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The Future of Data-Driven Performance Management in CRE

Perhaps more than any other industry, Commercial Real Estate (CRE) is primed to reap the benefits of advances in Big Data and Internet of Things (IoT) technology. In fact, nearly 33% (equating to \$11 trillion globally) of the industry's assets are managed with manual spreadsheets¹.

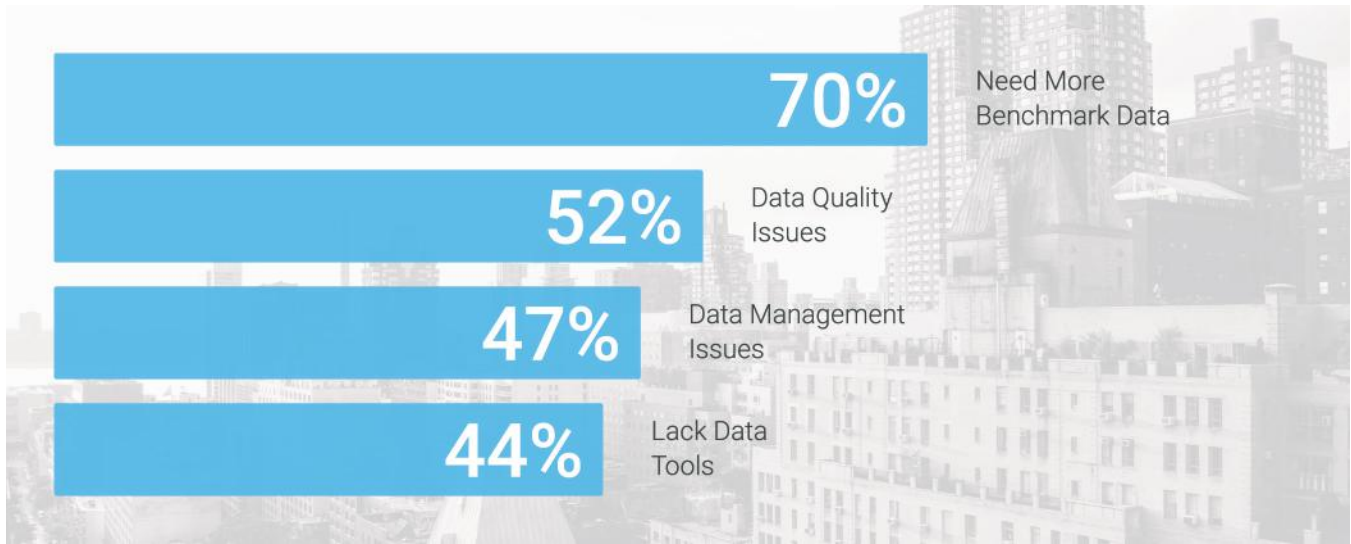
As such, there is growing demand for real estate-specific systems able to aggregate and analyze data streams to help owners and managers deepen their understanding of operational performance.

CRE organizations have increasingly turned toward technology in the pursuit of better occupancy rates, transparency into future performance and higher overall NOI as they face greater competition. To add incentive, a noticeable gap is forming between the CRE firms that embrace Big Data and the IoT, and those slower to adapt.

However, to date, systems have been deployed piecemeal to address specific problems. Solutions have typically been implemented as siloed, expert-oriented tools lacking the ability to communicate or share data with other integral systems.

The future of CRE performance management will be driven by flexible, easy-to-use solutions that incorporate historically disparate systems, digest massive data sets, make sense of multiple sources and layer intelligent analytics.

¹The Altus Group CRE Innovation Report: Harnessing the Power of Data in Commercial Real Estate



Current State of Building Performance Data

Despite strides, most CRE organizations are not as efficient as they could be due to the fragmented approach of information aggregation and exchange. Legacy solutions lack functionality and are incapable of generating comprehensive performance pictures. According to a recent report on real estate innovation², 89% of global CRE firms still face major impediments to collecting and utilizing data to drive asset and investment management decision making.

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In many building processes, from [tenant submetering](#) to maintenance, data is being collected and recorded manually by numerous individuals at each building within a portfolio. Not only does an abundance of manual processes lead to significant delays and risk of human error, it also makes data difficult to access and expensive to acquire.

With CRE data siloed in an ecosystem of point solutions, data is being gathered to meet just the requirements of a specific building system or business function. Disparate groups with unrelated responsibilities analyze specific information and lack incentive for unification or collaboration. Fragmentation can also lead to duplicative analyses and non-standardized data. Ultimately, this

lack of automation and centralization has slowed data access, accuracy and completeness.

Nevertheless, operators have been slow to adopt updated systems. The same report found that roughly 75% of the CRE industry is still struggling with data silos. Due to this, firms are forced to hire dedicated analytics teams to manually examine the different point solutions and generate aggregated insights.

While CRE has lagged relative to other major industries such as media and finance, things are changing. Increased competition, shrewd tenants and investors demanding deeper analytics are adding pressure to adapt.

One example is in energy, where buildings waste 30% of annual spend (representing \$60.7 billion)³. More and more, firms are effectively utilizing energy consumption data and linking it to other data feeds to dramatically enhance building operations and profitability.

Despite the struggles, nearly 77% of firms surveyed⁴ noted they are prioritizing investment in technology and process improvement as a means of fostering data-driven decision making. These firms are bullish on the advantages, with 85% of respondents expecting to get a return on their investment in three years or less.

²ibid

³US Environmental Protection Agency

⁴The Altus Group CRE Innovation Report: Harnessing the Power of Data in Commercial Real Estate



Implementing Data-Driven Decision Making

At the center of implementing a data-driven operations performance system is the goal to utilize real-time, actionable data to manage buildings at the highest level of productivity and efficiency possible, thus reducing costs and maximizing revenue.

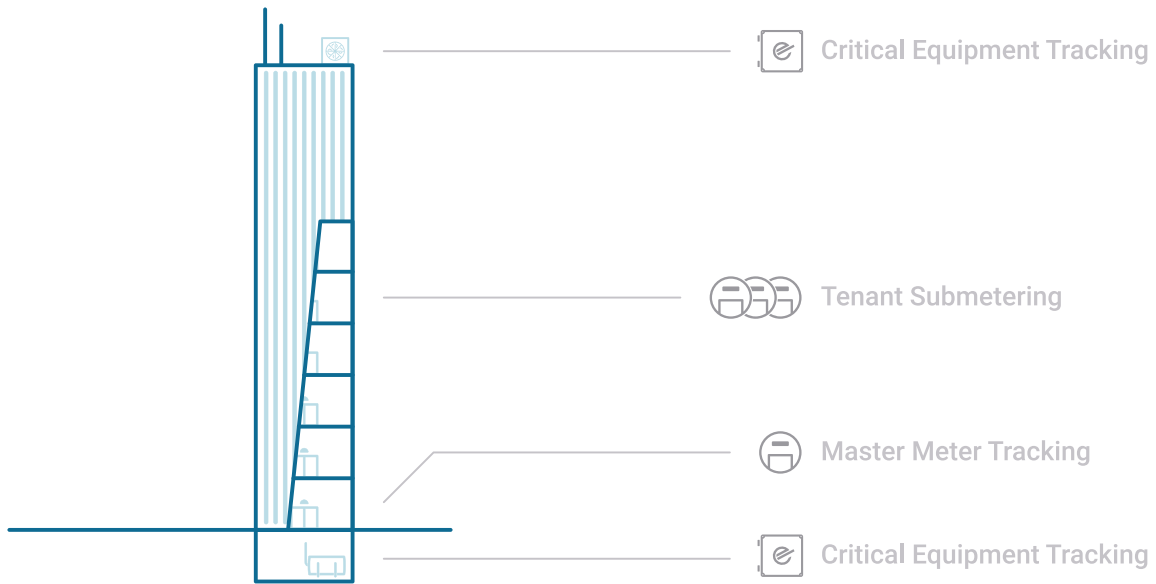
When data is not accurate, as with utility submetering for example, there is risk that the cost outlays for electricity or water consumption are not being fully recovered. Worse yet, even though many property managers understand this risk, they have no means of knowing exactly how inaccurate their current process is.

Reducing outside labor costs and redirecting staff time towards value-add activities can substantially cut expenses. Going a step further, the analytics derived from accurate, real-time data (such as from digital submeters instead of 50 year old analog meters) can spot inefficiencies in building operations and further eliminate unnecessary costs.

We have had wireless phones and mobile computers for decades; we have tracked data electronically for years. But it is only now, as IoT technology matures and costs continue to fall, that we can harness the power of data from physical assets.

IoT is not a specific device or technology – it is the concept of embedding connectivity and intelligence into physical assets. It can be thought of as overlaying a network that tracks all building functions without the intervention of humans. In the realm of building performance, a comprehensive solution detects and measure changes in equipment systems, tenant spaces and overall energy consumption to turn objects into data-generating points that can report on their status continuously.

Advances in meters and sensors capable of continuous data collection would be nothing without the infrastructure provided by the internet. Combined, these technologies tie physical objects together, allowing mechanical and electrical systems to be tracked remotely and create opportunities for improved efficiency and profitability.



Overcoming Common Implementation Hurdles

The first step in implementing a data-driven operations performance system is assessing your current data collection process and needs. After that, there are a few common hurdles to overcome to take full advantage of the opportunities provided by IoT technology.

Granular and Building-level Data Collection

The first hurdle to overcome in implementing a robust system is collecting both granular data of individual pieces of equipment and/or tenant spaces as well as data at the building level. While it is not very difficult to collect data for an entire building, it is not so simple to do so for individual equipment systems. From boilers in the basement, to exhaust fans on the roof and lighting on each floor, it is simply not realistic to manually track or even attach sensors to each of the hundreds, or sometimes thousands, of inaccessible end points in a building, not to mention within tenant areas.

At Enertiv, the solution has been to develop an IoT device, the EnertivTwo, which enables us to track equipment performance data in real time. Each device can track up to 42 pieces of equipment and is compatible with a variety of sensors to maximize flexibility.

Using this device allows us to connect to main feeds to track total building consumption, distribution panels to track critical equipment systems and individual subpanels to track tenant consumption and smaller end points.

This level of granularity is impossible with manual readings and greatly increases the visibility into true building performance. Moreover, using power meters allows for readings to be taken every second, which enables a deep insights into performance instead of periodic snapshots.

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Cloud Connectivity for Data Streams

Granular data is important, but for those without a high-end BMS system, quality data is only useful if it can be instantly transmitted outside the building and continuously analyzed. The second hurdle in implementing a robust system is guaranteeing reliable connection to the cloud.

To ensure reliability, Enertiv's meters both store data locally and upload the encrypted data to the cloud in real time. Usually, this connection is to a dedicated cellular network, which also eliminates the need to wait on IT departments for access to the internal network.

There are several advantages to uploading data to the cloud in real time.

First, this eliminates the issues with version control that arise when different individuals make changes to the same set of data, as often happens in the hand-off between data collection, accounting and property management.

Second, when data is stored in the cloud, it becomes accessible from anywhere in the world. While this sounds obvious and trivial, a lot of CRE processes are still performed with pen and paper, meaning that accessing current or historical data requires physically looking through reports to find it.

Lastly, cloud connectivity is essential to overcome the next hurdle — connecting disparate data streams and layering analytics to provide performance reports.



Connecting Disparate Data Streams

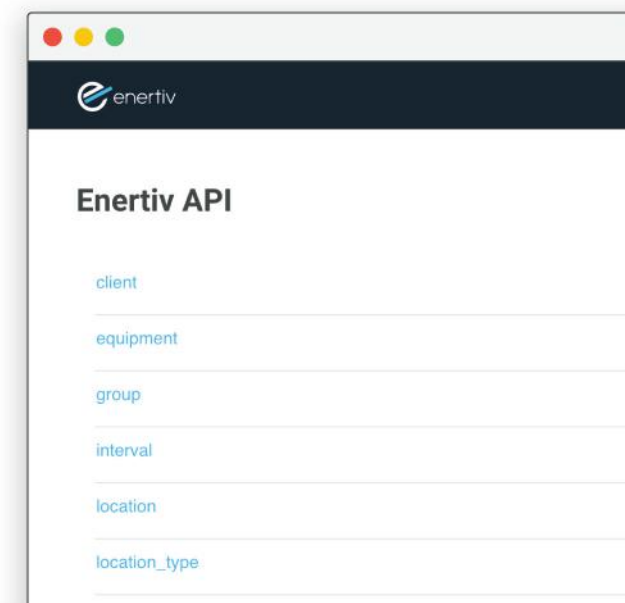
Real-time, cloud-accessible data is a big step forward. But it does not address the issue of data silos. To solve this issue, it is crucial that different systems can “talk” to each other and share data.

At Enertiv, sharing data is handled with an Application Programming Interface (API). Although it may sound complicated, it is a very common protocol for data sharing and enables automatic combinations of data across various systems.

APIs allow for disparate data streams to pull relevant data and reports together to discover insights that would have previously been impossible. APIs also provides additional inputs, such as weather data, for improved predictive analytics for operations and maintenance.

While many vendors continue to sell closed systems that are not able to share information, customers are demanding greater collaboration across vendors, and the market is responding.

An example of a powerful connection is an [operations performance system](#), like Enertiv, tying real-time equipment fault detection data into an existing maintenance ticketing system. Equipment performance tracking and maintenance staff management do not have to continue to be separate, siloed data streams. Instead, by connecting the two, managers can gain a better understanding of where they need to deploy staff much more effectively.





Cost Effectiveness & Return on Investment

With the value of Big Data and the IoT demonstrated at scale, the next question inevitably points to the cost of the upgrade and the expected return on investment.

In the world of building management, most owners and operators are most familiar with complex building management systems (BMS) that only a few engineers have the technical capabilities to operate and require a significant cost outlay. However, most IoT tracking devices are more cost effective than initially assumed. For example, the EnertivTwo costs less per equipment monitored than any other advanced meter on the market, which keeps installation costs to a minimum while still being able to track orders of magnitude more endpoints than previously possible.

Another cost to consider is that of disrupting normal business operations during the installation process. A full power shutdown or major infrastructure changes are unacceptable in most CRE properties.

The EnertivTwo was designed to avoid these issues. Installation of a device module takes about an hour and does not require rewiring or power shutdowns. It is also powered directly from the electrical panel so that no additional infrastructure is necessary.

The industry has cause to be bullish. Even though each use-case is different, the efficiencies gained from automating data collection and enabling data-driven insights generally pay for the installation in around one to two years.

Conclusion

Building operators in various CRE sectors are investing more to gain transparency into their operations. Using IoT technology to monitor the performance of equipment, software to automatically bill submetered tenants and APIs to combine data streams for comprehensive performance reporting, real estate is becoming smarter and better operated than ever before.

Over time, the CRE industry will begin to adopt IoT technology faster and more aggressively. However, in the short term, those that embrace data-driven decision making will have a clear advantage over the competition.