



How sustainability technologies help make facilities work better

IBM Global Real Estate is using IBM Sustainability Software to embed insights into daily operating decisions for more sustainable facilities management

by Dave Fawcett

8-minute read

When IBM Global Real Estate (GRE) won the Sheila Sheridan International Facilities Management Award (IFMA)¹ and the Institute of Directors Golden Peacock Award² for its sustainability-driven initiatives in September 2022—just months after gaining a Gold Accreditation as a 2022 Green Lease Leader³—they were additional milestones in IBM’s long record of environmentally responsible behavior. In a broader sense, these awards showed how IBM as a company has stayed true to the values its then-CEO Thomas J. Watson Jr. embedded in IBM’s DNA nearly 60 years ago, “to be at the forefront of those companies which are working to make our world a better place.”

With over 50 million square feet of space under management, across some 800 locations in 100 countries, IBM understands responsible real estate management can reduce our environmental impact.

IBM is continuing its more than five-decades of commitment and programs on responsible environmental management, from reducing its greenhouse gas (GHG) emissions to recycling nonhazardous waste, to tracking its performance and reporting results in a credible and authentic way. Many of these programs intersect IBM’s real estate operations and delivering desired performance consistently is not without challenges given the diversity of our facilities portfolio. Spread across more than 100 countries, this portfolio includes offices, research labs, manufacturing and distribution sites, and data centers—some located in freehold campuses, others in multi-tenant environments.

Committed to achieving continual improvement in its operations

¹ [Sheila Sheridan International Facilities Management Award \(IFMA\)](#) (link resides outside of ibm.com)

² [Institute of Directors Golden Peacock Award](#) (link resides outside of ibm.com)

³ [Gold Accreditation as a 2022 Green Lease Leader](#) (link resides outside of ibm.com)

efficiency and environmental performance, IBM Global Real Estate is executing a far-reaching transformation of many facets of IBM's real estate and asset management practices, enabled by a broad base of IBM technology. Global Real Estate is using technology to track and report operations metrics in a timely and accurate manner, and using the insights it generates to help informed decision-making that makes both business and environmental sense.

Moreover, IBM Global Real Estate sees the benefits of sharing its own transformation and learning with current and future clients as they pursue their sustainability goals. Clients are looking for mature, real-world solutions that can shorten their path to more sustainable operations and processes, while helping to improve their business efficiency and performance. In that sense, IBM—in using its own technology—is “client zero,” and it's eager to tell the story.

Acting on values is something Jane Muir-Sands knows well. When she joined IBM as Vice President Global Real Estate and Operations in 2020, making a difference was top of mind. “I see my personal and professional purpose as creating a more sustainable future for my children



and their children beyond,” says Muir-Sands. “I see IBM as a unique company in the sustainability space, where one can be a genuine catalyst to solving a profound problem, and to helping the world work better. I am very proud to work for IBM.”

The broad outlines of IBM Global Real Estate’s most recent energy-related initiatives began to take shape within days of her arrival, first in a meeting with IBM’s General Manager of Sustainability Software, Dr. Kareem Yusuf. To Muir-Sands, the key takeaway of these discussions was the opportunity to extend the capabilities of GRE’s integral IT platforms: the **IBM® TRIRIGA®** solution for facilities management and the **IBM Maximo®** solution for asset management. “The clear consensus was the need to make users of the IT tools more aware of the impacts of their decisions on sustainability and the environment,” she explains. “And just as importantly, to embed them into the fabric of our day-to-day real estate, facilities and asset management decisions.”

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Jane Muir-Sands, Vice President Global Real Estate and Operations, IBM

Reduced energy reporting
software costs by

30%

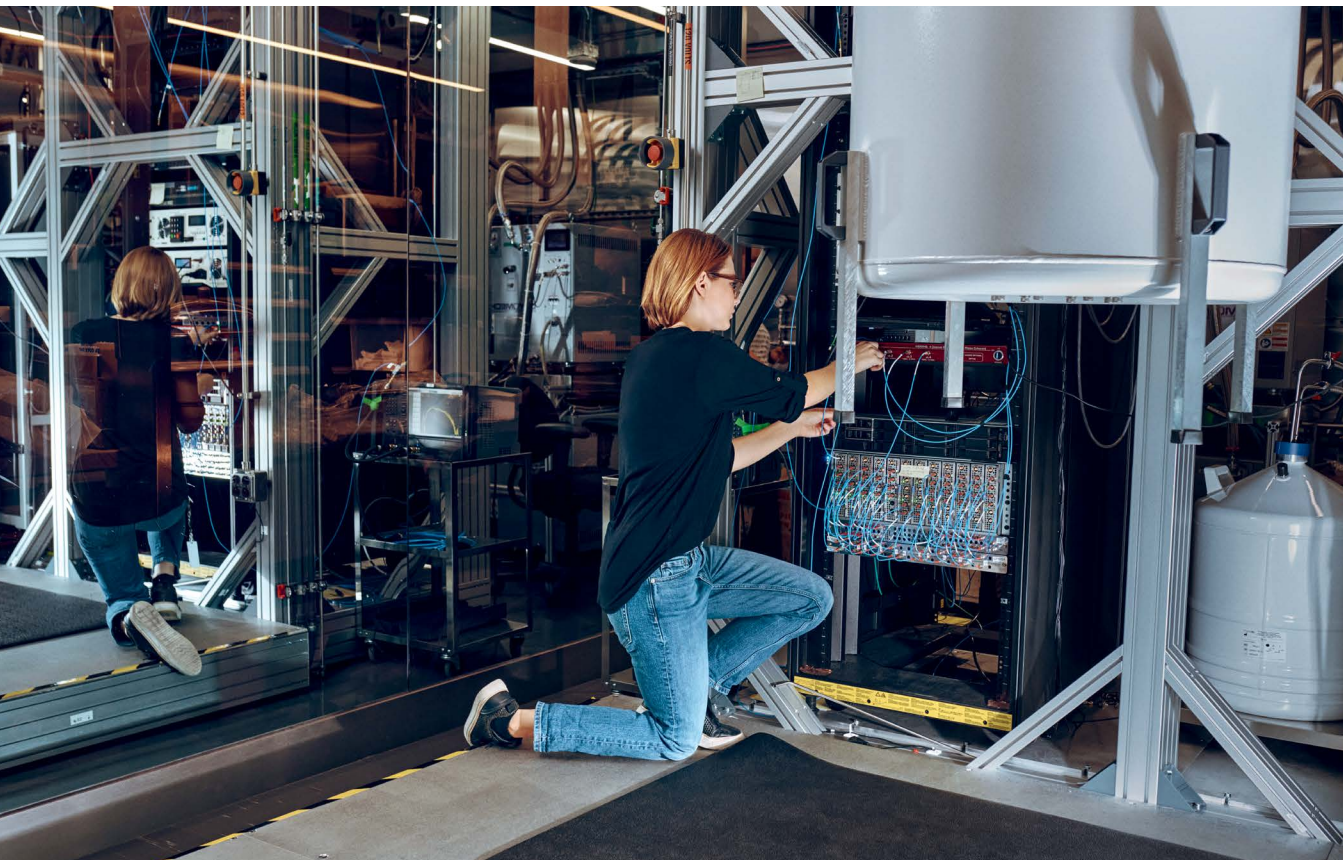
by replacing multiple tools with a single,
automated platform

Tracks operations
data across

800

locations in 100 countries

Innovation creates new pathways to facilities optimization



Forty percent⁴. That's roughly the share of annual carbon dioxide emissions estimated to come from buildings globally, and a reason IBM GRE plays a key role toward delivering against the company's environmental goals. At a high level, GRE's mission is to provide the right mix of buildings and facilities that enable the best and most productive experience for IBM employees around the world, whether they work in offices, manufacturing sites, data centers or other kinds of environments. It's about managing space.

For GRE, executing on this mission involves a staggering number of decisions, ranging from room configurations and leasing terms, to capital project planning and facilities maintenance. To help optimize these decisions, GRE is tapping into a rapidly growing base of IoT sensors—from wall-mounted to equipment-embedded—to capture vast amounts of real-time data. Emblematic of innovation in this area is the application of sophisticated AI models to essentially “squeeze” more insights from the existing sensors. For instance, those

occupancy sensors on conference room walls? Once used to turn lights off and on, they're now reporting real-time room availability and will eventually help GRE predict space requirements in different facilities.

Taking stock, the GRE sustainability solutions team recognized that for all the numerous upsides of IBM's TRIRIGA and Maximo platforms for GRE's operations, even further benefits could be achieved by standardizing, integrating and centralizing them. This was especially true in the area of reporting operations data that feeds into metrics that the company uses to track progress against its goals and support the company's environmental disclosures. Together, these changes meant not only more detailed reporting requirements, but also more frequent.

Determined to meet these challenges, the GRE team began working with process experts from [IBM Consulting™](#) to create the outlines of a plan. In their ideal scenario, operations data would be extracted and captured automatically and in real time from TRIRIGA and Maximo, where it was generated, and stored in an enterprise-wide repository. But the team soon realized that the practical barriers to getting there were significant. For one, GRE had been relying on a large number of disparate tools—some from third parties—to extract, process and report operations data. On top of that, customizations that had been created in their TRIRIGA and Maximo implementations made version upgrades prohibitively difficult, thereby making the automation of reporting vastly more challenging.

The even more fundamental outgrowth of GRE's decentralized, siloed deployments was inconsistencies in the data itself. At the root of asset and facilities management systems are naming conventions known as data hierarchies, which define both locations—say a conference room on a certain floor of a certain building—and asset classes. Using reporting of energy data as an example, notes Muir-Sands, inconsistent data hierarchies across different parts of the business can make consolidated reporting far more complicated and time consuming. “We learned that when it comes to timely and accurate reporting,” she explains, “having a consistent base of data—a ‘single source of truth’ underlying all facilities and assets—can really simplify it and speed it up.”

⁴ Source: [architecture2030.org](https://www.architecture2030.org) (link resides outside of ibm.com)

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Setting the stage for automated reporting

That recognition led to two major developments that helped put this foundation in place. The first, says Sal Rosato, Technology Transformation Manager and a key member of the GRE sustainability team, was a close collaboration with the IBM Chief Data Office. “As part of our transformation, we worked with the office to build a new data governance program that’s aligned with IBM’s enterprise data standards and emphasizes data ownership,” Rosato explains. “For any real estate data elements to get into our data dictionary, domain data stewards need to define it and sign off on it, and it can’t be changed without all data stewards reviewing and approving it.”

The second big step was GRE’s decision to use Envizi (now an IBM company) energy and sustainability software to help consolidate data that supports sustainability reporting, including key elements from TRIRIGA and Maximo, into a single, auditable system of record.



Having evaluated some 35 sustainability reporting solutions on the market, Muir-Sands and her team selected the Envizi solution on the basis of its automation capabilities, its ease of integration with core systems like TRIRIGA and Maximo, and its ability to deliver valuable dashboard-based insights. “In terms of collecting, consolidating and reporting data from our systems,” says Muir-Sands, “we saw its combination of flexibility and automation as a strong fit.” IBM’s subsequent decision to acquire the Australia-based company—whose offering is now known as the [IBM Envizi ESG Suite](#)—is a strong vote of confidence in its capabilities.

While measuring and reporting operations impacts is a huge part of GRE’s process transformation, the other side of the story—the way GRE is embedding insights into everyday operating decisions—is equally compelling. There’s a well-known quote commonly associated with the management guru Peter Drucker: “If you

can’t measure it, you can’t manage it.” In the context of operations impact on the environment, the “it” includes energy and water consumption, GHG emissions and waste generation. The key to getting from measuring to managing is process design.

To that end, the GRE team worked with IBM Consulting specialists, facilities management providers and the IBM Sustainability Software Team in a series of immersive Design Thinking workshops. Through these workshops more than 450 use cases focused on facilities management, portfolio optimization, workplace experience and sustainability were identified. Using the [IBM Blueworks Live](#) solution, the teams redesigned the GRE business processes to align them with TRIRIGA, Maximo and Envizi’s out-of-the-box capabilities.

As CTO for Asset Management Solutions—with technical responsibility for the Maximo and TRIRIGA platforms—GRE team member Eric Libow played a pivotal role in the effort. He sees the practical,

value-based approach of the workshops as a kind of template for IBM clients to work toward their own sustainability goals. “Our clients aren’t looking to buy ‘interesting’ technology, they’re looking to get real results,” Libow explains. “What we’re doing provides them with a realistic framework—using real data—for showing the payoff of their sustainability-driven investments.”

GRE tracks some 188,000 assets globally, so technology enabled use cases including those intersecting sustainability are numerous and diverse. But few illustrate the potential for sustainability-focused optimization more richly than data centers, whose power consumption (for computing and cooling) make them an especially strong opportunity. Take maintenance: using Maximo Monitor, GRE will be analyzing sensor data to move from time-based scheduling—think changing a coolant pump belt every six months—to condition-based, triggered by actual run time, excessive heat or vibration.

Data transparency brings sustainability into decision-making

As Libow points out, the sustainability benefits of condition-based maintenance go two ways. “By enabling technicians to skip unnecessary repairs, it avoids the incidental carbon impacts they cause, like travel and parts shipping,” he explains. “Alternatively, by detecting and fixing problems before scheduled maintenance would find them—anything from an ungreased bearing to a refrigerant leak—it eliminates the extra energy consumption, waste and emissions that invisibly failing parts would cause. That’s a great example of how efficiency and sustainability are interwoven.”

Here’s another. When it comes to sustainability-driven capital planning, prioritization—knowing which investments will drive the biggest impact—is essential. Leveraging its



common data hierarchies, IBM is working to integrate system health assessments from Maximo directly into TRIRIGA's built-in capital planning tool. It means that planners will be able to use real-time, dashboard-based insights to allocate scarce funding to the right investments. And it exemplifies the ability to “manage on the glass,” from strategic dashboards and analytical reports instead of from spreadsheets, which is at the core of GRE's vision for facilities and asset management decision-making.

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Eric Libow, Distinguished Engineer, CTO Asset
Management Solutions - IBM Sustainability Software, IBM

A more agile pursuit of sustainability goals

With its recent investments, IBM is also improving its reporting capabilities. On the strength of automation and centralized data, IBM internal energy and environmental reporting—whose months-long compilation enabled only annual releases—will soon be available quarterly, and ultimately close to real time. On top of that, the fact that IBM Envizi ESG Suite replaces the many licensed third-party tools used in those efforts has enabled a roughly 30% reduction in energy reporting software costs.

GRE expects condition-based facilities and maintenance management practices to lead to reductions in not only emissions and waste, but also operating costs. One reason, says Libow, is through sharing these sustainability-optimized practices—along with the insights and data behind it—with GRE’s network of trusted maintenance partners around the world. “The broader the scale of our data-driven practices, the more agility we gain toward hitting our greenhouse gas emissions reduction goals.”

“We are committed to continually improving our operational and environmental performance and will continue to leverage technology as a tool to help in achieving that,” says Brody Wilson, Global Energy and Environmental Manager in GRE. “I am also excited about sharing our experiences from being ‘client zero’ with clients and like the rest of our team, I am proud to have played a role in this project.”



About IBM Global Real Estate

The GRE team oversees approximately 800 office locations that cover 50 million square feet across 100 countries. With such a large, global footprint, the GRE group integrates new AI capabilities from the IBM Sustainability Software portfolio to help overcome its challenge of creating a portfolio that addresses the needs of employees while helping to control costs and deliver the best value to the business.

Solution components

- IBM® Blueworks Live
- IBM Consulting™
- IBM Envizi ESG Suite
- IBM Maximo® Application Suite
- IBM TRIRIGA® Application Suite

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