Achieving AI balance

Finding sustainability on the road to innovation

Meeting the challenge of accelerated change

When it comes to sustainability, AI can present a dilemma. AI can be a powerful force to help you find solutions to sustainability challenges.

9 out of 10

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IT leaders believe in the potential of AI to contribute to sustainability outcomes.[1]

However, the immense computational power that unlocks new insights and drives innovation requires vast amounts of energy and water.

The power demand of AI is expected to rise by 160% to 165% between 2023 and 2030.[2]

The challenge is to find the balance between the drive for innovation and your imperatives for environmental stewardship.

At Lenovo, we believe AI and sustainability are not mutually exclusive. Both can coexist and be a competitive advantage when used responsibly. That's why we are committed to help you optimize resource utilization at every stage of your AI journey.

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Advise — Lay the foundation for Responsible AI adoption

Opportunities to enhance sustainability exist throughout the AI adoption process — starting early, during the planning phase, can lead to significantly greater long-term benefits.

1. Identify appropriate and efficient AI use cases that deliver ROI

Planning for AI can be a complicated process. Without a clear path, it can result in lost time, added costs, and wasted energy. **Lenovo AI Services** guides you through the first steps of your AI transformation so you can rapidly — and efficiently — unlock real business value. Our multi-disciplinary team assesses your AI readiness, evaluating:

- Security
- People
- Technology
- Processes
- Unique application needs

Together, we'll chart an accelerated path to unveil your desired outcomes for your specific use cases and help you tune your data for more efficient consumption by AI models, while optimizing your path from proof-of-concept to proof-of-value.

90 days
Prove the business value of use cases with a ready-for-production AI solution with AI Fast Start Service.

2. Enhance your infrastructure energy efficiency

Putting AI applications to work in your organization will increase the demands on your infrastructure, and all that additional processing generates a lot of heat. For many data centers, cooling systems consume approximately 40% of the total power[3] coming in.

The key is to make the most of every watt coming in — less energy spent on cooling means more available for processing. You can make progress on your sustainability goals by deploying high performance workloads with our 6th gen **Lenovo Neptune® Liquid Cooling.** Liquid-cooled **NVIDIA GB200 NVL72** is 25x more energy efficient and 300x more water efficient than its predecessor. With **over a decade of liquid-cooling experience and hundreds of patents,** we leverage our expertise in large-scale supercomputing, HPC, and AI so you can deploy high performance, compute-intensive workloads at any scale.

Up to 100%
heat removal efficiency[4]

3.5x
improvement in thermal efficiency compared to air cooling[4]

To help you determine the feasibility of implementing direct liquid cooling, we offer deep-dive design engagements and workshops through **Lenovo Power and Cooling Services.** We'll help you determine your site's suitability and provide a high-level approach to implementation design.

In cases where liquid cooling isn't an option, our partnerships with leading colocation companies can provide easy access to Neptune®-ready infrastructure for private AI workloads.

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3. Buy technology responsibly with energy efficiency built in

Choosing energy-efficient technology for AI use is an important part of improving your overall IT sustainability, but there's also the physical impact of the technology itself. That's why we're continuously expanding the use of **post-consumer recycled content (PCC) materials** in the manufacturing of our hardware and packaging, our laptops, servers, storage, and networking solutions. By 2025/26, we will use 300 million pounds of post-consumer recycled content plastics in our products (cumulative total since 2005).

By using bio-based materials like bamboo and sugarcane, we've made our packaging sleek, lightweight, and 100% rapidly renewable.

We've increased the use of ocean bound plastic (OBP) in our packaging bags and cushions, with 30% OBP in select products.

Shipping infrastructure hardware consumes both energy and materials. By delivering your servers pre-installed with our innovative **rack integration solution,** we:

Reduce cardboard consumption per rack by 105 pounds[5]

Accelerate time from arrival to production readiness by 75%[5] with fewer personnel required for installation

We also make it easier for you to navigate workplace transformations with sustainability workshops to develop a comprehensive IT-focused sustainability strategy. By leveraging our **AI-powered Lenovo Intelligent Sustainability Solutions Advisor tool (LISSA),** Lenovo experts can help you unlock estimated emissions reduction opportunities to manage and reduce your overall IT footprint.

And after we've explored all potential ways to reduce your overall carbon footprint, leverage our **CO_2 Offset Service** to offset the estimated emissions across the average lifecycle of your device and support Gold Standard®-verified climate action projects around the world.

The role of AI PCs

In addition to featuring PCC materials in the hardware and packaging, **Lenovo's newest AI PCs** can help reduce AI workloads in the data center by running some AI applications locally with dedicated neural processing units (NPUs).

AI that works for you

Lenovo's complete portfolio of hybrid AI devices, infrastructure, solutions and services are optimized with NVIDIA technologies. Whether you are building large-scale hybrid AI factories to support sovereign data and compliance or deploying reliable AI across personal, enterprise and public AI platforms, Lenovo helps you move faster, operate more efficiently, and reduce tech debt. Scale faster from pilots to larger clusters for different AI workloads with NVIDIA Enterprise Reference Architectures and validated Lenovo hybrid AI factory designs — purpose-built for a range of AI workloads.

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Implement — Simplify AI deployment with a single point of contact

With AI workloads rapidly evolving, you need agile, scalable infrastructure to meet computing demands without getting trapped by legacy infrastructure, underutilized resources, or high costs.

1. Dynamically manage your infrastructure based on demand with Lenovo TruScale

Finding the right balance of infrastructure that gives you room to grow without over-provisioning can be tricky, especially with changing market conditions. In addition to driving operational efficiency with easy scalability and a convenient "pay-as-you-go" consumption model, **Lenovo TruScale Infrastructure as a Service (IaaS)** can help optimize your IT footprints by deploying energy-efficient servers[6] and driving high utilization without the need for large capital investments.

20%

Optimizing your data center with Lenovo TruScale IaaS can help reduce CO_2 emissions and power by up to 20%.[7]

2. Ensure seamless liquid cooling implementation

Implementing liquid cooling in the data center takes a special set of skills and deep expertise, which can be difficult to find in-house. With 12+ years of Neptune® experience, **Lenovo Power and Cooling Services** has everything you need to get your Neptune® system up and running with expert procurement, installation, and commissioning.

3. Get value quickly with AI agents and assistants

Industrialized for performance, **Lenovo Hybrid AI Advantage™ with NVIDIA** brings AI to where it makes the most impact — empowering teams to be more productive. Lenovo's agentic AI platform and NVIDIA AI Enterprise with NVIDIA NIMS support the rapid customization of Lenovo AI Library use cases and development of new AI agents and assistants, while our full-stack Lenovo hybrid AI factory helps unlock relevant intelligence from your data and AI models securely, efficiently, and responsibly by leveraging NVIDIA AI Enterprise with NVIDIA AI Blueprints.

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Support and Manage — Optimize your AI workloads for the road ahead

Keeping your AI solutions running efficiently requires a proactive management approach. Lenovo can help take the burden off your IT teams with support solutions designed to help you maximize your resource utilization.

1. Optimize data center workloads for increased efficiency

When workloads in your data center aren't distributed evenly, underutilized computing resources consume energy when they don't need to be. We can help you get greater visibility and enhanced control. **Lenovo Energy Aware Runtime** and **XClarity Energy Manager software** optimize power states, turn off unused components, and route workloads to the most efficient resources for optimal performance with lower energy consumption.

2. Scale infrastructure resources seamlessly

Increased demand for advanced AI processing doesn't have to mean additional capital expenditures. There's a fully managed solution available that helps you control costs and allows you to scale up or scale down as needed to maximize resource utilization. **Lenovo TruScale for HPC** may be deployed as on-prem or in a colocation. Lenovo engineers provide expert guidance, execute tailored installations, and offer ongoing support to maintain performance and address any operational challenges. With Lenovo TruScale for GPU, critical NVIDIA GPU resources can be metered and usage can be orchestrated to maximize productivity.

3. Keep things cool in the data centers

Free up your IT staff when it comes to maintaining Neptune® systems with comprehensive, end-to-end managed services that reduce downtime and ensure optimal performance. Support NVIDIA-accelerated Lenovo servers and edge devices through AI-accelerated systems management such as Lenovo XClarityOne.

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Refresh and Retire — Support the circular economy

Modernize your data center responsibly

Not all data center and end-user hardware are suited for AI applications. Legacy hardware is less energy-efficient than the newest solutions available, and components that have reached the end of their useful service life must be disposed of in responsible — and secure — ways.

You can mitigate end-of-life IT and data security risks and help keep resources circulating with **Lenovo Asset Recovery Services (ARS).**

Working with leading ITAD partners, Lenovo ARS helps recover potential value on your decommissioned IT assets, which can then be used to offset costs of a new tech refresh. We reuse parts wherever possible, refurbish devices, and recycle assets in a responsible way.

>40%

More than 40% of companies do not have a formal IT asset disposition (ITAD) strategy in place.[8]

Discover how Lenovo can help you find the right balance on your AI journey

When it comes to navigating sustainability in the era of AI, we're working together with our customers toward common goals and look for solutions that leverage the power of AI to make a difference.

Contact your Lenovo representative today to learn more.

Sources

1   IBM, "The State of Sustainability Readiness 2024"

2   Goldman Sachs, "AI is poised to drive 160% increase in data center power demand," May 2024

3   Dataspan, "How much energy do Data Centers Use? March 2023

4   Lenovo Neptune

5   Lenovo, data based on Lenovo ISG internal research

6   Lenovo, Product Efficiency: https://www.lenovo.com/us/en/sustainability-energy-efficiency

7   TruScale IaaS accurately reports on power and CO_2 emissions allowing managed infrastructures to be designed, implemented and tuned not only for performance and capacity but also for CO_2 emissions. Ongoing monitoring of the system using Lenovo XClarity Power Monitor and systems performance figures are used to optimize power consumption by the infrastructure. CO_2 emissions will be calculated based on the localized carbon footprint of the power source used.

8   Foundry Survey, "The Four S's that underpin ITAD Strategy," March 2023

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