



CREATING THE
5G-MANUFACTURING
ECOSYSTEM

5G INDUSTRY
CAMPUS
EUROPE

Bart Mellaerts
Ericsson

5G

INDUSTRY CAMPUS EUROPE

5G-Industry Campus Europe is the largest industrial 5G testbed

- 5G indoor networks on 3 different shopfloors fully equipped with machines and robots
- 5G outdoor network of 1 km² at the RWTH Aachen Campus
- 5G (N)SA running on industry spectrum @3.7 – 3.8 GHz
- 5G NSA with 800 MHz mmWave spectrum @26.7-27.5 GHz
- *Simultaneous 4G network running @2.3 GHz as anchor band*

5G-Industry Campus Europe is

- the entity in Europe for the holistic application of 5G to manufacturing and logistics
- Exploring 5G in construction, mining and grid monitoring
- pioneer for establishing 5G in industry
- application-oriented with real world use cases
- single-site as well as cross-site perspective

Supported by:



on the basis of a decision
by the German Bundestag

5G network supplier:



ERICSSON



RWTHAACHEN
UNIVERSITY

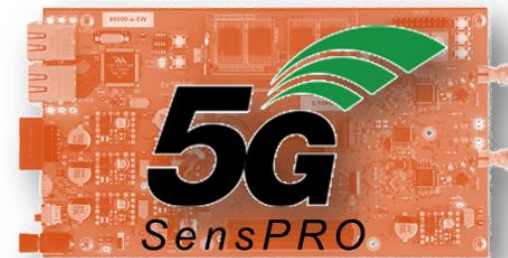
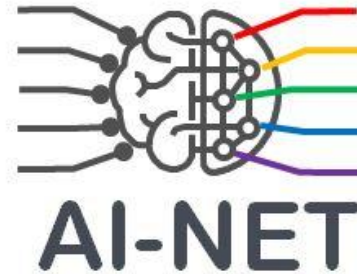
Fraunhofer
IPT



RWTHAACHEN
UNIVERSITY

fir
an der
RWTH Aachen

Some of the publicly funded projects since 2019



5G Projects of the Fraunhofer IPT at the 5G-Industry Campus Europe

- With funding from the Federal Ministry of Research, Technology and Innovation
- Supported by the Federal Ministry of Transport and Digital Infrastructure
- on the basis of a decision by the German Bundestag
- **5G-ICE**: Fraunhofer IPT, WZL | RWTH Aachen, FIR [Completed]
 - **H2020 5G-SMART**: Ericsson, ABB, BME, Cummins, Fraunhofer IPT, Lund University, Margpos Monitoring Solutions, Margpos, Bosch, T-systems, u-blox, UP Valencia [Completed]
 - **NRW Leibniz 5G-SensePro**: Fraunhofer IPT, Margpos Monitoring Solutions, Meestram, oculavis, CP Tech, Ericsson, MTU Aero Engines [Completed]
 - **NRW Leibniz 5G-Augmented5G**: Fraunhofer IPT, Asantec, Hella, oculavis [Completed]
 - **5G-NRW 5G-COMET**: Fraunhofer IPT, WZL | RWTH Aachen, IDEE | RWTH Aachen, Meastram, Ultimaco, Ericsson, Hirschmann, SMS Group, Mitsubishi Electric, Gemis Edge Cloud [Completed]
 - **5G-NRW 5G-RISE**: 5G, Fraunhofer IPT, A&D Securitytechnik, Wronski, Platz & Rohert [Completed]
 - **5G-NRW 5G-NAMICO**: Fraunhofer IPT, MRE | RWTH Aachen, IP | RWTH Aachen, Construction Robotics, Naragac, Kabelwerk Eppan, Ericsson, GPC BAT Bergbau Service, BROOK, Lieber, PORN [Completed]
 - **5G-NRW 5G-VITAMINE 5G**: Fraunhofer IPT, RWTH Aachen, MobileWorld, BCT Steuerungs- und DV-Systeme, Camaki, DropLab Technologies, Universität Filderstadt [Completed]
 - **5G-NRW 5G-ITAMoRo 5G**: Hyperflexion, Fraunhofer IPT, Silicon, VCK Logistics SCS, WZL | RWTH Aachen [Completed]
 - **BMF 6G-ANNA**: AIN, Airbus, Black&red, Bosch, Cadani, Ericsson, FAU Erlangen-Nürnberg, Fraunhofer, KIT, Mazharize, Mimerik, OSU Magdeburg, PHYSIC, Rohde & Schwarz, Ruhr-Universität Bochum, RWTH, Siemens, Smart Mobile Labs AG, TU Braunschweig, TU Dortmund, TU Dresden, TU Hamburg, TU Kaiserslautern, TU München, Universität Bremen, Vodafone, Wandelbots [Completed]
 - **5G-Sierra**: Fraunhofer IPT, Swabid, Ultimaco, oculavis, Keyight, Margpos Monitoring Solutions, Ericsson [Completed]
 - **Horizon Europe TARGET-X**: Fraunhofer IPT, Ericsson, ACS | RWTH Aachen, WZL | RWTH Aachen, IP | RWTH Aachen, IDADA, Construction Robotics, IZCAT, Fivecomm, Neutron, Margpos, Margpos Monitoring Solutions, Tanglelog, Mitsubishi Electric, Outcomes [Completed]
 - **BMV CLOUD5G**: Fraunhofer IPT, Ericsson, WZL | RWTH Aachen, IP | RWTH Aachen, medTEC | RWTH Aachen, IT Center | RWTH Aachen, SMS digital, IonPro, NEURA Robotics, SurgTAK, Richard Wolf, Wurst Stahlbau, Dräger, OR.NET, NVIDIA, Margpos Monitoring Solutions [Completed]
 - **B5I CSB**: Fraunhofer IPT, SPICE | RWTH Aachen, Umberg [Completed]
 - **BMFTR 5GEMa**: DSP | RWTH Aachen, INDA | RWTH Aachen, SPICE | RWTH Aachen, Ika | RWTH Aachen, IDS | RWTH Aachen, TU Dortmund, Ruhr-Universität Bochum, Fraunhofer IPT, Fraunhofer IML
 - **BMFTR 5GIC6G**: Ericsson, Fraunhofer IPT, Adapt Engineering GmbH, IKADO GmbH, DSP | RWTH Aachen, SEW-EURODRIVE GmbH & Co. KG, TU Dortmund, TU Dresden

16 projects with 90 different partners, including 62 companies
5G is an innovation driver for the economy!



Learnings and challenges

Learnings

- Create a 5G ecosystem outside of projects
- Different industries have similar problems
- Allow for learning from project partners
- Technology acceptance takes time

Challenges

- Administrative overhead
- Financial support for SMEs
- Expectations versus reality
- Technology acceptance takes time

5G is the first generation for industry, but fifth generation for mobile broadband

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