



# Sustainable Dashboard for Carbon Emission Tracking

An intuitive, data-driven sustainability dashboard that enables users to monitor carbon emissions in real-time, optimize costs, and align their IT operations with ESG principles.

## Overview

We developed a comprehensive sustainability solution that empowers a global automotive R&D leader to achieve environmental and operational excellence through data visualization.

- **Real-Time Visualization:** Provided an intuitive dashboard with interactive graphs for real-time tracking of total carbon emissions and sustainability quality scores.
- **Informed Decision-Making:** Enabled top management to make informed decisions on emission reduction strategies and the efficient allocation of resources for carbon offsetting.
- **Operational Optimization:** Integrated with Lighthouse reports to identify code optimization opportunities, leading to reduced carbon footprint and improved system performance.



## Client Profile

Headquartered in Germany, our client is the research and development center for the world's largest manufacturer of premium and commercial vehicles. The center focuses on research, IT engineering, and product development.

## Challenges: Limited Visibility Into Data and Costs

- **Data Aggregation:** Difficulty centralizing and standardizing carbon emission data scattered across diverse hosting services, servers, and cloud platforms.
- **Cost Calculation:** Lacked an automated tool to accurately calculate the financial expenses associated with offsetting their measured carbon emissions.
- **Lack of Visibility:** Stakeholders and top management did not have a simple, unified dashboard to visualize complex emission data and its financial implications.

- **Code Optimization:** Difficulty connecting environmental impact directly to code efficiency and identifying technical areas for immediate optimization.

## Solution: A Comprehensive Sustainability Dashboard

We designed and implemented a comprehensive Sustainability Dashboard that digitalized the client's carbon footprint monitoring and management. The solution moves beyond simple tracking by focusing on visualization, cost calculation, and optimization suggestions. Our solution involved:

- **Intuitive Interface Design:** We designed aesthetically pleasing and functional wireframes (using Axure RP 9 for prototypes and Figma for layouts) that visualize key metrics, including overall carbon emissions, carbon offsetting values, and detailed breakdowns by service layer (client-side, server-side, cloud).
- **Real-Time Emissions Tracking:** The platform continuously monitors and tracks emissions from all client portals, servers, and hosting services in a live mode.
- **Offset Cost Calculation:** The dashboard automatically calculates the cost estimation for offsetting recorded carbon emissions, providing immediate financial insight.
- **Optimization Integration:** Integration with Lighthouse reports was implemented to analyze code performance and identify specific areas for optimization, thereby directly reducing the digital carbon footprint.

## Technical Highlights

- **Code Optimization Guidance:** Integrated Lighthouse reports to systematically pinpoint technical areas where code optimization would minimize carbon footprint and enhance system efficiency.
- **Detailed Project Management:** The platform includes comprehensive project management features that streamline handling and promote cross-functional collaboration for implementing sustainable IT practices.
- **Carbon Offset Calculations:** The core logic calculates offset costs based on real-time emission data, enabling efficient resource allocation.

- **User Administration Panel:** A secure administrative portal allows managers to handle user requests, seamlessly integrate users into projects, and maintain a coherent user network with clear access roles.

## Impact: Driving Sustainability Enhancements

- **Strategic Decision Support:** Detailed, graphical representations of emissions data empower stakeholders to make informed, data-driven decisions regarding targeted sustainability enhancements across all projects.
- **Cost-Effective Sustainability:** The integration of carbon offset cost calculations ensures efficient allocation of resources, supporting environmental efforts while maintaining cost-effective operations.
- **Reduced Carbon Footprint:** Real-time tracking helped to immediately identify and target high-emission areas, leading to measurable reductions up to 60% in the company's overall carbon footprint.
- **Improved System Efficiency:** Identifying code optimization areas through Lighthouse reports not only reduces the carbon footprint but also contributes to improved system performance and efficiency.
- **Enhanced Collaboration:** Project management features streamline handling and user administration, fostering efficient teamwork necessary to embed sustainable practices company-wide.