



SUPERIOT Project

SNS Luchtime Webinar 4 – Introducing the SNS projects

Stream B2 & B3: Wireless Communications and Signal Processing &
Communication Infrastructure and Devices



March 6th, 2023

Marcos Katz
University of Oulu,
Finland

Project main information

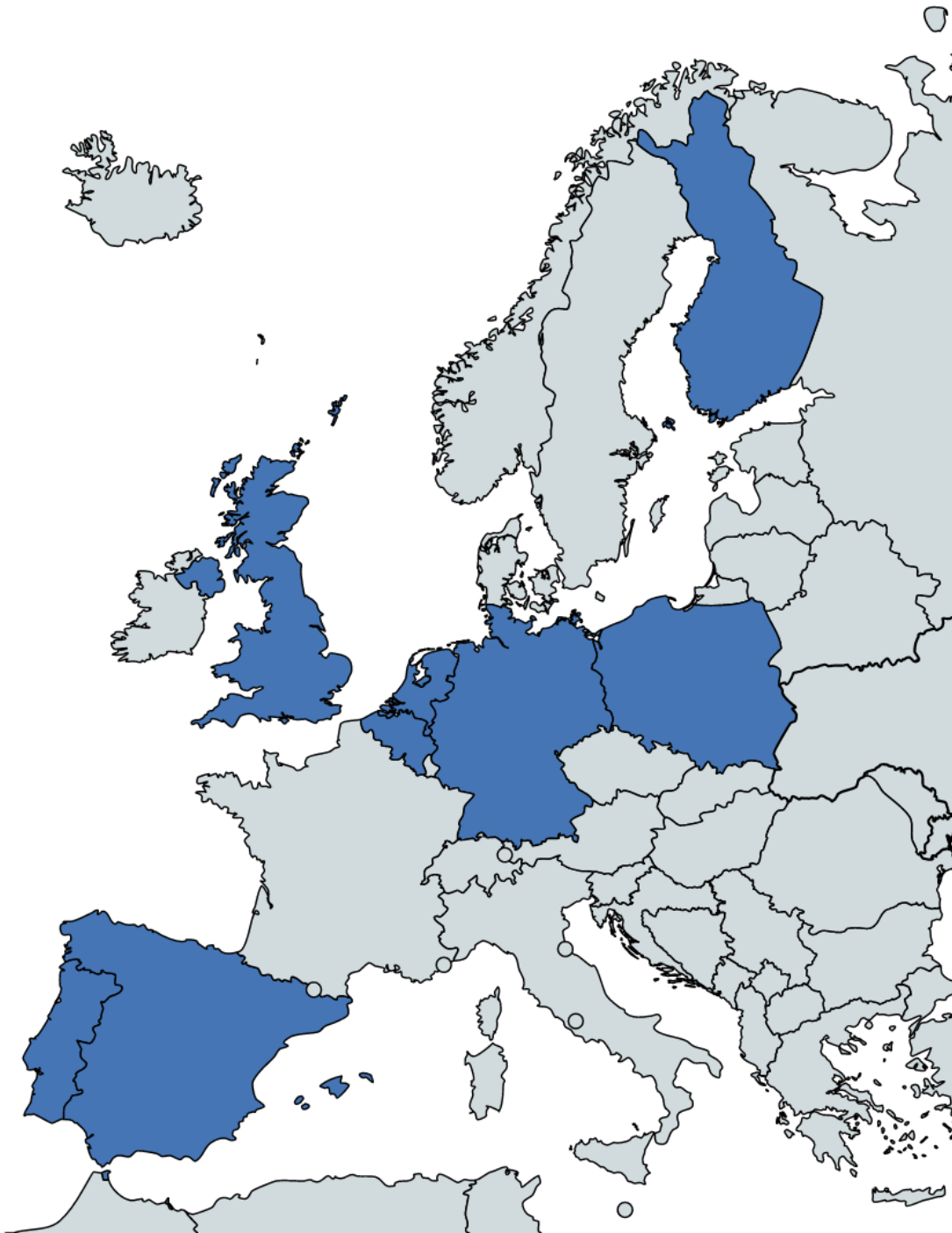


| Project fact sheet | |
|--------------------|---|
| Project number | 101096021 |
| Project name | Truly Sustainable Printed Electronics-based IoT Combining Optical and Radio Wireless Technologies |
| Project acronym | SUPERIOT |
| Call | HORIZON-JU-SNS-2022 |
| Topic | HORIZON-JU-SNS-2022-STREAM-B-01-03 |
| Type of action | HORIZON-JU-RIA |
| Project start date | 1 January 2023 |
| Duration | 36 months |
| Total EC funding | 4 757 739.50 € |

1. Project Overview

- **Project Name:** SUPERIOT (Truly Sustainable Printed Electronics-based IoT Combining Optical and Radio Wireless Technologies)
 - **Project website:** superiot.eu
- **Stream:** STREAM-B-01-03
- **Other:** Budget: €5M; duration: 3 years; demonstrators: 4
- **Keywords :** truly sustainable IoT, printed electronics, optical communications, radio communications.
- **Verticals:** logistics, industry, healthcare, consumer market, wearables.

Consortium



- **Partnership**

10 partners

1 associated partner

- **Involved nations**

Belgium

Finland

Germany

Netherlands

Poland

Portugal

Spain

United Kingdom



SUPERIOT: Basic concepts 1/2



Sustainability by design

Multi-mode **communications**: light- and radio-based wireless connectivity

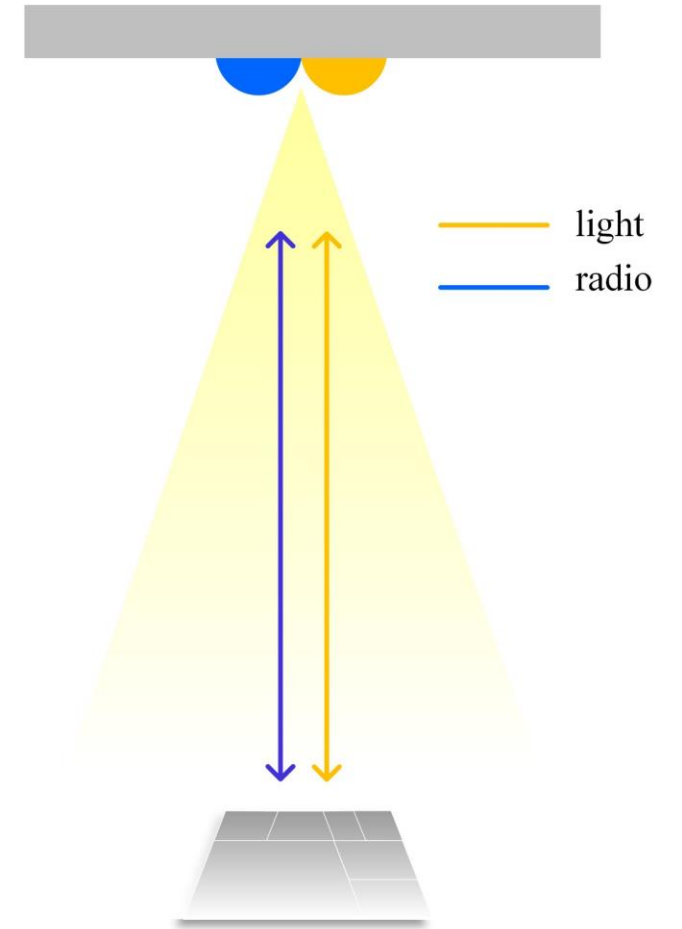
Multi-mode energy **harvesting**: light- and radio based

Multi-mode **positioning**: light- and radio-based

Reconfigurability: node and network

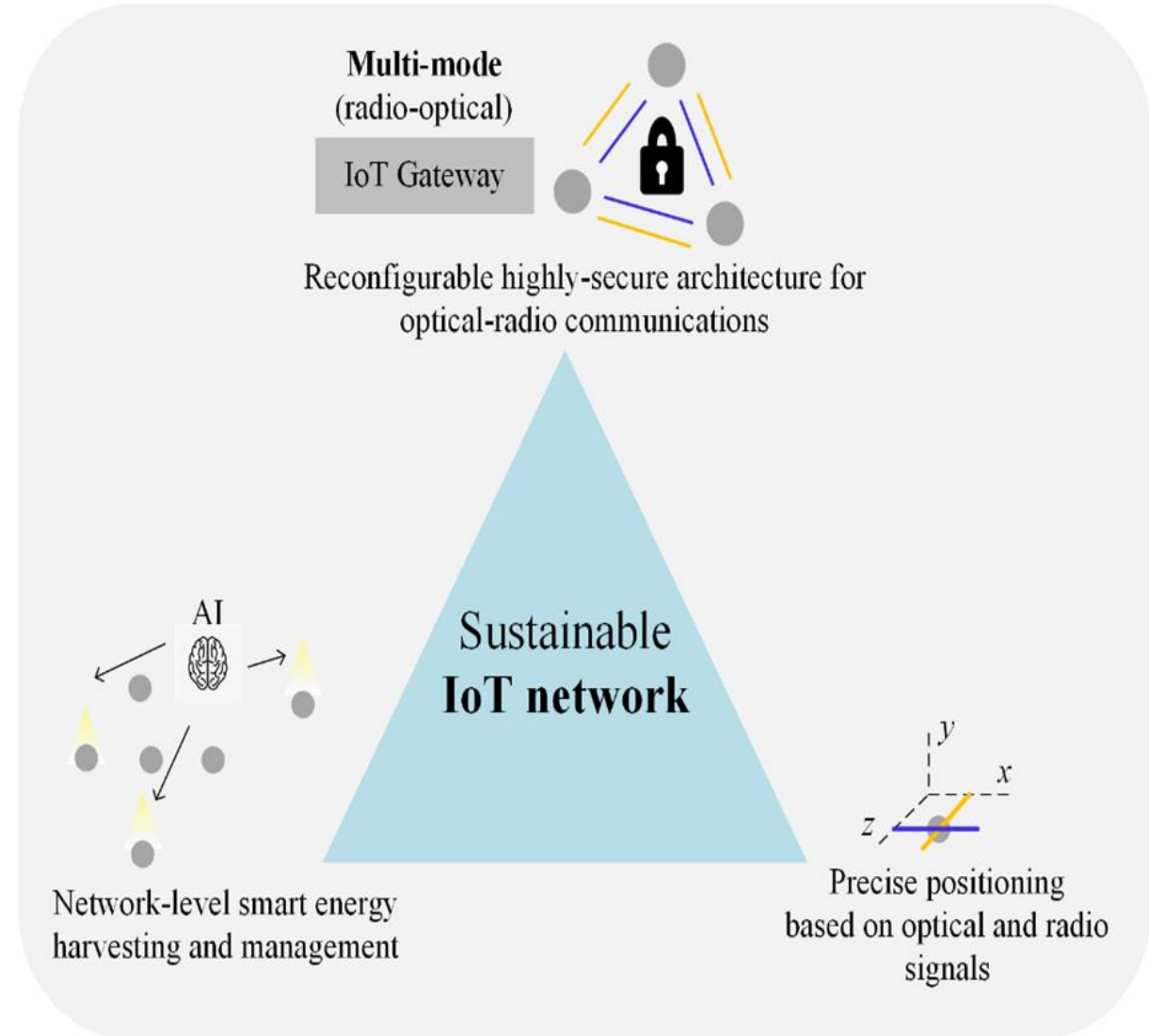
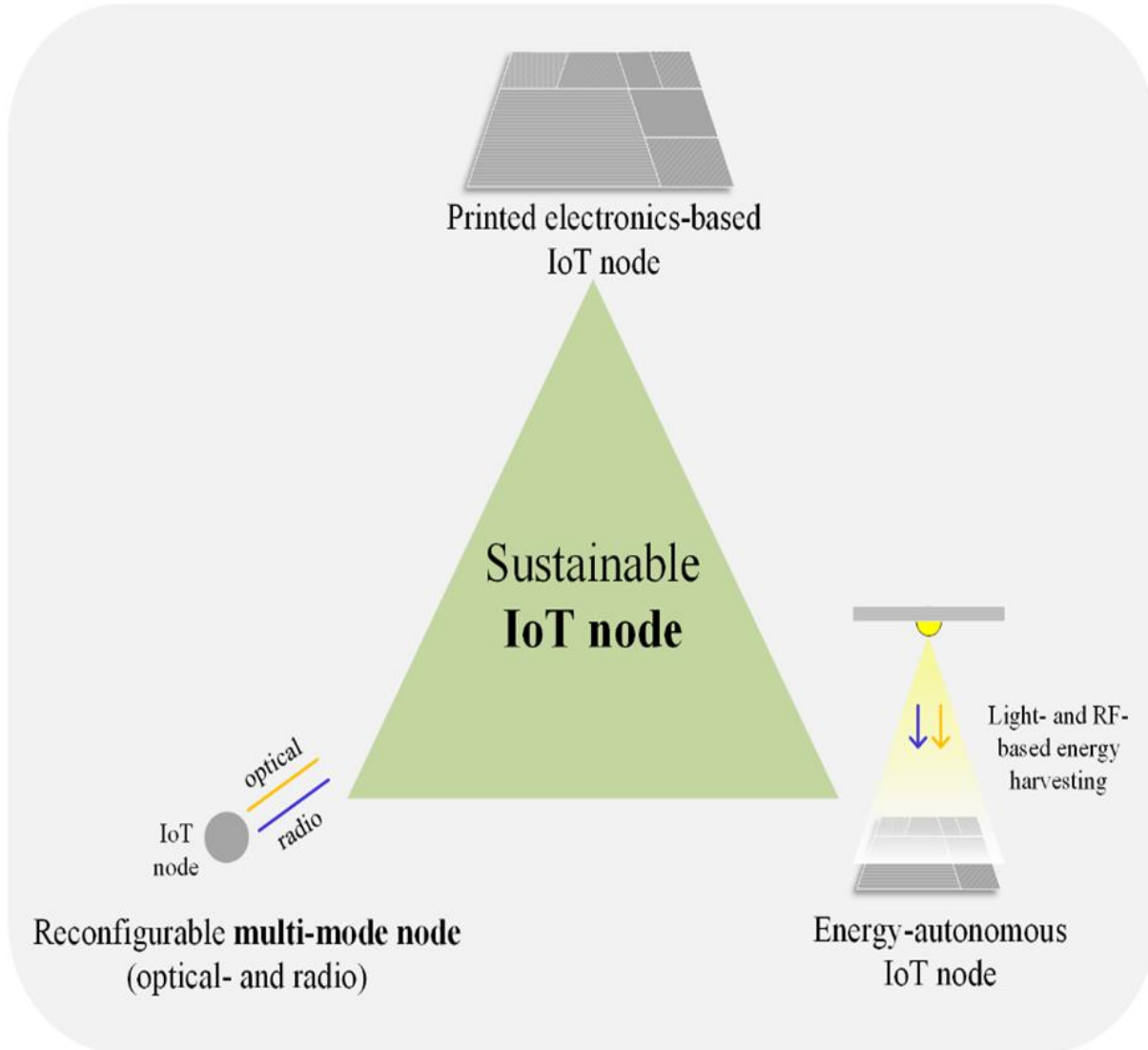
Sustainable implementation: printed electronics technology (node)

Sustainable use: smart energy harvesting and management



Printed electronics-based energy
autonomous reconfigurable IoT node (RIoT)

SUPERIOT: Basic concepts 2/2



Project objectives 1/2



- Demonstrate that **dual-mode IoT (radio/light-based)** is not only feasible but also results in a highly flexible and adaptable solution.
- Demonstrate **dual mode energy harvesting** as a part of the SUPERIOT concept.
- Demonstrate **dual mode positioning** as a part of the SUPERIOT concept.
- Demonstrate that **printed electronics** is a key technology to implement sustainable IoT nodes.
- Develop, demonstrate and advocate the concept of **Truly Sustainable IoT**.
- Create and support concepts for the future based on the approaches developed in SUPERIOT.

Project objectives 2/2



- Implement and demonstrate a **reconfigurable IoT node (RIoT)** supporting the mentioned dual-modes and using printed electronics technologies.
- Implement and demonstrate a **reconfigurable IoT network** supporting dual-modes.
- Create an application demonstrator based on the reconfigurable dual-mode IoT concept.
- Develop and demonstrate a **printed limited-capability IoT node**.
- Develop and demonstrate a **large-area IoT node**.

Project visions



SUPERIOT will develop a future-proof concept, paving the way towards novel technologies. In the next decade, we might see:

- **Fully-printed advanced capabilities reconfigurable optical-radio IoT nodes**
- **Extremely inexpensive nodes (e.g., one-cent node)**
- **Environmentally friendly disposable IoT nodes, use of biodegradable electronics, etc.**
- **Novel scenarios/use cases: inside the human body, underwater, mining, etc.**
- **Sustainable technology supporting massive sensing and actuation**

THANK YOU



This project has received funding from the European Union's Horizon Europe research and innovation programme and Smart Networks and Services Joint Undertaking (SNS JU) under grant agreement No 101096021.