

EUROPEAN GREEN DIGITAL COALITION

Supported by the European Commission and Parliament at the EU Council's request, the EGDC unites companies to use digital solutions for reducing emissions across key sectors.



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Colt's Smart Building project, launched in 2023 in partnership with Nuuka, applies Artificial Intelligence and Machine Learning across the building's HVAC system to optimise performance based on real-world usage. The solution is designed to dynamically adjust heating, cooling, and ventilation settings to minimise energy consumption while maintaining required indoor air quality standards. The initial case study focuses specifically on the ventilation component, as this was the first part of the overall HVAC solution to be implemented. Without such optimisation, HVAC systems are typically configured for maximum occupancy rather than actual demand, leading to unnecessary energy consumption and higher emissions.

This case study is an ex-post assessment of Colt's Smart Building Solution carried out on their own office building in London, UK, using data collected for a period of 4 months in 2025.

Organisational contribution: Colt and Nuuka partnered to innovate, develop, and deploy the solution. This aligns with A-level classification as defined by ITU-T L.1480.

Quantified impacts:

1 year (extrapolated)

Assessment period

6.1 - 12.3 tCO₂e/year

**Net carbon impact range
accounting for uncertainty**

1.2 kgCO₂e/year

**Net carbon impact per square
meter of office space per year**

Other identified impacts:

Economic: Cost savings - high risk that cost savings could be reinvested in carbon-intensive activities, potentially reducing the net carbon impact by ~20%. Colt and Nuuka are working to ensure funds are reinvested in measures that further reduce emissions.

Social: Improved air quality and working conditions - this contributes directly to occupant's well-being and comfort which may lead to higher occupancy rates in buildings. Low risk that this will lead to increased energy consumption.

Relevant links: [Contact us](#) | [Methodology](#) | [Calculator](#)

Disclaimer: While efforts were made to ensure accuracy, EGDC provides no warranty and accepts no liability for errors or omissions in the case studies or related information. Users should exercise judgment and seek clarification as content may change over time and depend on external factors.