



6GTandem

*A dual-frequency  
distributed MIMO  
approach*

for future 6G applications



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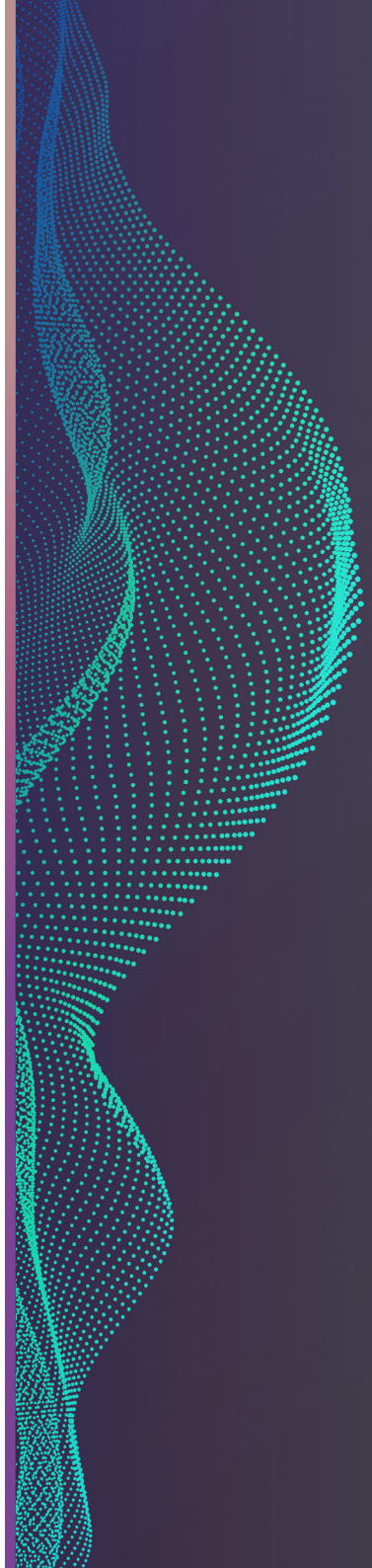
## About

Sixth-generation wireless technology (6G) is expected to transform today's society, enhance businesses, increase research possibilities, create new technologies, advance communication systems and address the needs of broad spectrum of sectors.

6GTandem represents a salient part of this crucial transformation. By co-designing novel dual-frequency operation and an innovative highly integrated and distributed radiostripe system, it will create superior value with respect to energy consumption, service availability and cost of the system.

The 6GTandem project will focus on high performance and reliable wireless services based on two main innovative and mutually reinforcing concepts:

- Dual-frequency distributed MIMO operation whereby favorable deployments enable drastic energy savings, and the low/high frequency bands offer both redundancy and mutual support.
- Co-design of signals, algorithms, and transmission schemes with an easily deployable architecture – radiostripe – for extended sub-THz coverage.





## Vision

Together we aim to advance dual-frequency distributed MIMO networks that have the potential to enable services offering ultra-high reliability and high-resolution position information in a sustainable way and thus creating a positive change within the European society.

The project will primarily focus on the advancement of the combined

low-frequency and sub-THz distributed MIMO system to enable new applications that require an unprecedented combination of performance factors. It will pull novel networks forward with joined expertise on wireless communication system and innovative hardware solutions opening new opportunities for highly energy-efficient operation and low-cost deployment.



## Motivation

With our strong team of industrial, academic and research partners we believe that 6GTandem will deliver unique results in the highly promising direction of dual-frequency networks with distributed deployments, which will fuel R&D output and eventual new products.

The consortium is driven by the goal to provide uniform ultra-high throughput coverage, off-load lower frequency bands and offer new services. By accomplishing that we will contribute to setting new guidelines for the whole European 6G community.



## Mission & Objectives

6GTandem aims to achieve competitive advantage by defining and shaping the future of 6G infrastructures in Europe and contributing to the long-term impact of smart, flexible, and scalable Radio Access Network (RAN) evolution and offering hardware products that will reach a unique level in terms of Radio Frequency (RF) performance, cost-, spectrum- and energy-efficiency in the global market.

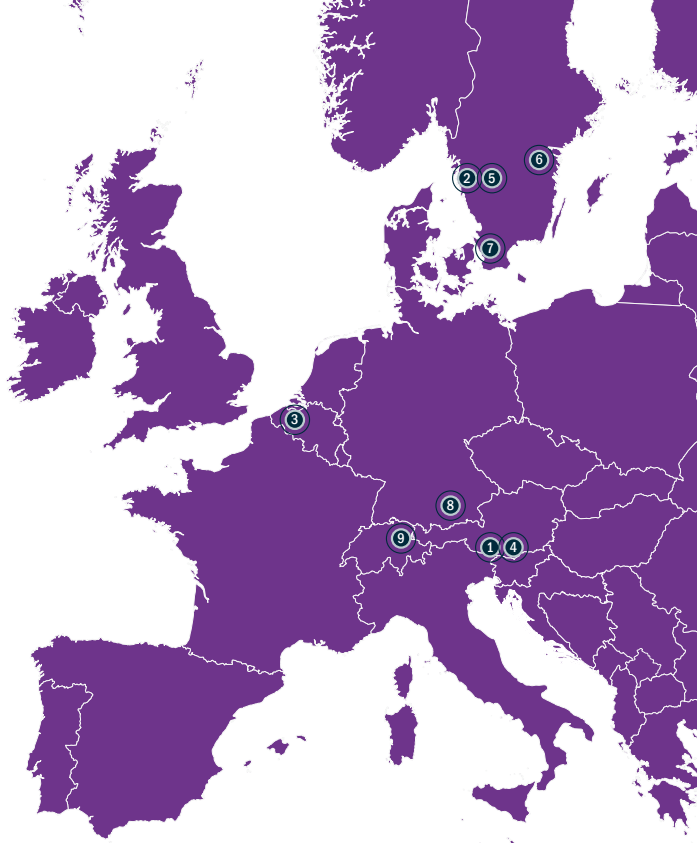
In particular, 6GTandem will focus on the following objectives:

- Develop the 6GTandem system presenting an optimized combination of a lower-frequency infrastructure and a sub-THz radiostripe.
- Develop models for the tandem system in terms of hardware impairments, propagation and impact of the radio environment .
- Design waveforms for dual-frequency systems with control information.
- Develop fully integrated communication links.
- Demonstrate and validate the concept to identify performance bottlenecks and to guide the future research directions in- and beyond the project lifetime.



# Partners

The 6GTandem consortium consists of nine partners from five different countries (Austria, Sweden, Belgium, Germany, and Switzerland). It combines a potential team of four highly qualified industry partners, four highly ranked academic partners and a successful multicultural SME.



**1** **TECHNIKON**  
Technikon Forschungs- und Planungsgesellschaft mbH  
AUSTRIA [Villach]

**2** **ERICSSON**  
Ericsson AB, SWEDEN  
[Gothenburg]

**3** **KU LEUVEN**  
KU Leuven, BELGIUM  
[Ghent]

**4** **Infineon**  
Infineon Technologies  
Austria AG  
AUSTRIA [Villach]

**5** **CHALMERS**  
CHALMERS  
UNIVERSITY OF TECHNOLOGY  
Chalmers University of  
Technology AB, SWEDEN  
[Gothenburg]

**6** **liu** LINKÖPING  
UNIVERSITY  
Linköping University, SWEDEN  
[Linköping]

**7** **LUND**  
UNIVERSITY  
Lund University, SWEDEN  
[Lund]

**8** **Infineon**  
Infineon Technologies AG,  
GERMANY [Munich]

**9** **HUBER+SUHNER**  
Huber + Suhner AG,  
SWITZERLAND [Herisau]

# Facts



## Budget

**€ 5.3 Million**

€ 5.1 Million EU-funded



## Consortium

**9 Partners**

5 countries



## Duration

**42 Months**

01/2023 - 06/2026

# Contact

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Find out more about this Project:  
<https://horizon-6gtandem.eu/>