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TRANSPORTATION

Microsoft Is Using The Coupa Supply Chain Design Tool To Reduce Carbon Emissions

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In 2020, Microsoft committed to become carbon negative by 2030, and by 2050, the company aims to remove historical emissions since its founding in 1975. The company is operationalizing this target by reducing emissions as much as possible, increasing use of carbon-free electricity, and removing the emissions that remain.

Meanwhile, Microsoft opened roughly 100 new datacenters in 2023, and now has over 300 of them. Supporting hypergrowth while reducing supply chain logistics emissions is not an easy feat.

Microsoft Datacenters comprise a globally distributed infrastructure designed to power the Microsoft Cloud. This infrastructure brings applications closer to users, preserves data residency, and allows companies to manage their data more effectively. Building a new data center involves moving IT hardware into new facilities. IT hardware is non-standard freight, meaning it is difficult to move due to its size and sensitivity. This of course generates carbon from transportation activities. Attempting to solve the conflicting goals of growth and reduced carbon emissions is a complex task.

In the early 2020s, Microsoft's transportation and logistics team needed to meet exploding demand for cloud services while managing carbon, cost and cycle time. At the recent Coupa Inspire community conference, Nico De Golia, the director of cloud logistics sustainability for Microsoft's cloud supply chain, spoke about how the Coupa supply chain design solution, powered by LLamasoft, is helping them achieve reduced emissions.

The Coupa solution enabled the Microsoft teams to achieve a 60% reduction in carbon emissions from North American trucking over the projected baseline in their forward supply chain while supporting growth based on speedy deliveries. This work is being replicated in Europe and other regions of the world as well. Microsoft's transportation is outsourced to carrier partners. To achieve those results, "we had to massage the platform to accept emissions data from our carriers," Mr. De Golia explained. Trucking carriers would transmit their operating data to Microsoft via EDI that is then converted into emissions data.

"But how could we know their emissions?" Mr. De Golia said they used the internationally approved Global Logistics Emission standard. The GLEC Framework is a guide for shippers, carriers, and logistics service providers on reporting emissions from logistics operations. GLEC developed a universal method for calculating logistics emissions across road, rail, air, sea, inland waterways, and transshipment centers.

The company needed to examine air traffic control data to track air shipment emissions. They obtained this data using a solution from EcoTransIT World.

They achieved significant carbon reductions in their cloud supply chain by creating a model that looked at the forward positioning of inventory, freight consolidation opportunities, and where to build the distribution centers. The model allowed Microsoft to run many scenarios and supported trading off service reliability, cost, and carbon emissions.

Meanwhile, Mr. De Golia's team was also tackling a reverse logistics problem: how to help the company eliminate packaging by using reusable materials that could be returned to their suppliers. Microsoft Cloud Supply Chain's sustainable packaging goals have a 2025 deadline. The goals cover packaging for any cloud infrastructure product that is delivered to, collected from, or moved between Microsoft datacenters.

Mr. De Golia stressed that to drive progress, you need a clear goal. Their goal is to be the most sustainable, innovative, and efficient hyperscaler logistics organization. A clear goal needs to be combined with good data and metrics. Access to the data needed to be democratized. "We needed to put the data in tools so that users understand the impacts" of differing carrier moves. Users can only take action once they have the goal, visible data, and metrics.