SMART BUILDINGS: COMBINING IOT AND ANALYTICS TO IMPROVE FACILITIES MANAGEMENT OPERATIONS

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Best-in-Class firms are increasingly combining analytics with IoT sensors and equipment to optimize facilities management operations. The result is a dramatic leap to the "smart building."

The Five Key Areas of Facilities Management

· Real Estate / Property Management

· Capital Project Management

· Facilities and Space Management

· Building Maintenance Management

· Sustainability / Energy Management

Facilities and commercial real estate management are changing for the better. Companies have been moving away from the notion that facilities are a set of back-office, day-to-day activities, and are beginning to see this function as a value driver for specific areas within the organization. Today, facilities and real estate managers are building on their gains by combining analytics with IoT sensors and equipment. This combination of technology has allowed companies to optimize facilities management operations, improve occupancy experience, and more accurately predict future needs.

Historically, facilities management has been pegged as a cost control function. But the long-term value of looking beyond facilities spending as sunk costs, or even worse, as a continual drag on ROA (return on assets), is measurable and pays dividends to those enterprises willing to believe that their competitive position can be affected by how they manage their locations. It is this realization that led to the creation of the Integrated Workplace Management System (IWMS).

A modern IWMS is an integrated software platform that combines analytics and IoT sensors to help organizations optimize workplace resources in the five key areas of facility management, maximizing interdisciplinary synergy (see sidebar). The IWMS provides a single

system for facility management, increasing the operational, financial, and environmental performance of facilities.

Enterprise success and growth can only be obtained through the management of the many complex processes within facilities management (sidebar on page 1). For the Best-in-Class, it starts with the effective management of their real estate / property portfolio. Once the real estate portfolio is established, the rest of the functions within facilities management need to be addressed.

Next-Level Facilities Management: Rise of the Smart Building

Today, facilities management is moving beyond cost control, as IWMS users climb the maturity curve to the "smart building."

Today's buildings and workplaces are major generators — and consumers — of data. Through the capture and analysis of this data, organizations can gain a better understanding of their operational effectiveness, accelerate their ability to react to change, and increase returns from real estate-related decisions.

Organizations are also beginning to employ AI-based cognitive computing technology for smart buildings. Data captured by buildings is augmented by machine learning to help make decisions, alert management on issues, and to interface with virtual concierge technology to provide a "face" to the building.

Improved insights, automation, and control also can have a positive impact on all aspects of real estate performance, from lease accounting and capital projects, to facility maintenance, space utilization, and energy consumption. Especially important in lease accounting are changes that will require operating leases to be included in the balance sheet as liabilities, thus impacting asset ratios like ROA. Aberdeen research finds that up to 34% of Best-in-Class organizations are automating the planning, budgeting, and forecasting of capital projects, 3.8 times the rate of All Others.
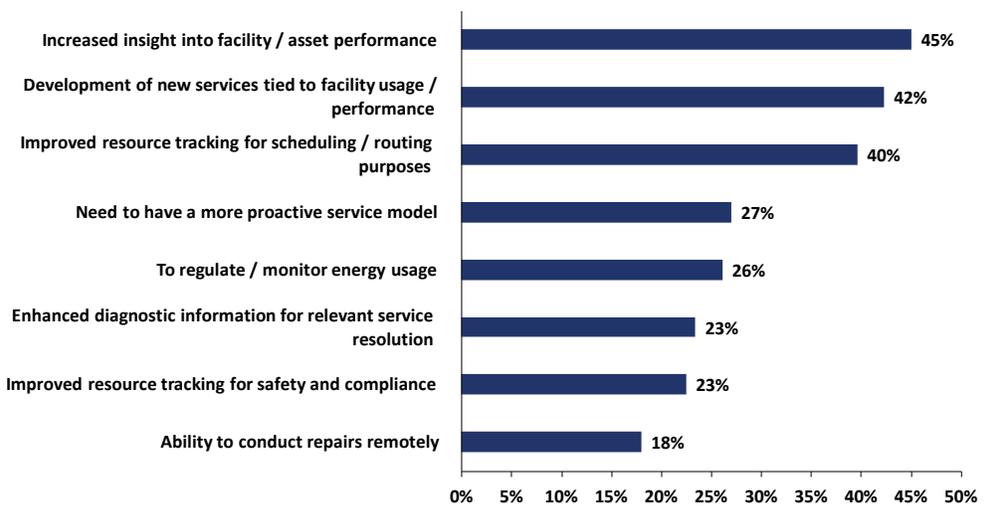
Definition: Cognitive Computing

Cognitive computing, broadly speaking, describes technology platforms that are based on the scientific disciplines of artificial intelligence and signal processing. These platforms encompass machine learning, reasoning, natural language processing, speech and vision, human–computer interaction, as well as dialog and narrative generation, among other technologies.

Definition: Best-in-Class

The Aberdeen maturity class framework places companies in one of three categories based on their self-reported performance across key metrics:

· Best-in-Class: Top 20% of respondents based on performance

· Industry Average: Middle 50% of respondents

· Laggard: Bottom 30% of respondents

Sometimes we refer to a fourth category, All Others, which combines Industry Average and Laggard organizations.

Based on their performance, service leaders might fall into any of the above groups. The Best-in-Class findings represent the performance results all service leaders should strive to achieve.

Emerging IoT Use Cases in Facilities Management

The next step in the facilities management journey is to get more value out of these modules via IoT and cognitive computing. This allows managers to utilize collected facilities data more intelligently through analysis, insights, and recommendations (Figure 1).

Figure 1: Why Best-in-Class Connect Buildings via IoT & Analytics

Reason	%
Increased insight into facility / asset performance	45%
Development of new services tied to facility usage / performance	42%
Improved resource tracking for scheduling / routing purposes	40%
Need to have a more proactive service model	27%
To regulate / monitor energy usage	26%
Enhanced diagnostic information for relevant service resolution	23%
Improved resource tracking for safety and compliance	23%
Ability to conduct repairs remotely	18%

Source: Aberdeen Group, July 2017

To prosper from next-level facilities management, managers and executives should seek out an IWMS provider with a strong partner ecosystem, including analytical integrations, connectors, and APIs for the items listed in Figure 1. Each of these items is spawning a myriad of analytics- and IoT-centric use cases:

Increased Insight into Facilities Performance. Analytics and IoT can improve core systems (air conditioning, heating, elevators, escalators, and security). All can all be monitored for performance and peak efficiency as well as to predict maintenance issues before they happen. Even food services can benefit from IWMS by sensing preferences, automating orders and supply chain processes, and managing space allocation in a more flexible and dynamic way.

Development of New Services. As an example, consider shopping malls, where a wave of investment to transform retail environments with IoT technology is underway. Today's retailers are more pressed than ever to compete with online challengers, and mobile-ready, SaaS-based IWMS offerings stand ready to lead the charge with applications for store layout and consumer floor traffic analysis, merchandising and store operations optimizations, and more.

Improved Resource Tracking. Building space is often underutilized. IWMS enables companies to optimize this space more efficiently by providing a reservation system to eliminate inefficiencies associated with conflicts in common-use space, improving worker productivity.

Better space management is also within reach. Newer IWMS features allow companies to detect previously unrecognized usage patterns to better predict the needs for space and amenities (rooms, whiteboards, etc.). These insights can be shared with building maintenance and office managers for further improvements.

A More Proactive Service Model. Promoting a better occupancy experience is vital in today's hotly competitive market. IWMS analytics and IoT allows managers to utilize data more intelligently for more proactive facilities management. For example, sensing repetitive conference room usage allows management to proactively pre-cool a conference room susceptible to over-heating. As another example, security systems can be monitored to identify any potential risks.

Better Energy Usage. Optimizing the environmental controls of plants, facilities, and office buildings is a distinct advantage of smart buildings. IWMS connects with environmental controls to provide a more granular view of how natural resources and energy are being used. Aberdeen data also showed that Best-in-Class

facilities management practices lower energy costs by an average of 10%.

Better Maintenance. Outfitting equipment with sensors results in enhanced diagnostic information for more relevant service resolution. Advanced analytics can also aid in preventative and prescriptive maintenance. In fact, organizations are even beginning to employ cognitive computing technology in maintenance to solve problems by enhancing human expertise. When human intervention is not necessary, the ability to conduct repairs remotely is still the holy grail. Aberdeen finds that Best-in-Class facilities management practices lower maintenance costs by an average of 14%.

Takeaways

The modern IWMS, driven by IoT, analytics, and cognitive computing, is the harbinger of the smart building. These buildings can self-diagnose issues and communicate a rich stream of IoT-based information to facilities and real estate management professionals. The ultimate goal is a living, breathing building that senses its own environment and proactively maximizes the occupancy experience through a heightened awareness of core systems performance, services, energy usage, and maintenance.

Facilities managers are moving up the IWMS continuum to capture information, identify the signals that help them make better operational and predictive decisions, and to become more competitive through facility amenities and occupant experiences that only IoT can deliver.

IoT is helping these managers get information on their facilities. Advanced analytics help them make decisions based on this data. They are also applying AI-based cognitive technology to smart buildings to help make decisions, alert management on issues, and to be the face of the building via virtual concierge technology.

Best-in-Class users are leveraging IWMS extensions, APIs, and partners to jump to the next level of facilities management, and a myriad of use cases based on these new capabilities will flourish in the coming months and years.

IWMS usage is a continuum, stretching from real estate management to capital planning management, all the way to better operationalization of assets via IoT. As they climb the IWMS maturity curve, Best-in-Class facilities managers are increasingly focusing on the operationalization of assets via IoT to transform run-of-the-mill facilities into smart buildings.

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About Aberdeen Group

Since 1988, Aberdeen Group has published research that helps businesses worldwide improve their performance. Our analysts derive fact-based, vendor-agnostic insights from a proprietary analytical framework, which identifies Best-in-Class organizations from primary research conducted with industry practitioners. The resulting research content is used by hundreds of thousands of business professionals to drive smarter decision-making and improve business strategy. Aberdeen Group is headquartered in Waltham, MA.