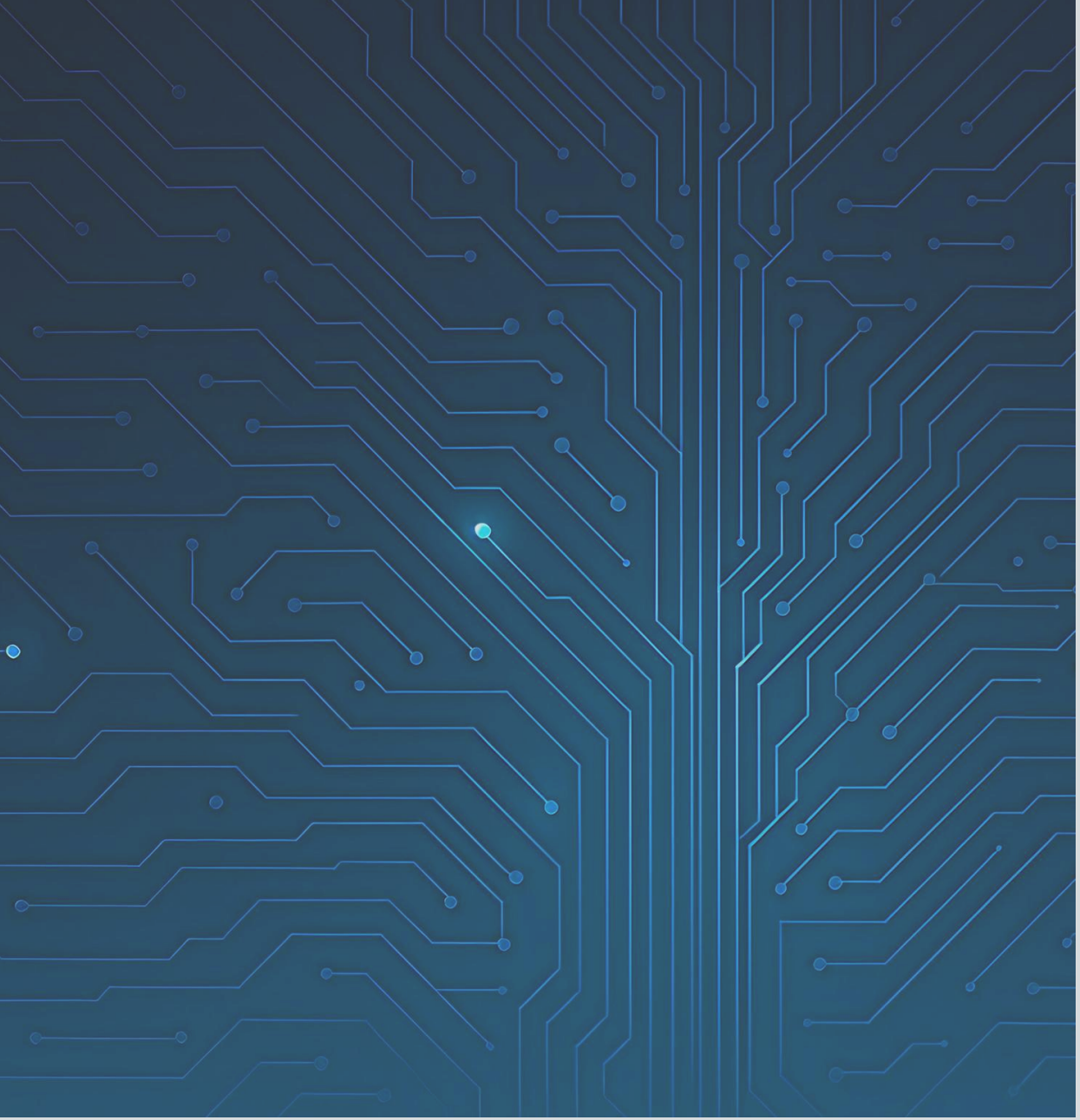

Deutsches Forschungszentrum für Künstliche Intelligenz
German Research Center for Artificial Intelligence

Rheinland-Pfälzische Technische Universität
Kaiserslautern
Landau

Turning Momentum into Market Impact:

Three CELTIC-NEXT Flagship Success Stories

CELTIC-NEXT
Proposers Brokerage Day
30th January 2026, Vienna, Austria

Christoph Lipps

The World‘s Largest Public AI Research Center

55 Professors
26 Research Departments
>600 Researcher from 83 countries
+ ~1000 German colleagues
>100 Startups and Spin-Off companies
Project Budget 2023 ~260 Million €

262 Professors +
34 Junior Professors
17.000 Students
1.800 PhD Students
85 Bachelor degree programs
104 Master degree programs
28 Distance learning programs

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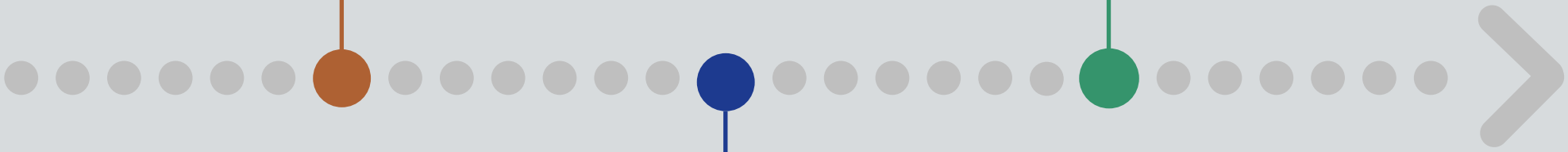
SENDATE

SEcure Networking for a DATa center cloud in Europe
04/2016 – 05/2019

SUSTAINET

Sustainable Technologies for Advanced Resilient and Energy-Efficient Networks
01/2025 – 12/2027



Accelerating digital transformation in Europe by Intelligent NETwork automation
01/2021 – 12/2024

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SEcure Networking for a DATa center cloud in Europe

- **Secure and Distributed Data Center Architectures**
  - SENDATE focused on developing distributed, low-latency, and highly secure data center architectures across Europe to improve flexibility, reduce delays, and support future digital services.
- **Convergence of IT and Telecom Networks**
  - A major goal was to merge telecommunications and cloud infrastructures using Software-Defined Networking (SDN), Network Functions Virtualization (NFV), and advanced resource orchestration to enable programmable, efficient, and secure networks.
- **High-Performance Optical Networking Technologies**
  - SENDATE worked on next-generation optical transport networks, including new transmission systems, multi-layer packet-optical switching, and secure high-speed inter-data-center links to meet rising data and performance demands.

Accelerating digital transformation in Europe by Intelligent NETwork automation

- **Intelligent, Automated Network Architectures**
  - AI-NET aimed to accelerate Europe's digital transformation by developing intelligent, automated network architectures, combining 5G/6G, edge-centric computing, and artificial intelligence. The goal was to enable high-performance services deployed at the network edge, meeting the increasing demands of next-generation digital applications.
- **Edge-Based High-Performance Service & Energy-Efficient Operation**
  - A key focus was enabling high-performance, low-latency, energy-efficient edge services. AI-NET investigated how to deploy deep-edge computing nodes, reduce energy consumption, and operate distributed services closer to users while keeping performance guarantees (availability, latency, throughput) high.
- **AI-Driven Network Control, Security, and Automation**
  - . AI-NET used artificial intelligence to complement traditional network optimization algorithms, enabling advanced automation in areas such as network control, service orchestration, cybersecurity, and resilience. Sub-projects (AI-NET-ANIARA, AI-NET-PROTECT, AI-NET-ANTILLAS) worked on secure data management, protected critical infrastructures, and developed autonomous, AI-supported network systems.

Accelerating digital transformation in Europe by Intelligent NETwork automation

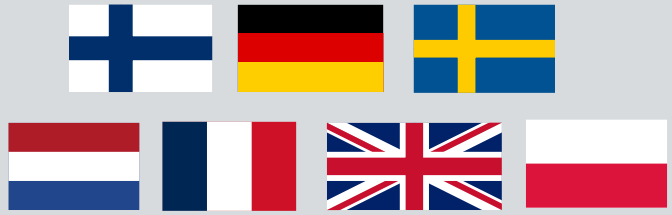
- **Sustainable, Energy-Efficient, and High-Performance Network Technologies**
  - SUSTAINET focuses on developing energy-efficient, sustainable, and high-performing communication networks to support Europe's transition toward a climate-neutral digital society. This includes optimizing optical transmission, improving energy usage, and enabling scalable, future-proof network infrastructures.
- **Resilient and Secure Network Architectures for Critical Infrastructure**
  - A central goal is to design resilient, secure network architectures capable of maintaining robust connectivity even under failures, disruptions, or cyber threats. The project emphasizes next-generation resilience concepts, cybersecurity frameworks, and intelligent, context-aware networking for critical European infrastructures.
- **Future-Ready Digital Society: Integrating 6G, AI, and Advanced Network Technologies**
  - SUSTAINET prepares Europe for future 6G-enabled digital services by integrating fiber, wireless, and modern mobile technologies into seamless end-to-end systems. It develops AI-enhanced signal processing, advanced architectures, and cognitive network services to enable sustainable, flexible, and intelligent next-generation communication networks.

SENDATE

- 5 countries
- 93 participants
- 72.8M€ budget
- 553 PY

AI-NET

- 7 countries
- 98 participants
- 68.3M€ budget
- 507 PY



SUSTAINET

- 11 countries
- 112 participants
- 80.37M€
- 610 PY

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SENDATE

SEcure Networking for a DATa center cloud in Europe

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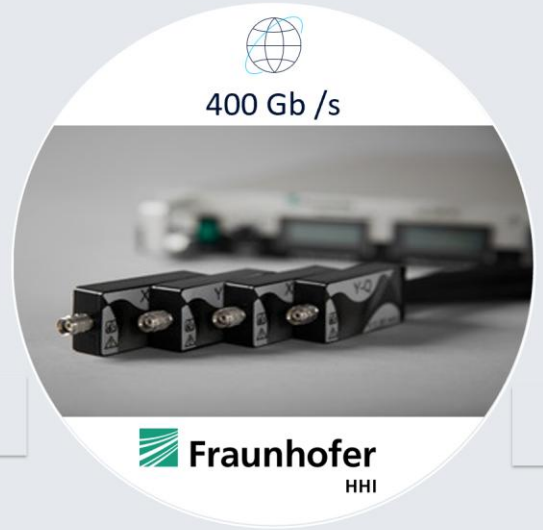
SEcure Networking for a DATa center cloud in Europe

SENDATE – Highlights (World Records)

100G quantum-safe transport over 2,800km

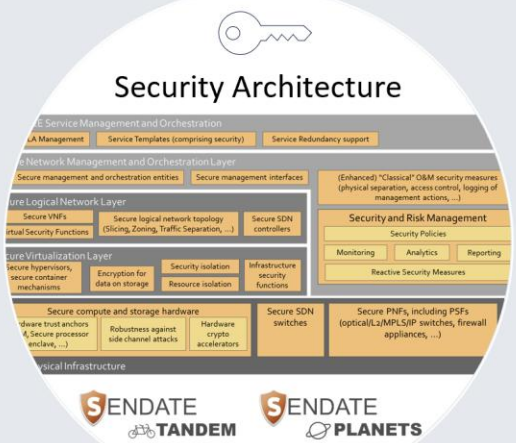


Aggregation and reception of 400 Gb/s superchannel in a single-photodiode

SEcure Networking for a DATa center cloud in Europe

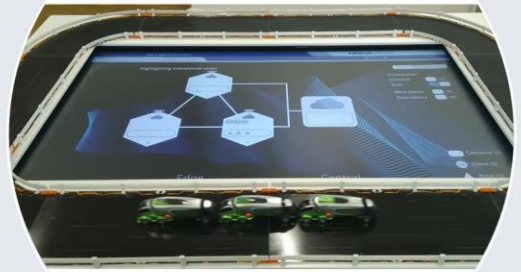
SENDATE - Highlights

Security Architecture



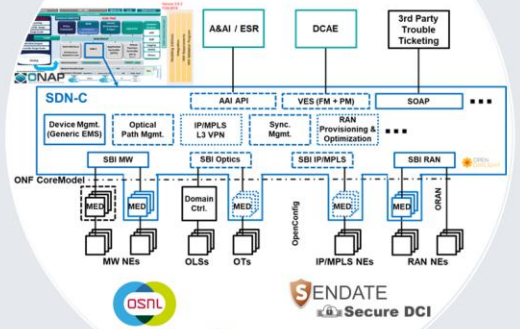
Architecture supporting different DC types and first security architecture ever

PoCs + Prototypes



65 demos / field trials and PoCs around the world

Open SDN NFV Lab



Open ecosystem based on standardized APIs and open source software projects

Accelerating digital transformation in Europe by Intelligent NETwork automation

AI-NET

316	184	72
Publications	PhD & Master Theses	IPR, Open Source & Standards Contributions
77	70	43
PoCs	Keynotes and general public comms	Hirings

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Accelerating digital transformation in Europe by Intelligent NETwork automation

Research program for communication systems “Sovereign. Digital. Connected.”

Shaping the technological foundations of 6G

6G Platform

6G Platform Germany

The German Platform for Future Communication Technologies and 6G

Enabling digital sovereignity for the citizens in a hyperconnected world

6G Research-Hubs

- 6GEM
- 6G-life
- 6G-RIC
- Open6GHub

6G Industrial-Projects

- CELTIC-NEXT eureka Cluster AI-NET

- 6G NeXt
- 6G-ADLANTIK
- 6G-ANNA
- 6G-CAMPUS
- 6G-CampuSens
- 6G-Health
- 6G-ICAS4Mobility
- 6G-LICRIS
- 6G-NETFAB
- 6G-TakeOff
- 6G-Terafactory
- 6G-TERAKOM
- ESSENCE-6GM
- INTERSOUL
- KOMSENS-6G
- MassIMO
- Nitrides-4-6G

Support and extension of 6G research and development

SUSTAINET

Sustainable Technologies for Advanced Resilient and Energy-Efficient Networks

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