Social Impact of the Year

Microsoft Corporation

Microsoft

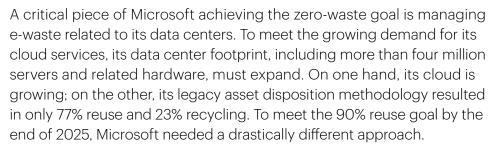# Circularity at Scale — A Zero-Waste Plan for Every Part

Microsoft is on a mission to become carbon negative, zero waste and water positive by 2030. Circularity enables this mission by creating regenerative and restorative cycles for everything it produces. The company's Circular Centers offer a proven approach, achieving circularity at scale with a zero-waste plan for every part.

Over the past year, the Circular Center model has achieved 83% reuse and 17% recycle of critical parts while reducing carbon emissions by 145,000 metric tons of carbon dioxide equivalent. Over the next year, Microsoft will extend this model to all its cloud computing assets and is on track to achieve 90% reuse, with projected savings of $100 million each year.

Microsoft shares its approach, impact and lessons learned with all industries to help reimagine business models toward a more sustainable and circular economy.

Businesses globally must urgently respond to the challenges of climate change, becoming more resilient while decoupling growth from the use of natural resources. Microsoft, in response to these challenges, announced its goals to become carbon negative and water positive while ensuring zero waste across its direct operations, products and packaging by 2030. It set ambitious plans for each and is empowering its partners, suppliers and customers with technologies and lessons as it builds a Planetary Computer to help protect ecosystems.

A critical piece of Microsoft achieving the zero-waste goal is managing e-waste related to its data centers. To meet the growing demand for its cloud services, its data center footprint, including more than four million servers and related hardware, must expand. On one hand, its cloud is growing; on the other, its legacy asset disposition methodology resulted in only 77% reuse and 23% recycling. To meet the 90% reuse goal by the end of 2025, Microsoft needed a drastically different approach.

Microsoft decided to build Circular Centers within its data center campuses, where it processes decommissioned IT equipment to service strategic routes, secondary markets and suppliers. While developing its Circular Center strategy, it also saw an opportunity to become more resilient, build better ties with communities, and increase collaboration with upstream and downstream partners. Microsoft felt this concept could revolutionize circular models in the technology industry, which, in turn, could catalyze sustainable business models everywhere.

To prove the model and demonstrate the impact at scale, in March 2020 it launched the first Circular Center in Amsterdam, which represents 7% of its server capacity globally. The center demonstrated significant business impact, achieving waste reduction while ensuring 100% of critical components are routed through circular channels, resulting in 83% reuse and 17% recycling.

The success of this center led Microsoft to develop a plan to meet its target of reusing 90% of servers and component parts by 2025, while achieving a cost savings of $366 million across its data center portfolio. To achieve this plan, it is scaling the model to cover all decommissioned assets. It deployed a Circular Center in Virginia in 2021 and plans to deploy such centers at five other locations globally in 2022 and 2023. This will result in a significant majority of Microsoft decommissioned computing assets being processed and repurposed through Circular Centers.

In addition to increased sustainability and cost savings, Microsoft is realizing the following benefits:

- **Resilience.** Circular Centers provide the agility to scale and react faster to supply chain shortages due to various global impacts, which are becoming increasingly common.

- **Local impact.** Community development efforts are enabling access to computational resources for education and resources for specialized skills training and jobs.

- **Security.** Circular Centers within large data center campuses are enabling continuous chains of custody of assets, and ensuring security of the cloud and customer data.

- **Collaboration.** The impact can only scale through partnerships with suppliers, customers, industry groups, regulators and other organizations.

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