



**National Federated
Compute Services**
NetworkPlus

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Net-Zero and Circular Economy Federation: Policy Roadmap for Carbon-Aware Compute in the BE

Dr Alireza Moghayedi

**UWE
Bristol** | University
of the
West of
England



Motivation

The Built Environment is a high-impact yet digitally fragmented sector, making it a critical testbed for advancing carbon-aware federated computing to support net-zero and circular economy transitions.

- Involves **multiple stakeholders** (designers, contractors, regulators, asset owners, data providers) with **misaligned systems and metrics**.
- Characterised by **fragmented workflows** and **siloed data ecosystems**
- Remains **less digitally mature** than other sectors
- **Limited awareness** and practical understanding of federated data and HPC capabilities
- **Rapid growth in data- and compute-intensive workflows** (WLCA, digital twins, AI, DPPs)
- **Increasing policy pressure** to deliver net-zero, circularity, and lifecycle accountability



AIM

To generate evidence, metrics, and policy recommendations to guide NFCS in embedding sustainability principles into its federated compute and data services.





Objectives

1. Co-define **sustainability priorities** for federated HPC and data services in the Built Environment.
2. Develop **harmonised vocabulary and KPIs** to foster interoperability and position NFCS as an integrated federation rather than a siloed initiative.
3. Generate evidence and develop a transferable **engagement toolkit** with participatory methods, co-creation templates, and guidance for applying sustainability metrics.
4. Co-design and validate **governance and policy mechanisms** for sustainable federated computing, including incentives, regulatory alignment, and inclusive access.

Project team



Dr Aireza Moghayedi



Dr Tariq Umar



Dr Amalka Nawarathna



Dr Aireza Bolhari

Project Partners



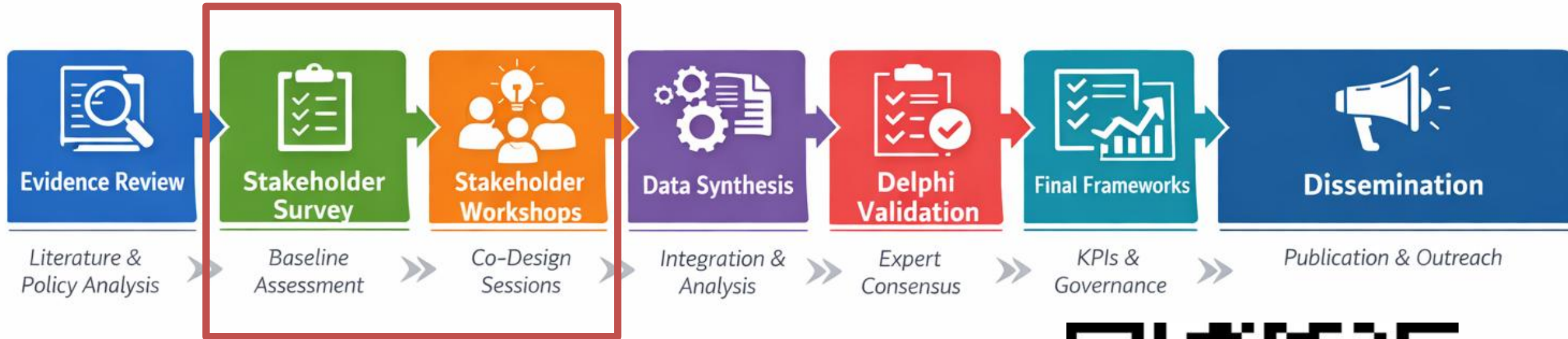
CIOB

The Chartered
Institute of Building

VINCI



Methodology



Participate in the Survey:



Expected Outcomes

- **Harmonised sustainability vocabulary** for federated computing in the Built Environment
- Standardised **KPI catalogue** covering carbon, energy, governance, interoperability, equity, and performance
- **Evidence base** on carbon and energy intensity of compute-intensive **Built Environment workflows**
- Validated **governance and policy recommendations** aligned with UK Net-Zero Strategy and standards
- **Transferable engagement toolkit** (workshop templates, Delphi protocol, KPI sheets)
- **Cross-sector stakeholder network and community of practice**
- Open-access **report and academic outputs**

Expected Impacts

- Improved **decision-making transparency** for compute-intensive digital workflows
- **Reduced carbon footprint** of national digital infrastructure supporting the Built Environment
- **Greater interoperability** across UK data and compute initiatives (NFCS, NetDRIVE, DAFNI, UKCRIC)
- **Increased capacity and literacy** in carbon-aware computing among Built Environment stakeholders
- **Stronger policy** alignment between digital infrastructure and sustainability goals
- More **equitable access** to national computing resources for diverse organisations
- **Scalable model transferable** to other sectors beyond the Built Environment



Join Our Expert Co-Creation Workshops

Are you working in:

- Built Environment (design, planning, infrastructure, construction, policy)
- Digital platforms, data systems, or HPC/federated computing
- Sustainability, carbon assessment, or circular economy

Expression of Interest



Thank You