

ESG SHOWCASE

Why IT Must Prioritize Sustainability

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ABSTRACT: Poor utilization of resources doesn't just cost money. It slows down the time it takes for IT to get new resources into the building to support the next great digital business opportunity. But how do you prioritize sustainability in terms of management and utilization of resources? If you architect for flexibility, especially in regard to high-value components that are now often in short supply, then you'll be in a better spot.

Introduction

Sustainability has been in the news for a while. It is not a short-term phenomenon. But considering the growing climate crisis and current worldwide supply-chain problem—especially the chip shortages that are directly affecting companies' revenue streams—it is imperative right now to take a fresh look at promoting sustainability. Risk due to changing climate is real for IT environments, consider:

- The number of global data centers increased from 500,000 in 2012 to more than 8 million today.¹
- In addition, by 2025, the IT industry could use 20 percent of all electricity produced and emit up to 5.5 percent of the world's carbon emissions.²
- The typical data center uses about 3-5 million gallons of water per day -- the same amount as a city of 30,000-50,000 people.³

Faced with pressures from government organizations, investors, and customers, along with internal leadership, an increasing number of businesses are working to disclose their sustainability efforts. According to the WSJ.com, the [Task Force on Climate-Related Financial Disclosures](#) found that 32% of the roughly 1,650 companies it reviewed met its guidelines on climate disclosure. That percentage was up from 19% in 2018.⁴ Additionally, nearly nine out of ten respondents said their company “understands the financial risk of climate change, while the same proportion said they had already seen at least one physical asset such as an office or warehouse affected by extreme weather in the past five years. However, only about half said they had factored climate change into their risk management.”

That relatively low percentage could become problematic: The U.S. federal government has been ramping up enforcement of its requirement for companies to be able to support their sustainability metrics. But what really is sustainable development? According to [Our Common Future](#) (also known as the Brundtland Report), sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their

¹ Source: Data Center Knowledge, [The Data Center Dilemma: Is Our Data Destroying the Environment?](#), April 2019

² Source: World Economic Forum, [By 2025 the IT industry could use 20% of all electricity produced. How can we make it sustainable?](#), June 2021

³ Source: NBC News, [Drought-stricken communities push back against data centers](#), June 2021

⁴ Source: The Wall Street Journal, [Companies Grapple With Disclosing Climate-Change Risks](#), October 2021.

own needs. So clearly, a larger societal-level drive for sustainability exists. But practicing sustainable development also brings benefits in terms of reducing business risk/exposure.

In this context, sticking with traditional IT priorities and practices is unfortunately not going to be enough going forward. IT organizations sit at the center of today's critical path for digital-based revenue generation. They are constantly being challenged to accelerate "time to value." And that's under normal circumstances. What happens when an unpredictable, large-impact "black swan event" occurs? Think about the damage that the unexpected COVID lockdown suddenly brought to so many industries and the unforeseen problems that supply-chain jams are causing now.

It's time to embrace sustainability in IT design.

IT's Evolving Role in Business

For a long time, it was fine for IT to simply embrace the idea of sustainability as a concept. But now, IT must prioritize it as an actual top-tier priority. IT's role has evolved. Data and IT services are now integral to realizing revenue opportunities: 59% of IT organizations surveyed by ESG identified data as essentially being their business; in other words, at least some portion of revenue is derived from information-based products and services.⁵

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As a result, IT is being forced to accelerate data-related operations. ESG found that 91% of the IT organizations it surveyed have to move faster to deploy applications, infrastructure, and services than they did three years ago, with 41% saying that they now need to operate at least 50% faster.⁶ Upholding this new status quo is a challenge, however, as IT complexity also continues to increase as infrastructure and application environments scale and become more diverse and distributed. Seventy-five percent of surveyed IT organizations told ESG they believe IT is now more complex than it was just two years ago.⁷

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When pressure to accelerate operations combines with mounting levels of IT complexity, it's tempting to prioritize speed over efficiency, and choose the quickest solution over the optimal one. Adhering to this approach is often referred to as creating technical debt. A technical debt is a cost that arises from choosing an easy but

limited solution rather than a superior approach that may take more time to implement. For an IT organization, a technical debt can take the form of excessively high power/cooling costs and unacceptable levels of hardware sprawl.

Rethinking Operational and Infrastructure Efficiency

The traditional argument against making short-term, suboptimal design decisions is that the overall cost of the environment will balloon over time as efficiency declines. While that is most certainly the case, given recent supply chain and sustainability considerations, there are additional risks and costs that IT decision makers must consider.

Poor utilization of resources by IT keeps those resources out of the hands of developers and line-of-business teams. Those teams must then wait for delivery of new resources before they can begin work on their digital initiatives. The result is slower digital product-development times and longer timeframes for digital initiatives and services to roll out. When critical components become scarce due to global macroeconomic factors, delays become even more pronounced.

⁵ Source: ESG Master Survey Results, [2021 Data Infrastructure Trends](#), September 2021.

⁶ Ibid.

⁷ Source: ESG Research Report, [2021 Technology Spending Intentions Survey](#), January 2021.

In other words, poor utilization of resources doesn't just cost money. Poor utilization also slows down the time it takes to get new resources into the building to support the next great digital business opportunity. Conversely, improving utilization frees up existing infrastructure resources quickly for business teams that need to use them.

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Prioritizing Sustainability

Architecting an IT environment to achieve a high level of sustainability in terms of infrastructure management and usage requires putting an emphasis on:

- Providing the highest level of flexibility to shift resources as needs change.
- Architecting the environment to provide high degrees of hardware vendor choice.
- Adopting technologies and practices that accelerate and optimize the integration of new gear.
- Maximizing the lifespan of existing assets and thus reducing disposal rates.

ESG has come up with a few rules to help organizations prioritize sustainability in their IT environments:

- Pick partners that offer hardware vendor neutrality and the flexibility to select the right vendor and mix and match multiple hardware vendors.
- Architect for flexibility to accommodate changing application demands while ensuring high levels of utilization, especially in regard to high-value components such as graphics processing units (GPUs) that are in short supply. More resources are expected to become harder to find, given all the reports suggesting supply chains will remain unpredictable for some time.
- Leverage architectures that can integrate multiple generations of hardware assets, increase their longevity, reduce disposal rates, and extend the value of existing hardware.

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The key to making all that happen is to incorporate a software-defined abstraction layer. It will help an organization become more “change-ready.” After all, change is the reality for all of us. And it is not a short-term phenomenon.

A counterargument would assert that it is not the end of the world to oversubscribe when buying infrastructure resources. If existing

practices have worked so far, why change? Overspending, however, adds up over time, notably increases IT budgets, and slows down IT initiatives. It also places organizations at risk of being overcommitted to current generations of technology and thus unable to quickly adopt newer innovations as they emerge.

Liquid and Sustainable Development

[Liquid](#) is a company that offers a flexible, software-defined infrastructure designed to optimize the access and usage of high-value IT components. Liquid has worked to create what it called “composable disaggregated infrastructure” that frees IT

users from vendor lock-in and traditional purchasing cycles, enabling them to build a living data center architecture that changes to meet their business needs and scales as required. A composable infrastructure provides significant improvements to performance, architectural optimization, hardware utilization issues, and, importantly, footprint efficiency—basically eliminating the urge to overprovision.

IT organizations using solutions from Liquid accelerate their time to value. Efficiency at the software level enables IT to do more with less in terms of both equipment and application performance. For example, via Liquid Matrix, every resource is returned to its respective pool when it is no longer being used, making it instantly available for the next workload or group that needs it.

The Bigger Truth

Failing to take sustainability seriously and incurring technical debt creates real risk, especially for a digital business. It's time for IT thought leaders to start actively seeking out ways to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The suppliers you partner with will have a direct bearing on how much risk you eliminate from your IT architecture and your overall business. Choosing a provider that is vendor neutral is more important than ever in relationship to sustainability. The day has come to architect for sustainability and to be “change-ready.”

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