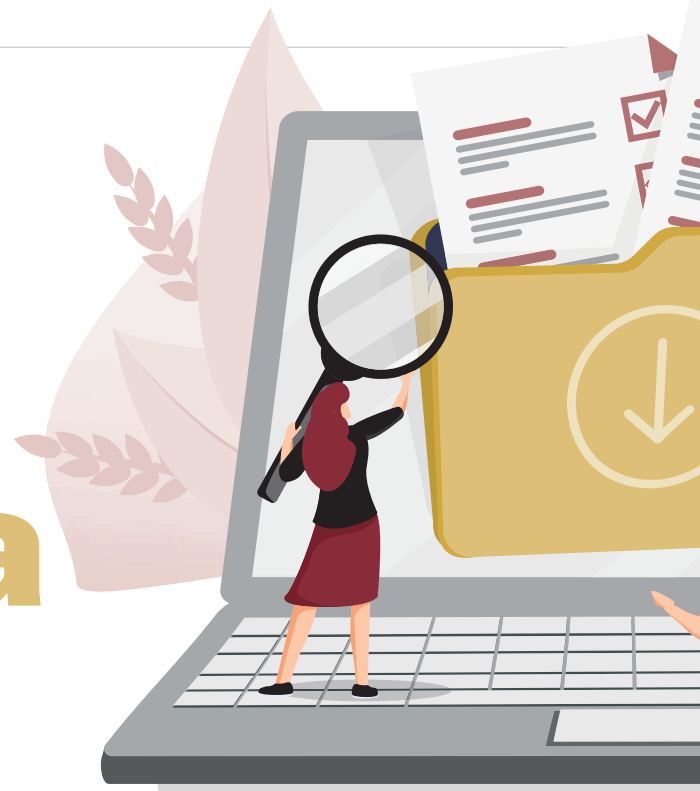


GETTING asset data RIGHT



Proper and systematic collection and management of asset data can improve decision-making and have a significant impact on bottom lines.

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Picture this scenario: A refrigerator in a research lab, one of many on a campus full of research labs and refrigerators. Each refrigerator has a routine scheduled maintenance in place. However, this particular appliance was overlooked in the maintenance schedule and failed unexpectedly. This fridge was a missing data point in the database of operational assets to be maintained. Unfortunately, it contained a quarter of a million dollars' worth of vaccine product.

How much could one missing or inaccurate data point cost you?

Data is the building block of financial projections, capital planning and operating budgets. Using data, real estate investment and asset managers establish baselines from which to track and demonstrate growth. With accurate property data in the right format, managers can then implement proactive management strategies, leverage economies of scale, reduce risk and improve reporting. Arguably, the success

of any real estate investment — and certainly the measurement of that success — depends on the quality of its data. However, we find that few managers prioritize the collection and management of data at their properties.

Defining asset data collection

In the context of building science, asset data refers to information collected about physical buildings or operational systems and components. Any piece of equipment or building component that requires preventive or routine maintenance, or has significant replacement cost, is an 'asset.' Examples of assets include mechanical, electrical or plumbing systems or components; building envelope components such as roof systems or windows; life safety systems; operational equipment; and elevators. (In this context, 'asset' does not refer to the building itself.) Asset data collection and management



(ADCM) is the gathering, compilation and organization of asset data to support organizational goals.

Mistakes and misconceptions in ADCM

Collecting accurate and complete asset data is complicated, particularly for large portfolios or complex asset classes like healthcare, data centers, research facilities, or manufacturing and/or logistics facilities. Challenges include knowing which assets to include in the data collection effort, which parameters to gather for each asset, and how to efficiently collect and organize data. Frequently, managers make the following mistakes:

- **Assign data collection to maintenance staff.** Without recognizing the time and skill required to collect quality data, many managers assign the task to their onsite maintenance engineers. While the onsite engineers are undoubtedly most familiar with the assets at their

How much is good data worth?

One of the richest returns from quality data collection and management comes in the form of proactive management or predictive maintenance.

Proactive asset management reduces maintenance costs and allows managers to strategically plan for capital expenditures. Take roofing, for example. A portfolio of 10 manufacturing buildings, all constructed in the late 1990s, will require 10 roof replacements as the roofs age out. The proactive manager collects relevant data about each roof, such as roof type, condition, expected useful life and property location. The manager uses this data to project remaining useful life for each roof, and ensures maximum roof life through consistent, routine maintenance. Rather than wait for tenants to complain about leaks, the manager develops a strategic plan for replacement: either replacing all 10 roofs at once and negotiating a volume discount with suppliers and contractors; replacing in phases to diffuse the impact on the budget; or replacing according to the projected hold period for maximum return upon sale of the portfolio.

While routine site maintenance may seem mundane, overlooked maintenance can result in grave exposure. Recently, our team assessed a high-profile office complex that housed a national bank and its trading floor. During the technology assessment, assessors identified two previously unaccounted-for fiber optic cables. The purpose of the cables was to provide redundancy for the connectivity of the trading floor — to keep it online if the primary connection failed. Until this assessment, the site manager was unaware that they existed, much less whether they were functional.

This missing data point in the technology inventory of the building exposed the building owner to huge financial risk: if the trading floor became non-operational due to building system failure, the building owner was liable for the lost value of all the trading that could not be completed during the failure. How much is the routine testing of those cables worth to the building owner?

“ With accurate property data in the right format, managers can then implement proactive management strategies, leverage economies of scale, reduce risk and improve reporting. ”

sites, they are not necessarily trained to catalogue them and manage large data sets. Furthermore, onsite maintenance staff may not have time to devote to a data collection effort, resulting in a slow, prolonged and/or incomplete process. Ideally, data should be collected by a team of

trained data specialists equipped with proper field collection devices.

- **Gather existing data from various sources or stages.** Between acquisition due diligence records, purchasing records and existing maintenance records, a significant portion of the asset data at a site may

already exist. However, compiling data from existing records usually results in incomplete and inconsistent data. Often it is more efficient to start from scratch than to validate and supplement an existing data set.

- **Fail to apply standardized naming and hierarchies.** From one site to the next, maintenance staff may refer to equipment with different names — for example, is it a packaged unit, rooftop unit or RTU? Inconsistencies in terminology and data organization make it difficult to aggregate data and compare data between properties or analyze financials at the portfolio level.

We often receive requests from frustrated managers who have made one or more of these mistakes in their first attempt to collect asset data.

Best practices for ACDM

The implementation of a few best practices can ensure a smooth ACDM project.

- **Purpose first.** The most important step in any ACDM effort is to establish a clear purpose before beginning. Asset data serves many purposes, at many different levels. The purpose of a data collection effort determines the scope, including which assets will be covered and which data points collected. (See ‘The question of scope’ section below.) Purpose also determines the delivery format of the data; that is, raw data for importing into an existing software platform or a custom dashboard for viewing and manipulating data in different ways.
- **Standardized hierarchies.** Consistent naming and categorization of assets ensures a useful data set. ASTM E1557-09

offers a standard hierarchy called Uniformat II. Using a standardized hierarchy like Uniformat II saves time and ensures consistency between sites and field collectors.

- **Pilot sites.** When implementing an ACDM program for a portfolio, start the process with a pilot site. This allows project owners to review results from an initial site to ensure the data set will meet their needs. The list of in-scope versus out-of-scope assets can be refined, key parameters can be confirmed, and the data format can be finalized.
- **Data cleaning.** Data is only valuable if it is clean and consistent. Every line item must be reviewed for standardization and formatting before delivery.
- **Barcoding/QR coding.** While field assessors are gathering data, they should place a QR code or barcode sticker on each asset to permit faster and more accurate transfer of information in the future.
- **Engage an experienced third-party consultant.** Few firms have sufficient staff or expertise to efficiently

execute a data collection project in-house. Engaging a qualified third-party consultant expedites the inventory process and ensures delivery of a clean data set. Beyond providing man-hours for field collection, a consultant can offer perspective on the best delivery method and additional applications for data collection.

The question of scope

The larger and more detailed the collection effort, the more time and investment required; therefore, appropriate scoping is important to ensure that desired outcomes can be reached without wasting time and money. Basic scopes include assets that are critical to operations, life safety and indoor environmental quality, and usually capture make, model, serial number, capacity, age, photos and tags for routine preventative maintenance. Beyond those basics, scopes diverge based on purpose. Exhibit 1 provides some examples of how projects might be scoped for different purposes.

Exhibit 1: Examples of project data scopes

Goal	Additional ACDM scope
Improve property maintenance planning and scheduling, automate work assignments through implementation of a computerized maintenance management system (CMMS)	<ul style="list-style-type: none"> • Placement of QR codes or barcode stickers • Application of location hierarchy (building, floor, zone, room number, etc.) • Mapping of asset locations on floorplans
Track condition of rooftop equipment serving net-leased buildings	<ul style="list-style-type: none"> • Apply detailed multi-point condition scoring • Identify equipment deficiencies • Check air filters • Geolocate assets
Refined capital planning for a portfolio of properties to take advantage of economies of scale	<ul style="list-style-type: none"> • Map each asset according to Uniformat II classification system or client's own schema • Incorporate criticality ratings (common for hospitals and industrial production facilities) • Automate remaining useful life based on age and library of end user licenses • Gather adequate data to support automated costing using industry standard cost data

ESG and asset data

Beyond the obvious demands of deploying capital on behalf of impact funds or corporate investors with sustainability criteria, there are numerous benefits of collecting data on the efficiency, sustainability or resiliency of a property during the due diligence phase.

First, it makes sense to collect ESG-related data while assessors are already at the property and while sellers are motivated to be forthcoming with property data. It also allows for early identification and implementation of low-cost improvements during onboarding, potentially keeping portfolios 'green.'

If due diligence reveals ESG improvement opportunities that require capital expenditures, they can be incorporated into the capital plan, and systems nearing end of useful life can be slated for efficiency upgrades upon replacement. A comprehensive asset inventory can also be mined for energy-efficiency opportunities in the future.

Finally, by collecting data upon acquisition or as early as possible thereafter, managers will have the earliest possible baseline from which to measure improvements. Setting the baseline early can then allow managers to demonstrate improvement over the hold period.

Putting the data to work

Once a complete, accurate data set has been compiled, it must be delivered in a way that supports project objectives. Managers must be able to sort, view, analyze and visualize data for effective decision-making. To this end, dashboarding is often the ideal method of data delivery.

Better than a table, such as those in a facility condition assessment, a dashboard offers the flexibility of data to be viewed by various criteria. For example, the manager of a portfolio of manufacturing sites can view all the units in individual buildings, then sort units by condition to see which will require replacement over the year, or project spend over five years. Perhaps they want to view only air handling units that require replacement on the West Coast, so they can negotiate a volume discount with a supplier. Perhaps they want to sort units by make, to compare performance. Perhaps one department within an

organization will use this data for capital planning, another department will use it to feed into a CMMS system, and another department will use it to plan efficiency upgrades to meet ESG goals. With dashboard delivery, custom views can be created for various user types; one well-scoped, well-executed data collection effort can support multiple initiatives within an organization.

For some, the end goal of data collection is to support ongoing asset or property management. For these applications, there are plenty of software options on the market: enterprise asset management (EAM) systems; integrated workplace management systems (IWMS); computerized maintenance management system (CMMS); Argus and related systems; proprietary systems, etc. Before committing to a system, managers should carefully consider how they intend to use the data. Too many firms buy a platform

first, then attempt to collect the data to 'populate' the application and wind up with a system that is expensive and cumbersome.

The ongoing success of an ADCM program is incumbent upon the commitment of the organization to use and maintain the dashboard or system they have chosen. Given the range of users within a commercial real estate organization, the responsibility of the ADCM program may be assigned to a company-wide program manager, local or specialized asset managers, or a software management company. Typically, and ideally, maintenance of the data and platform falls to a team of these individuals.

Conclusion

For managers, the nitty-gritty of collecting and managing asset data may be a low priority. However, for large portfolios consisting of properties with high criticality and complexity, as well as buildings with aging equipment and infrastructure, a qualitative ADCM program can have tremendous impact on the bottom line. Virtually any investment goal requires the collection and tracking of data, as well as credible data to report to investors. An investment in data collection can pay dividends in the form of more strategic and accurate capital planning and better decision-making at both the asset and portfolio level. ♦

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