ETSI Research Conference 2023

Maximizing the Impact of European 6G Research through Standardization

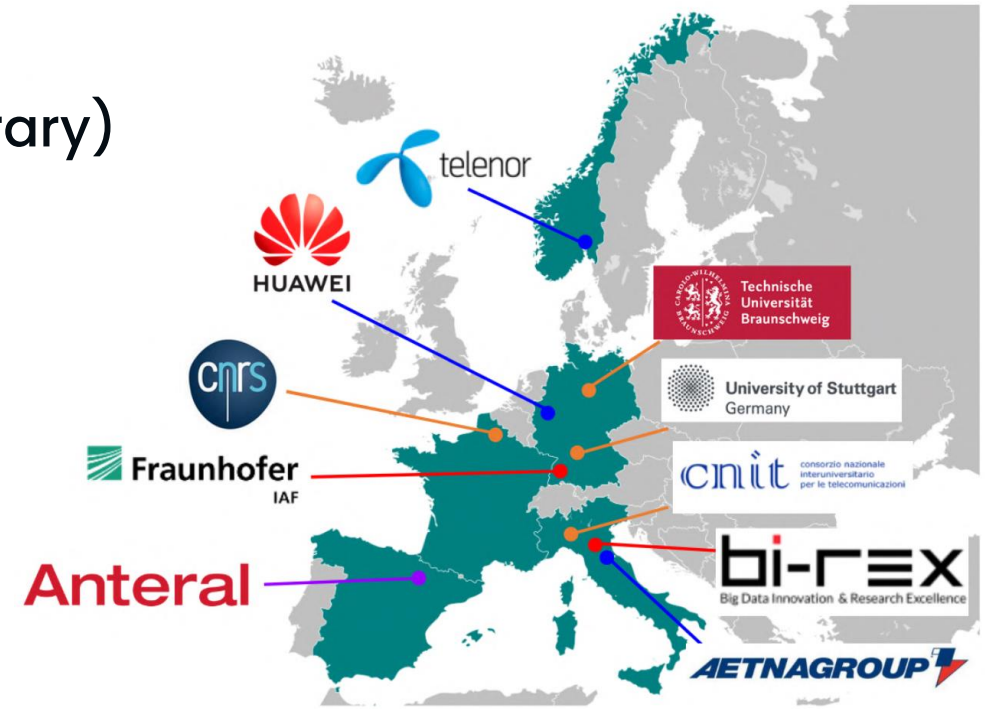
Prof. Luca Sanguinetti

CNIT, University of Pisa (ITALY)

08/02/2023

1. Project Overview

- **Project Name:**
  THz Industrial Mesh Networks in Smart Sensing and Propagation Environments
- **Project website:**
  https://wilab.cnit.it/times/ (temporary)
- **Stream:**
  B-01-02

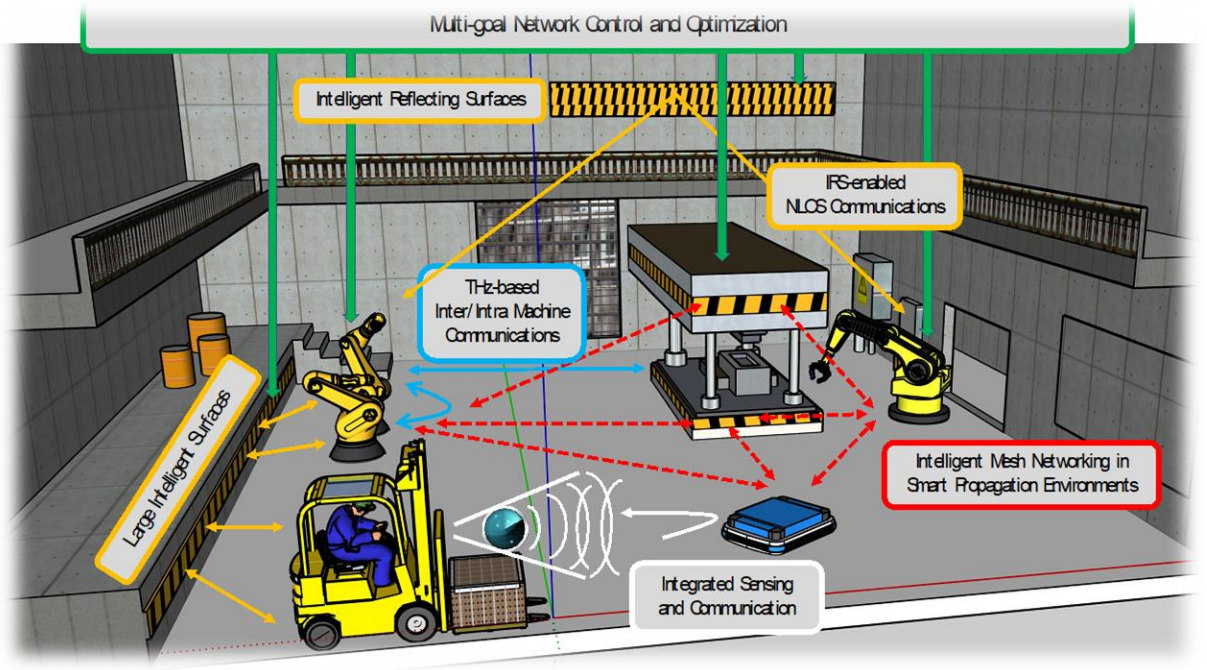


- **Other:**
  PoC realization/validation in real industrial environments (BIREX, AETNA)
  Verticals: Manufacturing (I4.0, I5.0), Healthcare, Automotive

2. Technical Information

• Project Key Objectives:

- Derivation of new THz channel models based on measurements in industrial scenarios
- Design of novel THz solutions at the PHY/MAC layers
- Design/implementation of THz front-ends, antennas, and IRSs
- Design of a multi-goal mesh-based RAN composed of active and passive (IRS) nodes
- Integration of sensing and communications
- Definition of use cases/requirements for future industrial applications
- Realization and validation of a PoC in real industrial environments



• Key technologies used/investigated:

- THz communications, intelligent mesh networking with IRSs, integrated sensing/communications

3. Planned Standardization Activities

- **Standardization plans / objectives:**
  - Contribution of project results to standards
- **Project activities / technologies that may lead to standardization:**
  - Simulation scenarios
  - THz channel measurements and modelling in industrial scenarios
  - Technology enablers for industrial THz communications
- **Potential targeted standardization bodies / groups:**
  - ETSI ISG THz
  - ETSI ISG RIS
  - IEEE 802 SC THz
  - ITU-R (Preparation of WRC 2027, ITU-R SG3)
  - COST-INTERACT
  - one6G
  - 3GPP

3. Planned Standardization Activities

- **Standardization planning and estimated time plan:**
  - Project results will be continuously assessed with respect to the potential input to standardisation
  - End of 2023:
    - Channel measurements and modelling
    - RF impairment models
  - End of 2024:
    - Further Channel measurements and modelling
    - Further RF impairment models
  - End of 2025:
    - Beamforming methods
    - Waveforms and signal processing procedures for integrated sensing and communications