White Paper

IT's Role in Driving Sustainability Progress

Sponsored by: HPE

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EXECUTIVE SUMMARY

Being a more socially and environmentally responsible organization is key to building trust with customers, partners, and employees. Building a sense of purpose and common goal can galvanize a workforce, and commitment to environmental causes can bridge partnerships with customers that share these goals. Organizations that have made progress on environmental sustainability goals to reduce their company's carbon footprint are also making progress on broader business objectives of improving profitability and operational efficiency.

In April 2020, IDC conducted a survey of companies that were committed to reducing their carbon impact. Out of an initial base of more than 1,000 IT decision makers, 35% worked for companies that had a formal sustainability policy in place. The study focused on these companies, located in four countries, to better understand their IT sustainability strategies and progress. The study revealed a strong synergy between IT sustainability initiatives and better business outcomes. One of the key findings in this study was the central role of the IT organization in driving corporate sustainability initiatives. Successful organizations are using IT not only to transform digital business but also to improve the operational efficiency of the business. Their progress on becoming a more environmentally responsible and sustainable company is also reducing operating costs. Based on the results of the study, IDC believes that IT-driven initiatives to reduce carbon impact can have a direct and positive impact on company reputation and profitability.

Initiatives to reduce carbon impact can also have a direct and positive impact on company health and profitability.

The alignment and intertwined results between business goals and IT sustainability should drive greater adoption of new technologies and processes to support these initiatives. Building the business case for IT sustainability initiatives becomes easier with metrics that show improved operational efficiency and cost savings. Energy-efficient IT, including the use of software monitoring and management tools, drives the efficient use of resources and reduces overprovisioning, enabling progress toward IT sustainability goals.

Customers, potential employees, and especially investors have become savvier in evaluating progress and discerning meaningful progress from "greenwashing" – or marketing as environmentally friendly but not actually reducing their carbon impact. As organizations are becoming more effective in reducing their carbon footprint, they are adopting technologies and processes that enable them to better measure progress in order to be transparent along the journey.

Although there is widespread desire to reduce carbon impact, the results are mixed when it comes to actual improvement. In the study, IDC noted a strong sentiment that respondents believed their approach to IT sustainability was comprehensive. However, based on the level of inefficiency reported in power usage effectiveness (PUE) ratings, low utilization rates, and incidence of comatose equipment (servers that are running and consuming electricity but not contributing to any workload), there is much work to be done. Organizations that achieve high utilization rates and reduce wasted energy spend are much further ahead on the sustainability journey. The conversation with executive decision makers shifts in this scenario. Instead of asking for budget to fund sustainability initiatives, they show reductions in operational expenses. They have removed the risk and highlighted the rewards of IT sustainability progress. The key to doing this is helping executive leadership make the connection between the efficient use of energy and sustainability progress. IT organizations are in a good position to do this with software and metrics that show the aligned goals of the efficient use of energy and IT resources, reduced waste, and lower operating expenses.

For meaningful progress to be made, leadership support is critical. In countries that are more mature or further along the IT sustainability journey, providing financial incentives for sustainability progress is common. Increasingly, executive pay is tied to the ability to meet IT sustainability goals. The ability to be transparent and measure progress is critical. Because of this, metrics such as reduction in energy consumption (from both energy-efficient IT and cooling), reduction of ewaste, and increase in value return from end-of-use assets are helpful. IDC research underscores that a well-formed IT life-cycle management policy with a repeatable and consistent framework for replacing and renewing IT assets reduces operating costs and improves the agility of IT organizations.

Vertical industrials that are more advanced in the digital transformation journey are also more likely to be committed to an IT sustainability strategy. Manufacturing leads in IT sustainability maturity; more than half of manufacturing organizations already have a formal policy in place.

At most organizations, the executive leadership and IT teams drive IT sustainability strategies. Much progress has been made by increasing the efficiency of the datacenter-critical building infrastructure, including cooling, electrical, and lighting efficiencies. This work has resulted in lower PUE values and a common early focus on IT sustainability efforts. However, the larger opportunity that is often neglected is to take advantage of the significant efficiency opportunities that exist in the IT equipment portfolio. Sustainable IT organizations leverage more efficient technology, eliminate comatose equipment, improve utilization rates, and implement software-based monitoring and management solutions that track power consumption, thermal output, and utilization continuously.

More advanced IT organizations extend their IT sustainability initiatives to support broader organizationwide goals, such as reductions in cost, utility energy consumption, carbon footprint, and waste. Circular economy initiatives that focus on reducing waste and gaining maximum value from resources can be implemented with improved datacenter asset management and life-cycle practices. Gaining organizationwide participation can be challenging until the benefits are understood. The rewards, however, will be recognized in more efficient use of IT staff, lower costs, availability of capital for digital transformation, improved asset utilization, more resiliency, and reduced ewaste.

DATACENTER PRIORITIES AND SUSTAINABILITY PROGRESS

The simple definition of sustainability is "the ability to be maintained at a certain rate or level." As demand for IT and datacenter resources has expanded rapidly to support digital business, datacenters are at the center of conversations around energy use and climate change. The carbon cost of digital business has magnified the importance of running datacenters more efficiently. Providing electricity to run servers and cool the datacenter environment is not only costly but increases the carbon impact of IT as businesses shift to digital platforms. The trajectory of skyrocketing electricity use has been slowed thanks to technologies such as virtualization, but there is much more work to be done to improve IT's operational efficiency and reduce waste.

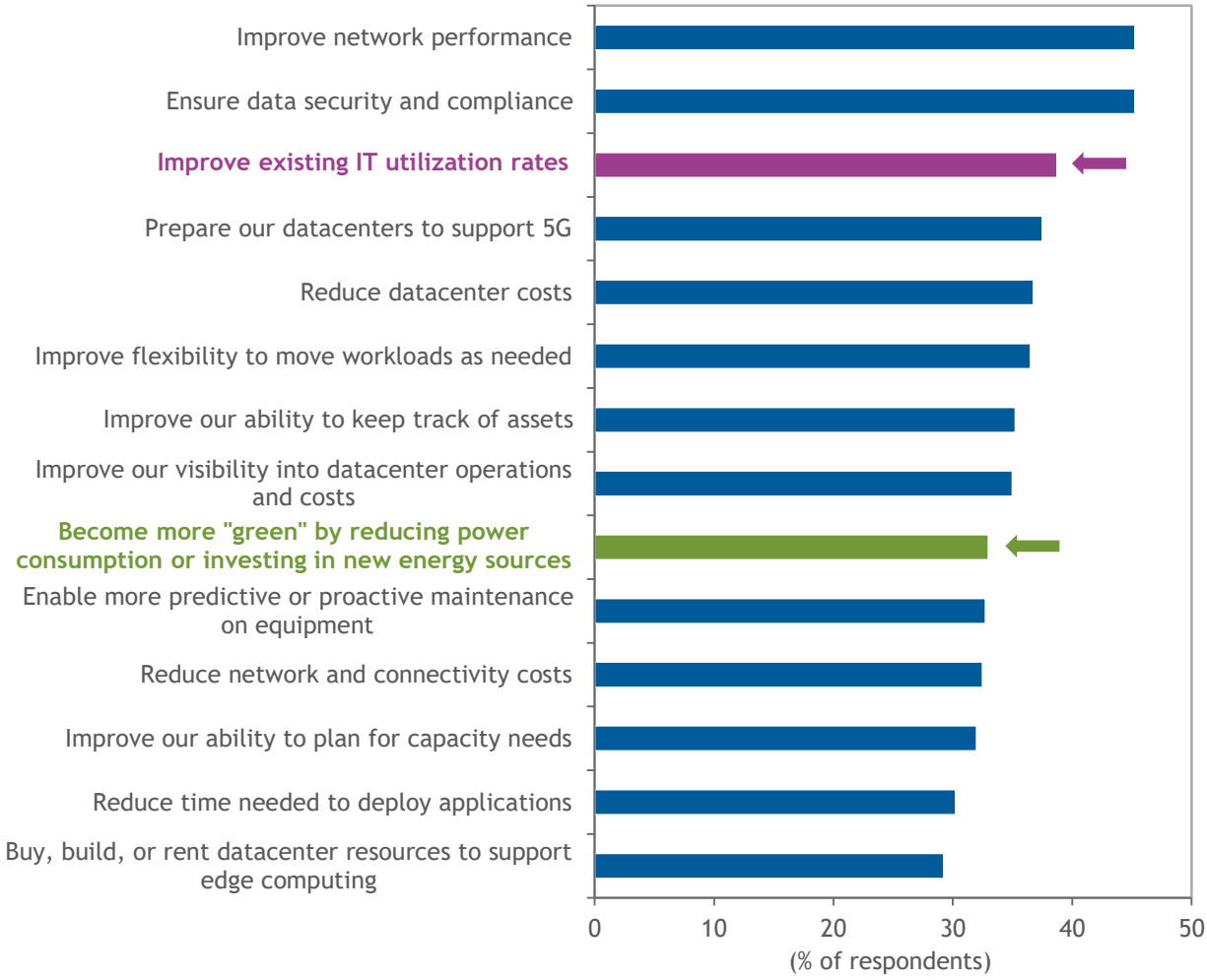
As the ecosystem matures, IDC believes that customers, partners, and employees will be more able to discern real progress from greenwashing and will seek to understand progress based on metrics. For this reason, it is essential to have technology and tools to support processes to measure progress. Without this proof of progress, company reputation will be at risk.

Trust and ability to connect with customers are tightly linked to better business outcomes. But the more immediate and measurable business impact happens when organizations use resources more efficiently. Faced with many important priorities, being more "green" as a standalone initiative slips to the end of the list of priorities (see Figure 1), yet many of the top priorities, such as increasing utilization rates, are key elements of an effective IT efficiency strategy. The impact of the datacenter is recognized as an important factor for reducing carbon footprint. In IDC's 2020 *Datacenter Operational Survey,* 87% of respondents said that their organization includes datacenter facility metrics in corporate sustainability reporting. Of these organizations, almost half cite reduction in energy use, 45% include renewable energy investment, 42% include PUE improvement, and 40% include circular economy metrics in their reporting.

FIGURE 1

Enterprise Datacenter Priorities

Q. Thinking of your company's priorities when it comes to datacenters — what are the top 5 initiatives for 2020 (overall rank)?



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Source: IDC's *U.S. Datacenter Operational Survey,* May 2020

As organizations set and make progress on IT sustainability goals, the IT organization is often leading these initiatives. The IT organization's ability to use technology to improve efficiency is recognized. Just as business is transforming to more data-driven decisions, efficient IT and datacenter resources are those that are also transforming to more data-driven, autonomous control.

Organizations are at different stages on the journey to reduce their carbon footprint. More mature organizations with well-established sustainability programs reported the ability to reduce waste, lower the energy bill, and improve their company profitability. These mature organizations tend to have strong executive support. They are more likely to use technology to improve IT and datacenter infrastructure management, invest in renewable energy sources, and use "smart buildings" to drive progress. If companies can transfer responsibility and accountability for reducing datacenter energy consumption to IT organizations, they will accelerate IT sustainability progress and reduce their carbon impact.

Companies that were more advanced or mature in their approach to IT sustainability were also more likely to partner with other internal organizations such as facilities management and sustainability teams when creating a sustainability strategy.

Organizations that are developing or in earlier stages of maturity often have several different initiatives happening within their organization to improve IT sustainability but are not able to drive companywide change. These organizations have taken the first step of using more energy-efficient equipment and seek partners and suppliers to help drive improvement. This is a positive step but represents just the beginning of the journey to reducing the carbon impact of digital business. A key difference between less mature and more mature organizations is that those at the early stages are focused on spending money to become more efficient by purchasing more efficient equipment. Those in the more advanced stages focus on using their IT equipment most effectively at the highest levels of utilization and with the lowest ancillary resources required, which reduces spend on energy and lowers their operational costs. Their efforts to become more sustainable are also reducing their operational costs. For these more advanced organizations, there is reward, not risk or cost, associated with IT sustainability progress.

For more advanced organizations, there is reward, not risk, associated with IT sustainability progress.

Although more than half of all organizations are using software and technology to improve efficiency, organizations with a more "ad hoc" approach to IT sustainability were more likely to use static tools to keep track of equipment (such as Excel). Those using static tools miss the opportunities that come from monitoring and improvement of power consumption, thermal output, and utilization rates.

This study also revealed significant differences in progress between certain countries. Respondents from the United Kingdom and Germany were more advanced than those in the United States. These results are consistent with Europe's broad focus on and implementation of public policies to conserve natural resources and encourage more efficient datacenters.

OVERCOMING BUSINESS CHALLENGES TO SUSTAINABILITY

Developing consensus for a new program within an organization must have answers to two key objections: funding and leadership. When analyzing these efforts in the United Kingdom, Germany and, the United States, IDC found differences in which teams led sustainability efforts and the incentives used to build consensus to achieve these goals.

Overall, most respondents had both IT and executives involved in leading IT sustainability efforts and all focus on reducing energy use, but the similarities then diverged. The United States lags behind the United Kingdom and Germany in many of the sustainability efforts, such as improving PUE, investments in renewable energy sources, and working with like-minded partners. Understanding the uneven implementation levels of these efforts for the United Kingdom, Germany, and the United States can be explained by the influence of outside forces on sustainability efforts. In the United Kingdom and Germany, governments encourage participation in sustainability efforts and provide incentives like tax savings, ewaste certification, and other rewards for compliance. For organizations in these countries, there is significant attention to companies that comply or excel at meeting the standards, which leads to increased visibility and attracts customers. Germany has generally adapted the approach suggested previously that focuses on broader organizationwide initiatives that start with selecting suppliers and partners that share the same sustainability aspirations to help with these efforts and building consensus not only with internal stakeholders but also their suppliers and partners. IDC believes this is a key reason why sustainability efforts in Germany are outpacing efforts in other countries, by building an ecosystem of sustainability both internally and externally.

IDC believes financial incentives such as linking executive compensation to sustainability progress is a powerful motivator and demonstrates organizational commitment to change. This practice is less common in the United States than in more mature European countries and may contribute to a slower or more limited progress in reaching sustainability goals.

IDC notes that if the costs of sustainability are seen by businesses as a barrier to greater adoption of environmentally friendly practices, there are strategies to overcome these objections. Aligning with a vetted IT equipment asset recovery partner ensures trade-in and buybacks can fund new purchases, as well as ensures proper recycling of assets that cannot be refurbished. Implementing a comprehensive asset management strategy that includes asset tracking can help reduce lost equipment and improve performance of IT equipment, lowering energy and cooling costs. Self-funding models can be an important revenue source to drive sustainability projects.

Shifting to as-a-service consumption is another way to make progress on sustainability goals with limited investment. By leveraging a partner for IT solutions that is able to operate very efficiently, gain the most use of an asset, and ensure environmentally responsible asset dispositioning, IT organizations can operate in a more sustainable way with no capital investment or risk.

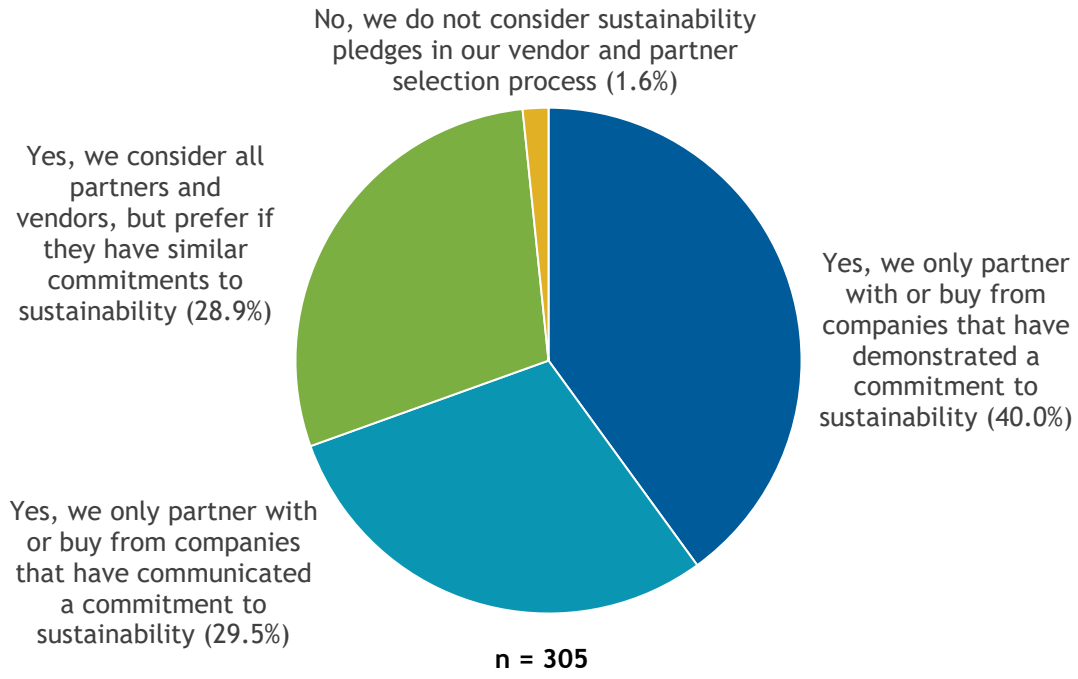
Building Consensus

IDC has observed that to achieve success in IT sustainability efforts, organizations need to build consensus both internally and externally. When asked if having an IT sustainability policy or program influences their vendor/partner selection process, over 70% prefer to work with a partner that has either demonstrated or communicated a commitment to sustainability (see Figure 2).

FIGURE 2

Importance of Sustainability in Partnerships

Q. Does your sustainability policy or program influence your vendor/partner selection process?



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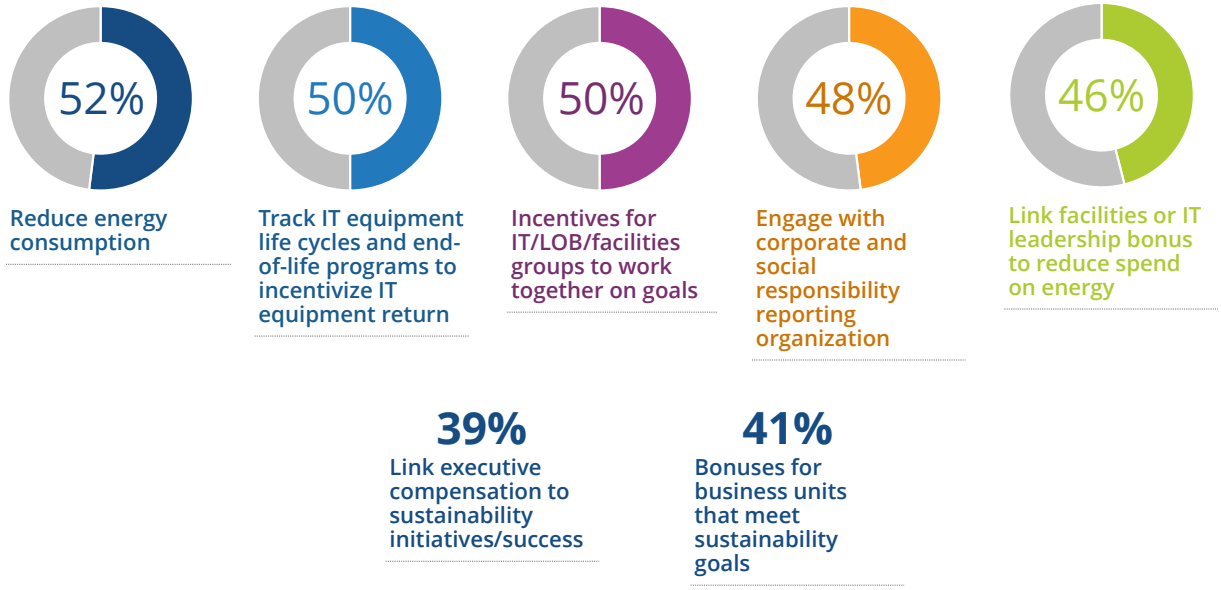
Source: IDC's *Sustainability Awareness and Strategy Survey,* April 2020

It's clear that partnering with suppliers that focus on IT sustainability is an important step to achieving objectives. The next critical step is developing internal policies and guidelines to build consensus and adoption of IT sustainability programs. In the survey, respondents listed the top priorities to reach sustainability goals (see Figure 3).

FIGURE 3

What Organizations Are Doing to Achieve Goals



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Source: IDC's *Sustainability Awareness and Strategy Survey,* April 2020

Priorities for most organizations are focused on reducing power and energy consumption and tying compensation to meeting objectives.

For most organizations, regardless of location, the goals of IT sustainability are also interwoven with the ability to attract investors, customers, and top talent. Keeping and attracting these key groups increasingly depend upon the ability to be a more sustainable company, which is pushing organizations to adopt new plans and policies. IDC believes achieving success will require building consensus with all internal stakeholders, external suppliers, and partners and establishing financial metrics to encourage adoption.

ASPIRATION VERSUS ACTION: IMPLEMENTING TOOLS AND METRICS TO DRIVE PROGRESS

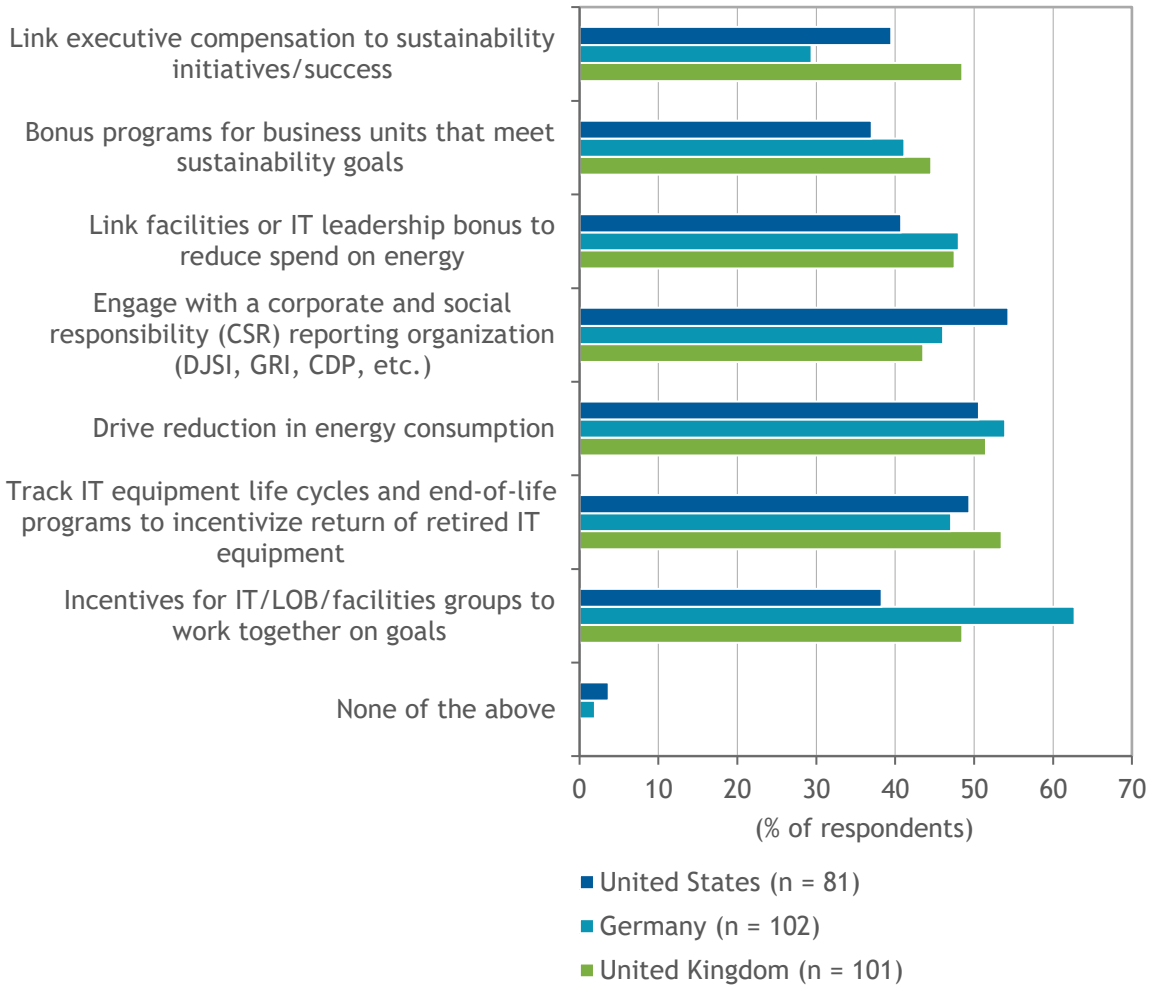
As organizations strive to make progress on the IT sustainability journey, they go from the beginning phases, such as acknowledging that change needs to occur and building consensus, to making measurable progress. Having tools to monitor progress is essential.

As financial incentives to motivate change are more broadly implemented – either through tax relief or as part of executive compensation packages – more progress may be realized. Today, 39% of organizations say that they link executive pay to achieving sustainability initiatives. This practice is more common in the United Kingdom and Germany than in the United States. Germany is more likely to provide incentives for organizationwide progress. More than 60% of respondents from Germany reported that their organization provides incentives for IT, line-of-business, and facilities groups to work together to achieve sustainability goals (see Figure 4).

FIGURE 4

Approach to Achieving Sustainability Goals: Germany, United Kingdom, and United States

Q. Which of the following, if any, does your organization do to help achieve sustainability goals?



Source: IDC's *Sustainability Awareness and Strategy Survey,* April 2020

Using energy effectively and reducing energy use overall are top priorities. These are initiatives that are easiest to measure and compare progress over time. Respondents that use datacenter management tools are also able to reduce the incidence of comatose servers. In many cases, these servers have been forgotten, but fear of causing downtime for some workload often means they continue running.

Reducing energy use and improving the effective use of energy are the initial focus of most IT sustainability efforts. Organizations that are at the beginning stage of making their datacenter resources more sustainable consider this a first step and have achieved cost savings that can help build the business case for more investment in IT sustainability goals. 62% of respondents in the April 2020 study said that they had reduced their spend on energy through the use of software tools. The mean energy reduction was 26% – a significant portion of datacenter operational expenses. On average, datacenter energy bills are 12% of operating costs. The more mature organizations used datacenter infrastructure management (DCIM) or remote IT management software; the less mature or ad hoc respondents used static tools such as Excel spreadsheets.

62% of respondents in the April 2020 study said that they had reduced their spend on energy through using software tools. With 12% of datacenter budgets spent on energy, the potential for savings is significant.

A widely recognized measure of datacenter efficiency is power usage effectiveness. Simply put, datacenter PUE is a comparison of how much energy is used to power IT workloads versus how much energy is used to power support equipment, including UPS, transformers, lighting, and cooling systems. IDC's research shows that most organizations are operating their datacenters at a PUE of 2.3, which means that more energy is spent on cooling the datacenter environment than actually powering the IT gear that runs within it. A "perfect" score would be 1.0; the most advanced hyperscale datacenters are able to achieve PUEs of 1.1–1.3. Not all organizations will be able to accomplish this depending on where their facilities are located (warm climate that requires more cooling capacity or a colder climate that can use fresh air cooling). Getting to a <2.0 PUE is an attainable goal for almost all datacenters.

One of the essential elements in making positive change is to include facilities management, sustainability, finance, and marketing organizations to foster a cooperative, collaborative strategy. As Smart Cities and smart buildings reduce waste and improve efficient use of energy, so can "smart datacenters." By using sensors, software, and autonomous control when possible, organizations can also improve the resilience of their datacenter and IT resources.

The Role of "As a Service" in Sustainability Progress

Although much of IT sustainability focus is on using energy more efficiently, an equally important focus area is the optimization of IT equipment and resources necessary to perform the desired work. Innovative business models such as consumption as a service are key to improving IT sustainability metrics and simplifying end of use or disposal. Adopters of these models find that using these programs reduce overprovisioning, increase staff productivity, save opex and capex costs, and ensure safe and secure retirement of IT assets.

Innovative business models such as consumption as a service are key to improving IT sustainability metrics and simplifying end-of-life disposal issues.

Reduced over-provisioning can lead to immediate cuts in energy, space, and cooling consumption. Although much of the initial focus of as-a-service models were about improved service metrics and aligning budgets with usage, adopters are recognizing that these models improve IT sustainability efforts as well. In recent surveys, adopters of these models recognize that the benefits of asset life-cycle management lead to improved business outcomes in terms of both agility and efficiency.

An important element of IT efficiency is the appropriate management of end-of-life assets. Gaining the most value from datacenter infrastructure through life-cycle and asset management practices that extend asset life spans and appropriate recycling of technology equipment at end of life are important aspects of reducing carbon footprint. Demand for refurbishment facilities and secure decommissioning will increase as service providers, datacenters, and colocation providers recognize that reputable partners are needed.

SUSTAINABILITY INITIATIVES AND BUSINESS IMPACT

Based on analysis of study findings, IDC believes that IT sustainability initiatives can help overcome key business challenges and business objectives, such as:

- **Build trust and better partnerships with customers.** Surveyed professionals indicate that they prefer to do business with companies that have committed to sustainability. Recognizing that meaningful progress requires coordination and shared goals throughout the ecosystem, organizations are looking for sustainability-minded partners at each step in the supply chain.
- **Improve profitability.** Efforts to use resources more efficiently contribute directly to company profitability. Most organizations have room for improvement in using resources more efficiently, including improved IT utilization and datacenter PUE. Getting the most out of IT and electricity spend will improve operational efficiency and profits. Business leaders that can monitor and measure this progress can connect the sustainability and financial impacts of IT sustainability projects.
- **Reduce spending on energy.** In addition to the benefits of using energy resources efficiently and reducing waste, using less electricity has a direct impact on operational expenses. More advanced organizations use software to monitor and optimize energy use. Some are able to enable autonomous control to reduce energy spend. In a COVID-19-impacted economy, cost reductions and gaining the most value from infrastructure are areas of focus. IT organizations can drive broader business goals of reducing waste and spending by focusing on their datacenter energy consumption.
- **Reduce risk.** Data breaches from decommissioned equipment put companies and customers at risk financially and reputationally. Reducing this risk is possible by adopting a holistic asset life-cycle management process. Many organizations don't have a comprehensive plan for their datacenter infrastructure, increasing risk of data exposure. Organizations can also reduce company risk by seeking maximum value return from decommissioned assets and ensuring environmentally responsible equipment management at end of use through a trusted partner.

ESSENTIAL GUIDANCE

By mid-2021, 65% of organizations will have a formal IT sustainability initiative in place, up from 45% today. The acceleration of IT sustainability progress indicates a growing need to better measure progress, especially as the ability to attract and retain investors, top talent, and customers depends on the ability to reduce carbon impact. Organizations are becoming savvier in their understanding of IT sustainability initiatives, and transparency about meaningful progress is very important. For this reason, setting measurable goals and identifying areas where positive change can occur is the first step in the journey.

Organizations that are at the beginning stages of maturity along the path to reducing their carbon impact can look to what the more advanced organizations have done. These more advanced organizations have made long-term investments in buildings, software, and datacenter resources that improve efficiency and rely on technology to better understand the environment and make changes to improve.

As organizations embrace digital transformation and extend IT service to new edge locations, special attention should be given to the carbon impact of edge resources. Today, one in three edge locations is designed for performance and reduced latency, not for their efficiency. 68% of organizations said that energy efficiency is "very concerning" or "concerning" when deploying IT in edge locations. As more workloads and IT infrastructure are housed in new locations, they have the potential to disrupt sustainability progress.

To accelerate progress on the journey, organizations should highlight the business benefits that align with IT sustainability outcomes, including cost reduction, efficiency improvements, staff productivity enhancements, greater resiliency, and increased capacity to support digital transformation initiatives. IT sustainability leaders should develop a strong ROI that incorporates these business benefits, as well as demonstrate how the strategy supports the organization's sustainability, finance, facilities, HR, and reputational aspirations and goals. Software can simplify and speed the otherwise manual effort of monitoring and managing IT and critical infrastructure without interrupting service or introducing risk of downtime. These comprehensive measures will lower the cost of IT, facilitate the attraction/retention of staff, demonstrate IT's commitment to sustainability, and position IT organizations as a strategic partner to the company's business functions. In addition, these measures will enable the datacenter to maintain its journey to better efficiency over its life span while adding significant business value.

ABOUT HPE

HPE is at the center of unlocking the potential of data, helping its customers develop the solutions that grow their businesses and take society a step closer to a sustainable future. HPE is a customer-focused business, designing products and services to empower customers to operate sustainably and efficiently, gaining maximum productivity from their IT investments. HPE has been recognized as a global leader in sustainability for many years, with elements of the company's programs spanning several decades and with many industry-first program elements and goals to its credit. HPE is implementing a plan to become the world's leading edge-to-cloud platform-as-a-service company by 2022, which will deliver big benefits for customers. Its entire portfolio will be available through a range of subscription-based offerings that can be managed as a service. This is financially and environmentally efficient, eliminating the wasted infrastructure and processing capacity inherent in most customer-owned IT portfolios. The company's sustainability capabilities are a strategic differentiator in customer relationships, helping HPE's customers achieve their business and sustainability goals simultaneously.

OPPORTUNITIES AND CHALLENGES FOR HPE

HPE is in a unique position to help organizations improve because it has a deep understanding of how technology can drive greater efficiency within a datacenter and how technology can uncover and optimize use of all types of assets and resources across many industries. As a solution developer, a financial services partner, and an asset life-cycle management partner, HPE can drive sustainability initiatives across several fronts. It designs IT for efficiency, it can deliver IT in an efficient and optimized as-a-service way, and it can decommission, recycle, and reuse IT assets in a secure, globally consistent, and environmentally responsible way. Because of its focus on as-a-service delivery of IT, HPE can drive adoption of the most efficient technology without requiring a large capital outlay. As COVID-19 puts pressure on organizations to reduce costs, the ability to procure IT infrastructure this way is critical.

Becoming a more sustainable company requires organizationwide change and strong leadership support. As all advanced organizations understand, simply acquiring more efficient technology is not the silver bullet for sustainability progress. HPE's challenge, as with any outside partner, is to motivate and educate customer leadership on the business reasons for becoming more sustainable and to help customers establish long-term and organizationwide participation. HPE's ability to help its customers' leadership motivate their business units and establish metrics to measure progress will be key to success. With advanced tools and experience in improving operational efficiency, HPE is well positioned to help drive adoption of more sustainable IT and processes to reduce the carbon footprint of digital business.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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