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# The Hub is driving two new EU proposals

To strengthen the sustainability and extension of our Network of Excellence developed during the past 6 years, we are pursuing two new EU proposals: A COST Action and a Marie Curie Doctoral Network.

The draft title of the COST proposal is: Driving a sustainable society - leveraging digitalization and systems/design thinking.

The draft title of the MSCA proposal is: G3C - Green Computing and Communication Continuum for a Smart and Sustainable Society. This proposal is further described in this newsletter.

## MSCA proposal G3C

The iCT sector is undergoing exponential growth, leading to increased energy consumption in communication and computation. ICT's carbon footprint is 3% of global emissions as of 2022—on par with the aviation industry. This footprint is projected to increase to 8% within a decade. According to International Energy Agency (IEA), from 2000 to 2022, global electricity consumption by data centers has surged from 0.5% to between 1-2%, with forecasts indicating a rise to 4% by 2030, reflecting significant growth driven by advanced computing and communication technologies. G3C wants to address this strong increase by innovative research projects. Our current list of topics include:

- Quantifying the environmenttal impact: comprehensive modeling of the ICT sector's carbon footprint
- Dynamic workload optimization for reducing carbon footprint across IoT-Edge-Cloud under latency and dependability constraints
- Optimizing energy efficiency in cellular networks: integrative techniques for resource management, beamforming, and carbon-aware routing
- Low-carbon AI: Innovative AI architectures for sustainable computing
- Continual learning algorithms for energy-efficient AI deployment
- Adaptive AI models for optimized energy usage across the computing continuum
- Quantum Efficiency: integrating Quantum Computing for sustainable High-Performance Systems
- Harmonizing Smart Grid development and datacenter implementation for advanced energy optimization and carbon reduction

Please contact Prof. Paul Pop at DTU if you have strong groups in one or more of these topics (paupo@dtu.dk).

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## Remote access to the 5G Lab at NTNU

The 5G Lab hosted at NTNU is now available for remote Hub users. An internal network is running at the NTNU Lab with several 5G-connected devices (two are online now with more that can be added). For people to be part of the network you need an authentication key and get their public SSH key for remote access.

The set-up has several nodes connected to a private standalone 5G network which can be used by Hub members.

Some examples:

- Testing bandwidth and latency of 5G-SA
- Comparing NTNU's 5G-SA setup with similar local setups
- Testing with mmWave 5G (installation in progress)

Please contact Diaa Jadaan at diaa.jadaan@ntnu.no to generate a public SSH key.
A network key will be issued for each SSH key. The issued network keys are valid for 90 days and can be renewed as needed.
Further a joint paper describing the 5G Lab is being considered by two of our Hub students.

## Hub calendar

Sustainability Science Days 2024
Aalto University, 10-14 June 2024

TECoSA Edge Computing Summit
Stockholm, 17 June

Generative Modeling Summer School
TU Eindhoven, 24-28 June, 2024

Danish Digitalization, Data Science and AI – D3A 2.0
Nyborg, 21-23 October, 2024

Scandinavian Conference on System & Software Safety
Göteborg, 19-20 Nov. 2024