

SUSTAIN-6G TERMINOLOGY GUIDE: DEFINING A COMMON LANGUAGE FOR SUSTAINABILITY IN 6G



SUSTAIN-6G is the EU's leading Smart Networks and Services (SNS) Lighthouse project that focuses on Sustainability in the 6th Generation (6G) mobile networks. SUSTAIN-6G's position is that sustainability must be a guiding principle in the design, deployment and operation of 6G technologies and not added as an afterthought.

- Sustainability is a key goal and design principle for 6th Generation mobile networks.
- Defining a common lexicon of sustainability terms is key to establishing consistent actions in the 6G ecosystem and beyond.
- The SUSTAIN-6G project is spearheading the consolidation of sustainability terms across multiple industry domains and ensuring their relevance for 6G.

The project works on providing a framework for embedding sustainability into 6G ecosystems, by establishing key design principles that go beyond solutions targeting technical performance. These 6G design principles integrate two aspects of sustainability: Sustainable 6G technology i.e., ensuring that the technology itself is sustainable, and 6G for Sustainability i.e., ensuring that the technology applications can help other industries become more sustainable.

The SUSTAIN-6G framework addresses the interrelations between these two aspects and the three interconnected pillars of sustainability, namely environmental, social and economic sustainability, and it comprises sustainability metrics, evaluation processes and methodologies. To ensure the success of such framework a common language is essential that can be used by all 6G stakeholders – from policymakers to small and medium sized enterprises (SMEs) and from research projects to manufacturers and service providers in all industries.

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6G SNS

SUSTAIN-6G therefore works on establishing such a common language in its Common Sustainability Terminology. Many terms are familiar, as they are drawn from work by standards organisations (e.g. ITU, CEN/CENELEC, ISO), industry associations (GSMA, NGNM), other EU research efforts and projects (e.g., HEXA-X II) and from SUSTAIN-6G partners themselves. However, due to the variety of sources and a partially not fully matching applicability of these terms in the context of the 6G ecosystem, SUSTAIN-6G clarifies and extends the definitions to ensure their relevance to the three pillars and two aspects of sustainability in 6G. The intent is that this set of common sustainability terminologies will then be adopted and leveraged by partners, industry associations and standardization bodies and ultimately used by policy makers and regulatory authorities in the relevant recommendations and guidelines for sustainable 6G and other future technologies.

The Common Sustainability Terminology underpins the ambitions of the SUSTAIN-6G project to settle sustainability as an intrinsic part of a 6G ecosystem that is inclusive, trustworthy and responsible and delivers positive environmental, social and economic outcomes, with practices like life cycle assessment, modular and circular design and clean production methods being critical enablers for the Sustainability by Design (SbD) principles.

About SUSTAIN-6G

Launched in January 2025, SUSTAIN-6G is the European Lighthouse project on Sustainability in 6G that will run until July 2027. The SUSTAIN-6G consortium consists of 24 partner organisations from 10 European countries with representation from academia (universities and a research institute), major telecommunication operators, experienced industrial partners (telecommunication and verticals), and innovative SMEs.

SUSTAIN-6G partners are developing sustainable 6G concepts and solutions to address gaps in technology and methodologies. The aim is to evaluate the sustainability impact of these concepts through Proof-of-Concept (PoC) with applications for agriculture, energy and healthcare industries, and to develop best-practice recommendations and guidelines for standards and policy makers based on the insights gained from the project work.

The SUSTAIN-6G partner organisations are key players in their areas of expertise, as well as being leading contributors in the relevant standardisation and industrial fora work. This will ensure that SUSTAIN-6G's objectives will impact 6G standards, the respective roadmaps and regulatory policies on sustainability. Only by such impact, 6G systems will integrate sustainability as a core asset.