technology? Most Look To Cost Savings And Effective Maintenance Processes

What value do facility managers look for when they deploy software for managing buildings? To get a view into the most important elements, we asked the 100 respondents to tell us the three most important factors in shaping the business case for data management solutions for facilities management. We heard that:

• Firms primarily look to energy and facilities management software to identify cost-savings.

We heard that facilities managers primarily base the business case for technology purchases on the ability to find cost savings across both energy consumption and maintenance management. Notably, 78% of the respondents told us that finding energy savings is a top-three factor driving them to invest in technology solutions, while 69% rate finding maintenance savings as a top-three factor. This reflects the fact that the job objectives of facilities managers often put strong emphasis on identifying cost savings and pursuing cost avoidance activities.

• Firms want to improve the effectiveness of maintenance activities.

Firms are not just looking to find cost savings in maintenance activities, they are also looking for their processes to become more efficient. This is a key part of enabling facilities management teams to focus on more strategic and value-add activities. A facilities director at a commercial real estate investment trust (REIT) told us: "I am looking for work order management software that provides the necessary insights so that our engineers can fix things right the first time, cutting down on follow-up calls."

• A small number of firms place a high priority on maintaining comfort levels in buildings

Eleven percent of respondents told us that improving comfort levels is a top-three factor driving them to invest in facilities management software. Occupant comfort and wellbeing continue to gather momentum in facilities management as new workplace designs recognize a link between wellbeing and employee productivity. For example, building materials firm Saint-Gobain found that improving daylight levels and providing staff access to better amenities such as fitness facilities, was a key element driving an increase in the productivity of call center staff at its Pennsylvania office.[4] That said, comfort and wellness remain secondary concerns for most respondents when compared to achieving cost savings, efficiencies, and safety and compliance objectives.

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4   www.huffingtonpost.com/despina-katsikakis/the-case-for-healthy-offi_b_12674958.html

The Challenge: 70% Of Facilities Departments Have Not Fully Realized Value From Their Investments In Technology

While headline data shows that firms have made significant progress in deploying data collection devices and CAFM/CMMS solutions, respondents have achieved varying success in realizing the expected return on these investments. The majority (70%) of facilities departments feel they have not fully realized value from their investment in technology. An analysis of the interview results shows firms can be broadly grouped into:

• Technology leaders that are realizing full value from their investments.

Only 30% of respondents told us they had succeeded in realizing the anticipated value from the technology to optimize facilities and energy *(see Figure 4)*. What sets these technology leaders apart? The research shows these firms run facilities management programs that look to drive near-term cost savings, while also tackling longer-term challenges such as the looming talent gap in facilities management. The leaders are also more successful in getting budget approval for efficiency projects – in many cases by proving early success with pilot projects and/or implementations of proven and mature technologies such as energy meters, sensors and energy-efficient lighting. For example, a facilities manager told us: "We run facility projects using investment plans in three-year cycles; we select the projects that can prove a payback to support the further allocation of funds."

▶ **Firms Have Had Varying Success in Getting Value From Technology**

n = 100

▶ **Technology Leader**

"We are getting full value from our technology investments to date – and are working on scaling up deployments"

30%

▶ **Technology Opportunist**

"We sometimes get value from our technology investments – but face challenges such as siloed data"

56%
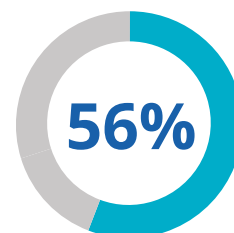
▶ **Technology Straggler**

"We have failed to get value from technology – we struggle in selecting it, then in finding staff bandwidth to get the most of out of it"
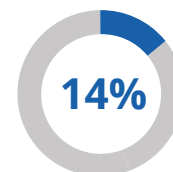
14%

> ❝ *we run facility projects using investment plans in three-year cycles; we select the projects that can prove a payback to support the further allocation of funds.* ❞
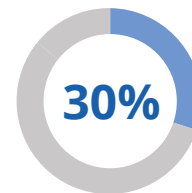>
> *(Technology Leader)*

• Technology opportunists that are getting some value but have a way to go.

The majority (56%) of respondents told us they have had limited success in realizing the value of technology investments. These firms run facility management programs to meet critical goals but often in a very tactical manner. That means while they are successful in meeting compliance, health and safety and cost management goals, they struggle to maximize efficiency savings due to a focus on near-term wins. Another common challenge among this group is the struggle to get a centralized view into the performance of their building portfolio, contending with the multiplication of many software solutions deployed at the single site level. As a healthcare facility manager told us: "We use multiple software systems separately and therefore lack a bird's eye view of our facilities management agenda." This 'fragmented' approach to technology deployments can leave hidden savings on the table.

• Technology stragglers that have yet to see the value.

A smaller portion of firms (14%) have struggled to derive significant value from facilities management technology. These facility managers struggle to develop a convincing case to earn budget approval for energy and facility efficiency projects *(see Figure 5)*. This is a tough task for all facilities managers in an era of cost control, as the facilities department is often at the back of the line, given its support function. Even when technology has been deployed, technology stragglers are more likely to have experienced project failures that weaken an organization's appetite for further investments. For example, we spoke with firms that have implemented CMMS tools and yet struggle to encourage technicians to upgrade from paper or email-based systems that they are familiar with.

Figure 5

▶**Leading Firms Shape Facilities Management Strategies To Tackle Short And Long-Term Challenges**

	▶Technology Stragglers	▶Technology Leaders
Cost Saving Focus	Operating costs such as maintenance and contractors	Broader focus on cost management that includes energy efficiency
Wellbeing Focus	Achieving health and safety compliance	Leaders are four times more likely to rate employee wellbeing as a 'very important' factor shaping their facilities management strategies
Facilites Management Talent Shortage	Stragglers are missing out on creating a program that solves tomorrow's critical challenges	Leaders are twice as engaged in tackling the looming talent gap in facilities management
Sustainability	Only 14% of straggler firms have sustainability performance goals as part of facilities management strategies	Twice as many Leaders look to drive sustainability performance within their facilities program
Technology	Less engagement on tackling cyber security with facilities management strategies	Cyber security is a top factor influencing facilities management strategies reflecting overall higher deployments of technology

Organizations Face Different Challenges Based On The Maturity Of Technology Programs

The interviews show that facility management departments across the U.S. have achieved varying success from their technology investments. What are top barriers that firms face in getting value out of the technology? The research shows that:

• Technology leaders face challenges with siloed data and scaling up deployments.

The research shows that even technology leaders face barriers. A classic problem for leading firms is how to follow up a series of innovative pilot projects to reach deployment at scale *(see Figure 6a & 6b)*. Not being able to overcome this hurdle can mean that savings and benefits remain smaller and limited to certain sites. For example, a facilities director overseeing 30 healthcare facilities told us that it is tough to convince senior management on the feasibility of expanding the deployment of an innovative lighting controls project. The pushback from the senior team highlighted that because the other facilities are so diverse and have different operating hours, they need more proof of the benefits.

Figure 6a

▶ **Technology Leaders Primarily Face Challenges With Siloed Data**

"How significant are the following barriers to realizing business value from **facilities management technology?**"

■ Very significant   ■ Significant   n = 30

Lack of data integration creates information silos
| 23% | 47% |

Challenges in driving user adoption of data management systems
| 7% | 60% |

Lack of staff expertise to run facility efficiency projects
| 13% | 47% |

Lack of in-house expertise to extract business insights from data
| 13% | 40% |

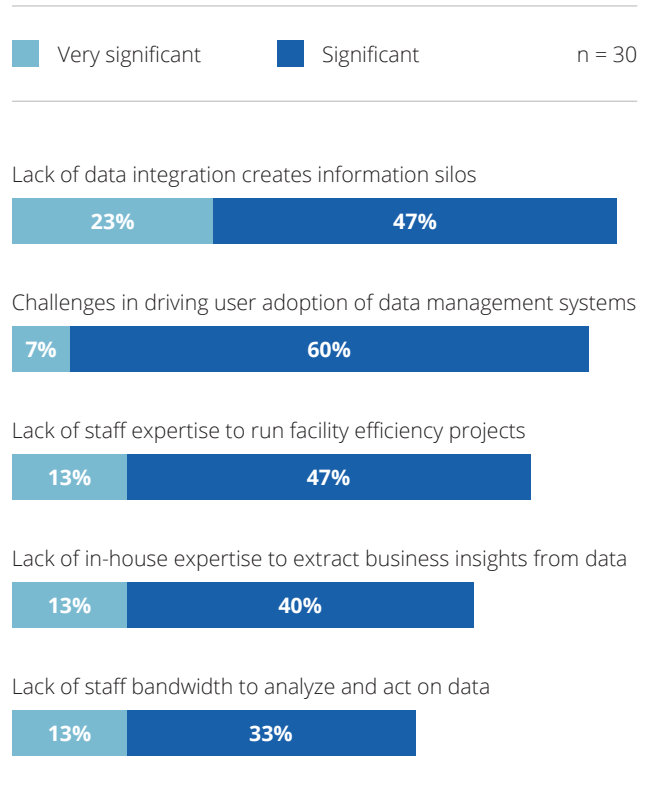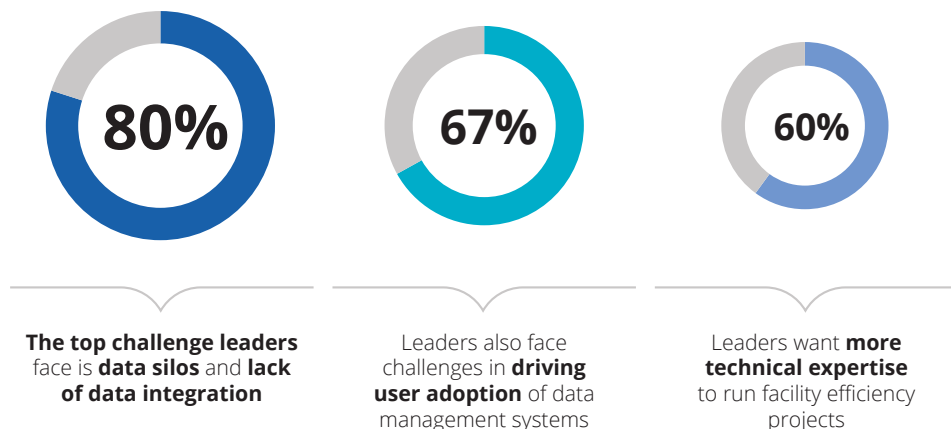Lack of staff bandwidth to analyze and act on data
| 13% | 33% |

Figure 6b

▶ **Technology Leaders Primarily Face Challenges With Siloed Data**

Top Three Barriers Technology Leaders Face In Getting Value From Technology

80% — **The top challenge leaders** face is **data silos** and **lack of data integration**

67% — Leaders also face challenges in **driving user adoption** of data management systems

60% — Leaders want **more technical expertise** to run facility efficiency projects

• Opportunists face challenges with 'thin' and siloed data.

We heard from 79% of the technology opportunists that they face challenges with data silos because facilities-related data from different sites and systems has not been integrated. Large organizations can often end up with a grab bag of software systems in place as they adopt new facility management software solutions over time and M&A quickly adds in more systems. For example, the U.S. General Services Administration recently migrated building management systems in its facilities to a secure private network, a task that was complicated by the diversity of different systems throughout its portfolio (seven different BMS brands within the Pacific region alone).[5] This can result in 'lost' insights, as facility managers are not able to benchmark performance across all facilities. Another challenge is that data can often feel 'thin'. For example, analysing energy consumption data in isolation means that the data is lacking its full context and can even lead to unjustified conclusions.

• Technology stragglers mainly struggle with the lack of staff bandwidth and in-house expertise

Those struggling with getting value from technology face a very different set of barriers. We heard from 72% of technology stragglers that internal teams face challenges with the lack of staff bandwidth, which blocks them in making the most of current technology and software already deployed *(see Figure 7a & 7b)*. This is precisely where the leaders invest a lot of their time: they know they will benefit from a significant virtuous circle as data-led insights help identify high-value projects. Our 2017 research also found that lack of staff bandwidth was a top barrier limiting firms from integrating energy optimization into facilities management practices. The reality is that many in-house facility managers are so busy responding to urgent activities, such as reactive maintenance and ensuring compliance, they lack the time and resources to pursue more strategic activities.

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5   www.enovity.com/projects/federal-smart-buildings/

Figure 7a

▶ **Technology Stragglers Face Greater Challenges With Lack of Staff Bandwidth**

"How significant are the following barriers to realizing business value from **facilities management technology?**"

| ■ Very significant | ■ Significant | n = 14 |

Lack of staff bandwidth to analyse and act on data

| 36% | 36% |

Lack of in-house expertise to extract business insights from data

| 29% | 29% |

Lack of data integration creates information silos

| 29% | 29% |

Lack of staff expertise to run facility efficiency projects

| 7% | 43% |

Challenges in driving user adoption of data management systems
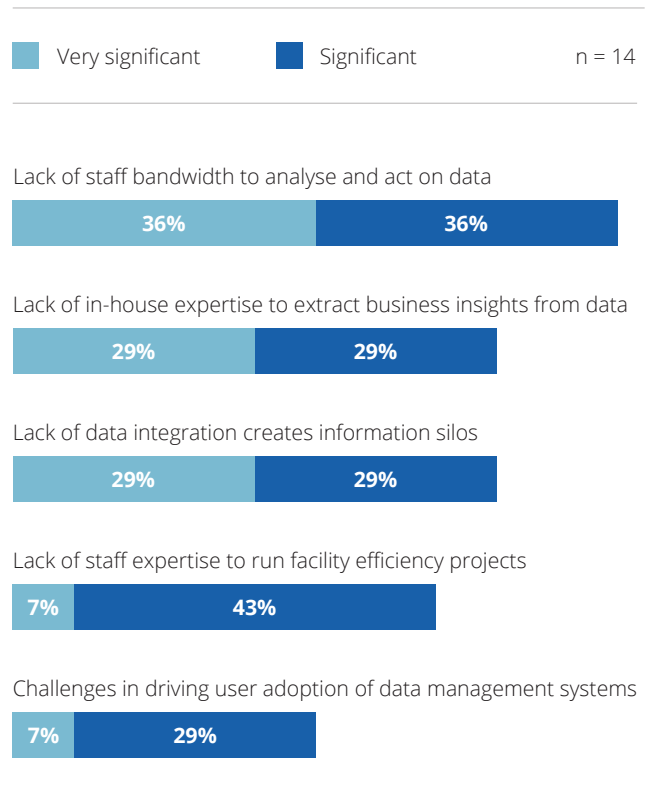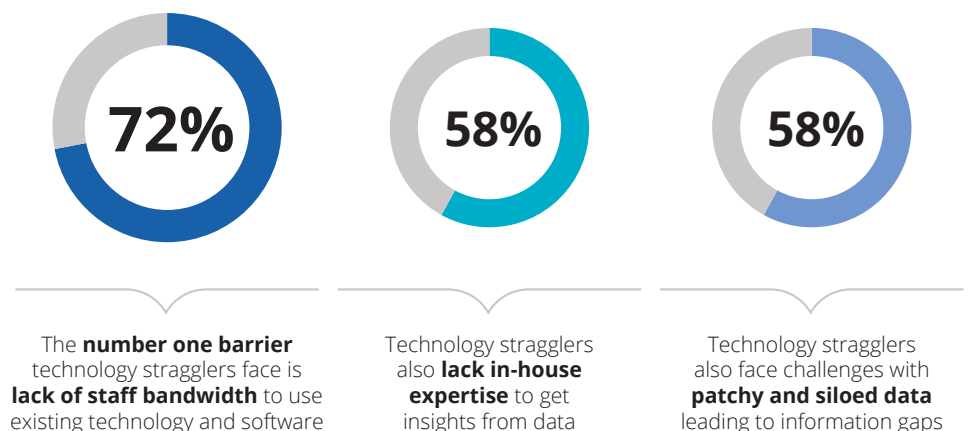
| 7% | 29% |

Figure 7b

▶ **Technology Stragglers Face Greater Challenges With Lack of Staff Bandwidth**

Top Three Barriers Technology Stragglers Face In Getting Value From Technology

72%

The **number one barrier** technology stragglers face is **lack of staff bandwidth** to use existing technology and software

58%

Technology stragglers also **lack in-house expertise** to get insights from data

58%

Technology stragglers also face challenges with **patchy and siloed data** leading to information gaps

Technology Leaders Are Deploying Strategies Based On Collecting Compelling Facilities Data And Achieving Incremental Success

The research shows that firms face different challenges based on their technology maturity. What should my facilities department do next? What can we learn from the leaders? *(see Figure 8)*. Firms should:

• Build confidence in the finance team by deploying the technology that delivers proven results.

Firms getting value from technology aren't always installing the most cutting-edge solutions. As a facility director at a chemicals firm told us: "We focus on installing low-risk and proven technologies such as LED lighting; this is a critical step to build trust before proposing the large-scale or transformational programs." This incremental approach was also taken by the UW Health University Hospital in Wisconsin as it targeted $1.8 million in annual energy and facility savings.[6] It started by implementing a series of low-cost measures, achieving $342k in annual savings from better HVAC scheduling and $6k in annual savings from applying lighting controls. After these strong proof points, the hospital has moved on to much bolder building renovations.

• Explore 'as-a-service' models to make facility improvements without any capital investments.

"Our facilities management budget is insufficient to fund technology improvements" was a frequently cited challenge for our interviewees. This suggests firms should explore whether CapEx or OpEx investments are more suitable for their budget. Today, a new class of asset-as-a-service options are emerging that remove the need for organizations to make up-front capital investments *(see sidebar)*. For example, in an asset-as-a-service model, a building occupier will rent the equipment or pay for specific outputs, rather than paying the full price for the equipment upfront. While not suitable for every implementation, these models could open up new opportunities for firms with capital approval challenges. As a commercial REIT told us: "I like the idea of avoiding capital investments. This is because anytime I have to spend, it has to be thoroughly justified. Processes and procedures are big hurdles to accessing budget." For other firms, 'as-a-service' models are less suitable because they tend to avoid multi-year contracts, or they are concerned that performance guarantees will lead to tension with contractors in the future around whether the savings have been achieved.

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[6] betterbuildingsinitiative.energy.gov/showcase-projects/university-hospital

• Run targeted software integration projects that enable a more complete view into facilities data.

The research shows technology leaders are twice as likely to use integrated workplace management systems (IWMS) compared to the opportunists and technology stragglers. IWMS solutions aim to integrate all facilities-related data across energy, maintenance and assets, and real estate data from all sites into a single software platform. What can other firms learn from this? While rolling out a new enterprise-scale IWMS is not feasible for all firms, facility departments can still tackle the challenges with siloed data by running targeted software integration projects. Facility departments told us they would benefit from getting a portfolio-wide view into energy usage across all sites. Where FDD systems are implemented, integrating these insights into the maintenance management system can allow technicians to more precisely focus on-site efforts and track resolution of issues identified through FDD.
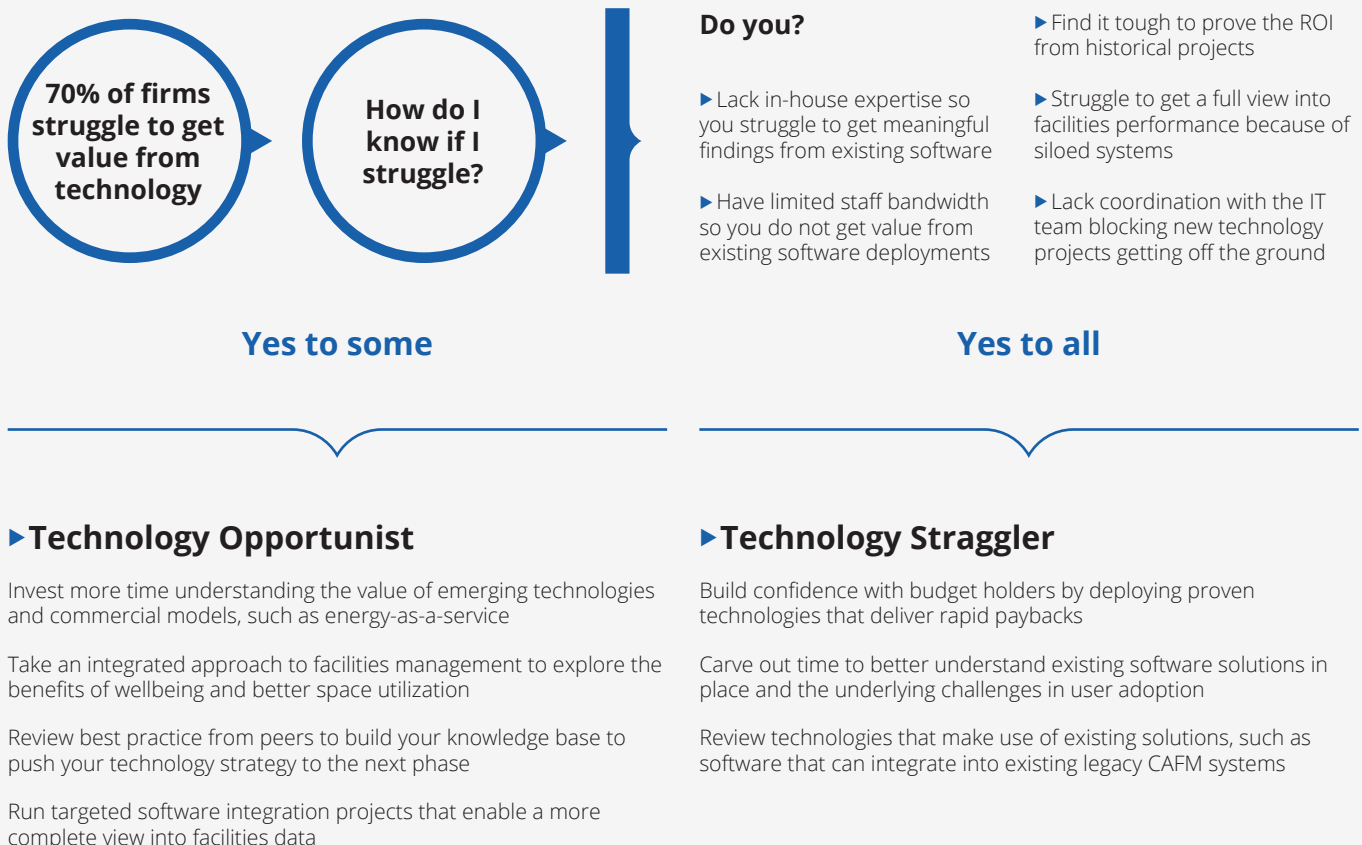
• Unlock cash for the ambitious facility upgrade projects by making a link to broader business benefits.

Most organizations set a two to three-year payback threshold for capital investments, which is enabling lots of LED lighting projects but has limited investment in more ambitious programs. What can facility departments do to move beyond this 'low-hanging fruit'? Looking across the U.S., some hospitals have been having success in making the link between an energy management program and broader organizational goals such as enhancing occupant comfort and the patient experience. As an example, the OhioHealth Mansfield Hospital ran a series of upgrades to its chilled water plant using energy performance contracts.[7] This project delivered energy savings while also improving the thermal comfort of the patients and staff.

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[7]   www.brewer-garrett.com/medcentral/

Figure 8

▶ **How To Know If You Struggle With Getting Value From Facilities Technology?**

70% of firms struggle to get value from technology

How do I know if I struggle?

Do you?

▶ Lack in-house expertise so you struggle to get meaningful findings from existing software

▶ Have limited staff bandwidth so you do not get value from existing software deployments

▶ Find it tough to prove the ROI from historical projects

▶ Struggle to get a full view into facilities performance because of siloed systems

▶ Lack coordination with the IT team blocking new technology projects getting off the ground

Yes to some

Yes to all

▶ **Technology Opportunist**

Invest more time understanding the value of emerging technologies and commercial models, such as energy-as-a-service

Take an integrated approach to facilities management to explore the benefits of wellbeing and better space utilization

Review best practice from peers to build your knowledge base to push your technology strategy to the next phase

Run targeted software integration projects that enable a more complete view into facilities data

▶ **Technology Straggler**

Build confidence with budget holders by deploying proven technologies that deliver rapid paybacks

Carve out time to better understand existing software solutions in place and the underlying challenges in user adoption

Review technologies that make use of existing solutions, such as software that can integrate into existing legacy CAFM systems

About this Report

About the 2018 Facility Management Benchmark Survey.

This report was developed to help facility management, energy management, and real estate leaders understand how leading FM organizations in the United States are responding to the latest trends and challenges. It is the second in an annual series produced by Enovity, a Veolia company. For more information and to view prior reports, visit www.enovity.com/fmleaders.

About Veolia.

Veolia group is the global leader in optimized resource management. With nearly 169,000 employees worldwide, the Group designs and provides water, waste and energy management solutions that contribute to the sustainable development of communities and industries. Through its three complementary business activities, Veolia helps to develop access to resources, preserve available resources, and to replenish them. In 2017, the Veolia group supplied 96 million people with drinking water and 62 million people with wastewater service, produced nearly 55 million megawatt hours of energy and converted 47 million metric tons of waste into new materials and energy. Veolia Environnement (listed on Paris Euronext: VIE) recorded consolidated revenue of USD $30.1 billion in 2017. Learn more at www.veolia.com.

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