Data Centers Promise Big Steps Toward Smaller Carbon Footprint

By: Craig McKesson

If I asked ten people what "technological evolution" means, I would undoubtedly get ten different answers. Our currently evolving technology infrastructure is a dynamic process that is simultaneously both a theory and a practice. Elements of this evolution run the gamut from the physical to the virtual, and at every touchpoint in between. Evolution, by its definition, is not a siloed concept, but rather one that requires comprehensive and integrative strategies that incorporate both current technological advancements and those that we know are coming in the not-so-distant future.

Beyond the bespoke components of our technology evolution that routinely grab headlines—such as 5G wireless, autonomous vehicles, AI/VR, quantum computing hardware, predictive software, and advances in "smart" technology—increasing social responsibility factors are also evolving exponentially in tandem. In the physical center of all of this are the data centers that provide the vital digital infrastructure that constructs, houses, enables, safeguards, and supports massive amounts of data and connectivity. In 2021, digital infrastructure included seven million data centers worldwide equating to 2.4 percent of global energy consumption. With ever-increasing technological growth and demand, there is an urgency for the data center and digital infrastructure communities to come together and evolve as an environmentally and socially responsible industry.

The conversation around environmental, social, and governance (ESG) started with the overarching sustainability calls to action created by the United Nations Sustainable Development Goals (SDG). The 2021 United Nations Climate Change Conference emphasized the need for countries to come together to achieve a 45 percent global reduction in carbon emissions by 2030

and to reach [Net Zero](#) by 2050. But are we on track? As a society, the short answer is no. As a digital infrastructure industry, the not-so-short answer is we are working toward getting there, but much more needs to be done.

For our part in being transparent and action-oriented sustainability stewards, the recent [iMasons Climate Accord](#) was formed as a cooperative of digital infrastructure companies committed to reducing carbon in materials, products, and power. The goal is to reach Net Zero, a state where the amount of carbon entering the atmosphere is balanced by the amount of carbon taken out of the atmosphere. Along with many of the world's largest technology companies, including hyperscalers, service providers, software companies and financial firms, T5 Data Centers was a founding member of the iMasons Climate Accord and has been a leader in the data center infrastructure and sustainability movement since 2008.

What does it mean to be green?

Data centers can incorporate actionable sustainability strategies into every operational facet from initial design through procurement, construction, and ongoing operations. Examples include constructing modular, portable power pods that are energy efficient and do not take up valuable interior real estate. Because they can be placed outside of the main structure, they can also be efficiently cooled and thus have a measurable impact on reducing carbon emissions and preserving natural resources. Data centers can implement natural cooling techniques, such as closed loop air-cooled chillers within new builds. These air-cooled chillers reduce water consumption by upwards of 1500 gallons a day for an average size 20 MW data center. The use of solar and other renewable energy solutions is certainly not new but is also a key component in offsetting ongoing data center power consumption in the drive toward Net Zero.

Expert facility management practices can also have a green impact when considering day-to-day operations. Human footprints cause waste. To address these realities, data center companies must take steps. For example, we have implemented green housekeeping practices ensuring that the trash in our facilities is only emptied when it is full or necessary. Battery recycling is a regular practice, and many of our facilities have replaced outdated lighting systems with new, more efficient LED lighting.

We also foster an environment for our employees that supports biking to work and supplying electric vehicle charging stations at our facilities. Our monthly sustainability newsletter, Forever Green, highlights innovative stories and inspiring best practices of enterprises and individuals, as well as industry-wide trends and technological advances leading to truly greener data.

We also source partners who embody sustainable and green practices. Sourcing products from LEED-certified vendors is another commitment that data centers can make as they evolve their ESG business practices.

The importance of data-driven actionable insights

The first step is to commit to sustainable practices and then prioritize efforts. But the importance of accurate measurement is the critical next step, as the data will drive organizational leaders to

work together as a whole rather than act in silos. As ESG initiatives evolve, so does the evolution of applications crucial to understanding the impact of green initiatives. To continue to innovate and effect impactful change, data needs to be collected and analyzed, goals established and refined, and strategies executed based on the insights the data provides.

The problem is that no universal standard in measuring carbon emissions exists. Vague and varied standards have clouded accuracy in monitoring, tracking, and reporting actual sources and amounts of carbon emissions. The GHG Protocol is a corporate accounting standard that guides companies and other organizations in preparing a corporate-level greenhouse gas emissions inventory using standardized approaches and principles. But while these protocols provide for best practices, the data center industry still needs an end-to-end standard for tracking and reporting carbon emissions throughout a facility's lifecycle, from construction to operation, one that the iMasons Climate Accord aims to achieve.

Think of the data as a "nutrition label" for carbon emissions and energy usage. Once our baselines have been established, we will then be able to make informed decisions as to the positive or negative impact of different initiatives undertaken at every level—thus bringing credence to the mantra "if you can measure it, you can improve it."

Why sustainability makes good business sense

It is becoming increasingly apparent when companies engage in "greenwashing," or corporate posturing about being sustainable and green that is used with the intent to improve public perception but with little to no documented outputs to show for the claims. These practices contribute to customer skepticism and can diminish the reputation and value proposition of a brand. Greenwashing also does little to nothing to solve the problem at hand, which necessitates action, not jargon.

But that is beginning to change as corporate accountability and sustainability objectives are rising to the surface. Mounting pressure from customers to understand and disclose their carbon footprint has created a significant business opportunity. Companies identifying and executing their own green initiatives want to do business with like kind. The shift toward sustainable practices and partnerships has also impacted the investment community. Sustainable investing can include investing in sustainable products and services or the process of integrating sustainability-related data or insights into existing investment processes. Both aim to bring investors financial returns, align with investors' ethical goals, and positively impact the world. There are now hosts of impact funds that seek to support measurable social or environmental outcomes, with the intention to generate profits for investors.

In the book *Greener Data*, Jennifer von Bismarck, founding partner and CEO of Galway Sustainable Capital, highlights how we got here in the context of the industrial economy versus the information economy. "The industrial economy, with its focus on utilizing natural resources and burning fossil fuels, created many of the environmental and social ills we are now trying to undo. The information economy holds the promises of reducing environmental impacts in the world and generating social benefits," says von Bismarck. She recognizes, however, that this responsibility comes at a price. "As environmentally-minded participants in the information

economy, we must take our data footprint into account." Galway is just one company that specializes in investing in businesses from a total ecosystem perspective and focuses on investments that save energy, reduce greenhouse gas emissions and more.

What is next for our industry

Initiatives like the iMasons Climate Accord and organizations like the [Network for Business Sustainability](#) aim to educate, guide, and standardize protocols on how we get to Net Zero. Digital infrastructure companies can take an active role in shaping universal labeling standards, as well as mechanisms that ensure transparent and accurate carbon emission measurements.

As global digital transformation and network evolution continue to accelerate, the need for standardized and accurate sustainability data will only continue to grow. Getting to Net Zero as an industry requires more than just a commitment to ESG. People and partnerships must be the pioneering forces in keeping up the momentum and staying the course.

Customer literacy and adoption of ESG principles have begun to reshape the landscape of digital infrastructure. Investment opportunities in the ESG space continue to grow and represent a shift in industry-specific siloed approaches to investing.

Yes, sharing data and ensuring that ESG values are a fundamental part of a company's operations are a good place to start, but true evolution comes from not just "talking the talk," but also "walking the walk." Besides making good business sense, evolving in a sustainable way toward reducing our collective carbon footprint just feels good.