



DEICAP: Measuring the Hidden Carbon Cost of Digital Research

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DEICAP: Digital Emissions Integration for Climate Action Planning

Integrating Digital Carbon into Real-World University Decisions

By bringing together IT, sustainability and academic expertise this project will create shared tools to model and forecast carbon consequences of different digital practices and policies and support more informed and sustainable decision making.

Funder: NetDRIVE

Duration: April 2026 – September 2027 (University of Bristol)



Show of Hands: Which Practice Emits More Carbon?

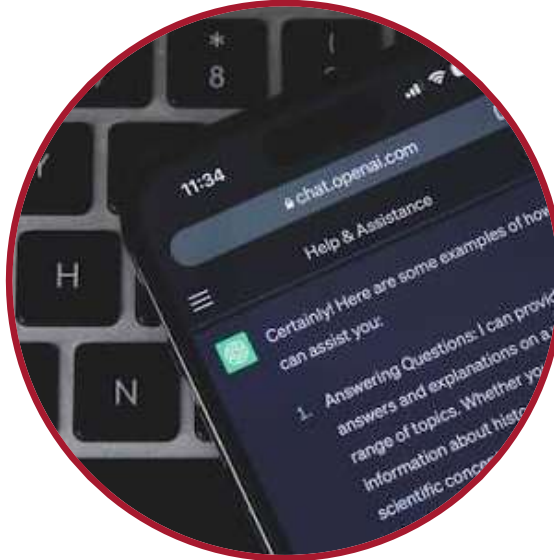
Second monitor



600 Kg CO₂e

Lifetime Carbon Footprint of 1
Dell 27" Extra Screen

Million chatbot requests



≈ 600 Kg CO₂e

(at 2025 efficiency levels)



Courtesy of Prof. Chris Preist

The Problem: Digital Emissions Are Largely Invisible

What contributes?

Devices, cloud, HPC and SaaS all contribute

Existing approaches are difficult to replicate

Lack of standards limits comparison and decision making

What is missing?

Scope 3 visibility

Shared methodology

Comparable reporting

Reliable supplier data.

Why RSEs should care?

More sustainable systems

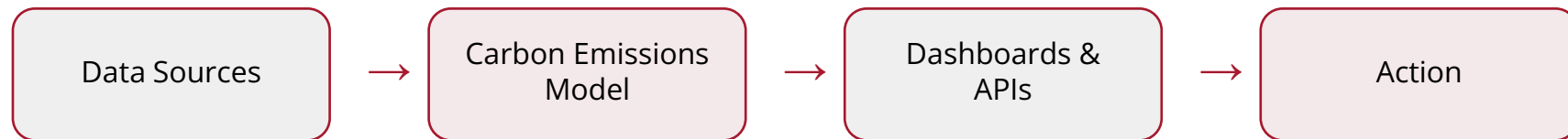
Better infrastructure choices

Evidence for funding & reporting

UK universities lack consistent ways to measure digital carbon emissions.

What DEICAP will deliver

A reusable approach for digital carbon accounting across UK universities.



Seeking 3-4 pilot universities to help shape sector-wide standards.



Thank you



DEICAP team:

IT services

Polly Eccleston (Project Lead)

Josh Turnbull (Data engineering)

Ollie Dawson (Comms and Engagement)

Jean Golding Institute

Rita Rasteiro (RSE)

James Thomas

Sustainability Team

Anna Lewis

James Daly

James Ryle

Academic expertise in Sustainable Computing

Chris Preist

Paul Shabajee

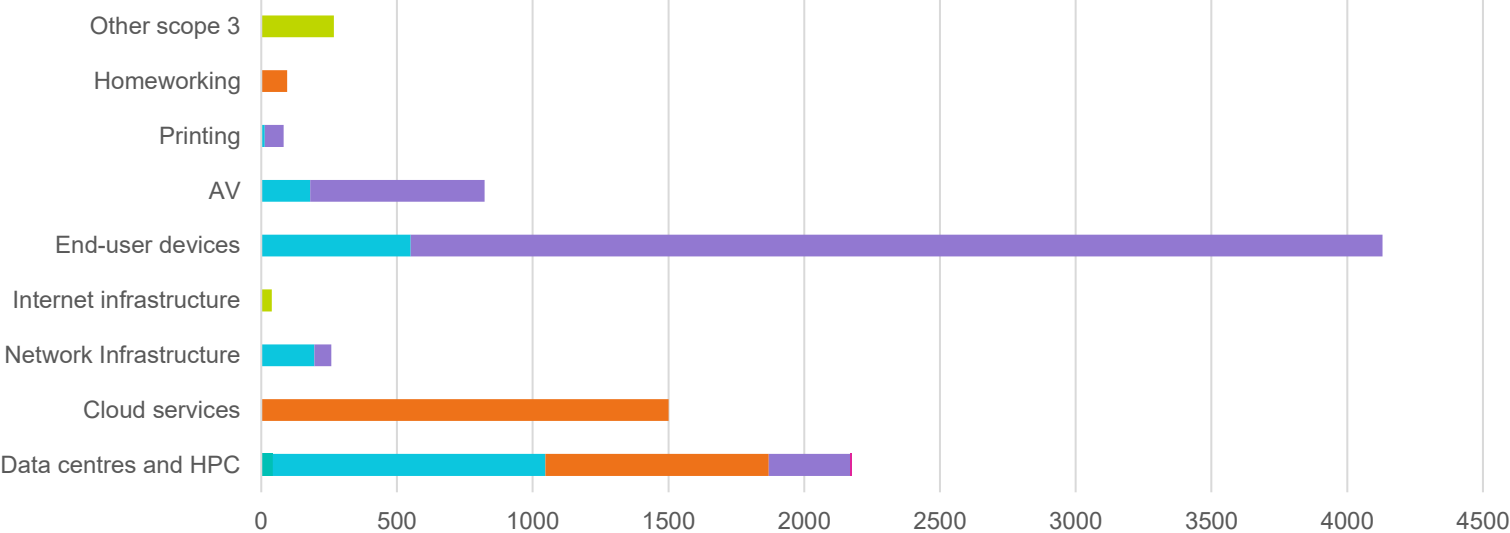
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University of
BRISTOL

(2021)Breakdown of Bristol University’s digital emissions by scope



Scope 1 Scope 2 Scope 3 - usage Scope 3 - embodied Scope 3 - fugitive emissions & generator fuel Scope 3 - Other

SCOPE 1 EMISSIONS

Direct Greenhouse gas emissions from sources owned or controlled by the organization (e.g. offices, trucks)

SCOPE 2 EMISSIONS

Indirect Greenhouse gas emissions from electricity used by the organization

SCOPE 3 EMISSIONS

Indirect Greenhouse gas emissions that results from the organization's activities but from sources within their value chain (e.g. waste, supply chain emissions, shipping goods, travel)



The Greenhouse Gas Protocol breaks an organization's emissions into three categories or 'scopes'. Image: GHG Protocol