

How aPriori Empowers Carrier's Journey Toward Achieving 2030 ESG Goals



Company Details

Industry

Consumer Durables

Number of Employees

56,000

Revenue

\$20.42 billion

Website

<https://www.carrier.com/carrier/en/worldwide/>

aPriori Products

aP Pro; aP Design



Sustainability is a critical driver of long-term growth and profitability in the manufacturing industry. This is primarily due to stringent environmental mandates, investor expectations, and rising customer demand for green products. Manufacturers need access to data on operational and embodied carbon (CO₂e) emissions to make well-informed and sustainable supply chain decisions.

With aPriori Sustainability Insights, innovators can generate precise data to assess the real-time CO₂e impact of various product designs and production processes. Carrier, for instance, employed aPriori's simulation-driven sustainability module to execute carbon-reduction strategies in its complex global supply chain. These granular CO₂e insights would support Carrier's goal of reducing one gigaton of carbon emissions by 2030.

In this case study, discover how Carrier employs aPriori Sustainability Insights to eliminate carbon drivers and confidently develop sustainable innovations.

The Problem

Generating Granular Carbon Emissions Data to Meet 2030 ESG Goals

The Solution

Use aPriori Sustainability Insights to Reduce Carbon Emissions and Meet ESG Targets

Who is Carrier?


Carrier manufactures products across three primary market segments: HVAC (both residential and commercial), refrigeration, and fire and security. Across these markets, Carrier generates nearly \$20 billion in sales, employing 50,000 people.


Problem

Generating Granular Carbon Emissions Data to Meet 2030 ESG Goals

The Carrier team understands the carbon footprint in their organization but lacks precise data on operational and embodied CO₂e. This is due to Carrier's complex supply chain, which makes it difficult to obtain granular CO₂e data from suppliers across various global regions. Further, most suppliers may not be willing to disclose or provide these details to the manufacturer.

Carrier encountered additional challenges due to the absence of detailed CO₂e data. These obstacles included:

 **Meeting EPD requirements.** An Environmental Product Declaration (EPD) is a transparent report communicating the environmental impact of Carrier's products throughout their life cycle. The company aims to reduce the CO₂e of its HVAC chiller systems by exploring alternate materials and selecting the most sustainable option. Without a solution to track product CO₂e, Carrier may face increased costs from carbon taxes and stringent environmental regulations.

 **Supporting customers' LEED certification initiatives.** Carrier needs to provide EPD-compliant chiller systems to help residential customers achieve Leadership in Energy and Environmental Design (LEED) certification. Earning LEED certification demonstrates that occupants are truly operating in environmentally friendly buildings.

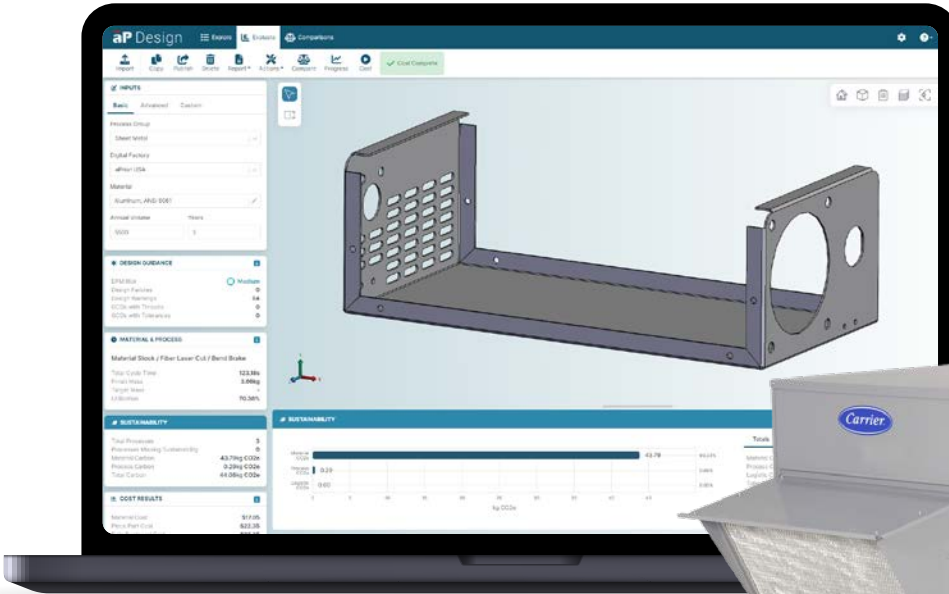
The availability of actionable CO₂e data would help Carrier achieve its ambitious 2030 environmental, social, and governance (ESG) goals. This includes Carrier's commitment to reducing customers' carbon footprint by more than one gigaton and achieving carbon-neutral operations across the organization.

To achieve its ESG objectives and reduce product life cycle impacts, Carrier planned to invest more than \$2 billion in sustainable design solutions. As part of this initiative, Carrier would deploy aPriori Sustainability Insights to generate and provide detailed CO₂e data throughout the product life cycle.



“Carrier's gigaton goal is only as good as the data we get from our suppliers, and most of the time, suppliers don't want to give that data. So, what can we do? **That's where aPriori comes in, we're going to have to model it.**”

Tristan Abend, Value Engineering Manager, Carrier



How aPriori is Supporting Carrier's 2030 ESG Goals

Carrier determined that aPriori Sustainability Insights provided the capability to measure and reduce a product's embedded carbon early in the design phase. The manufacturer can leverage aPriori to evaluate greenhouse gas (GHG) emissions at the product level, from cradle to gate, including Scope 3.

The aPriori Sustainability Insights solution is critical for Carrier to achieve its 2030 ESG goals. It empowers Carrier to:

Set Science-Based Targets

aPriori supports Carrier in estimating and setting targets for absolute carbon reduction (operational and embodied). This includes economic intensity-based and performance-based reductions. Carrier can ensure that its sustainability strategies align with economic growth and that low-carbon improvements are made across its operations.

Conduct Environmental Impact Analysis

Carrier conducts Life Cycle Assessment (LCA) analysis to measure the carbon footprint of its products from cradle to grave. aPriori's automated, real-time sustainability solution integrates with ecoinvent, a trusted LCA and inventory database tool. This integration enables aPriori to generate real-time, cradle-to-gate CO₂e data to amplify LCA tools' reporting precision.

Carrier leverages aPriori to proactively identify and reduce the embedded carbon of products during the initial design stage. aPriori provides actionable feedback, allowing Carrier to make sustainable, data-driven design decisions for its chiller and boiler innovations.

For instance, the manufacturer considered switching from metal to plastic to minimize the CO₂e of specific product components. Through aPriori's granular CO₂e data, Carrier discovered that metals with 90% recycled content were more efficient and sustainable. aPriori streamlines low-carbon decisions by evaluating different product designs (geometries/shapes), raw materials, manufacturing processes, suppliers, and other real-world variables.



Streamline EPD Creation, Realize Savings, and Improve Investor Confidence

aPriori has transformed Carrier's sustainability efforts by streamlining EPD creation in under 12 months. This resulted in cost savings and increased regulatory compliance, as Carrier earned LEED certification points without purchasing carbon credits.

Moreover, aPriori increases investor confidence in Carrier by providing transparency on its sustainability progress. With aPriori's granular CO₂e data, Carrier can make informed design decisions, reduce lead times, and accelerate time-to-market (TTM) for sustainable innovations.

What's Next for Carrier?

In the future, Carrier intends to use aPriori's functionalities to expand process group coverage, gain insight into supply chain logistics and transportation costs, and assess carbon pricing.

"Carrier has been using aPriori to determine how carbon affects our die-cast and plastic parts and to help us see the best ways to remove CO₂e in design. There is a lot of excitement at Carrier about sustainability and using aPriori to meet our ESG goals."



WANT TO LEARN MORE?

[CLICK HERE](#) to learn more about aP Sustainability Insights.

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