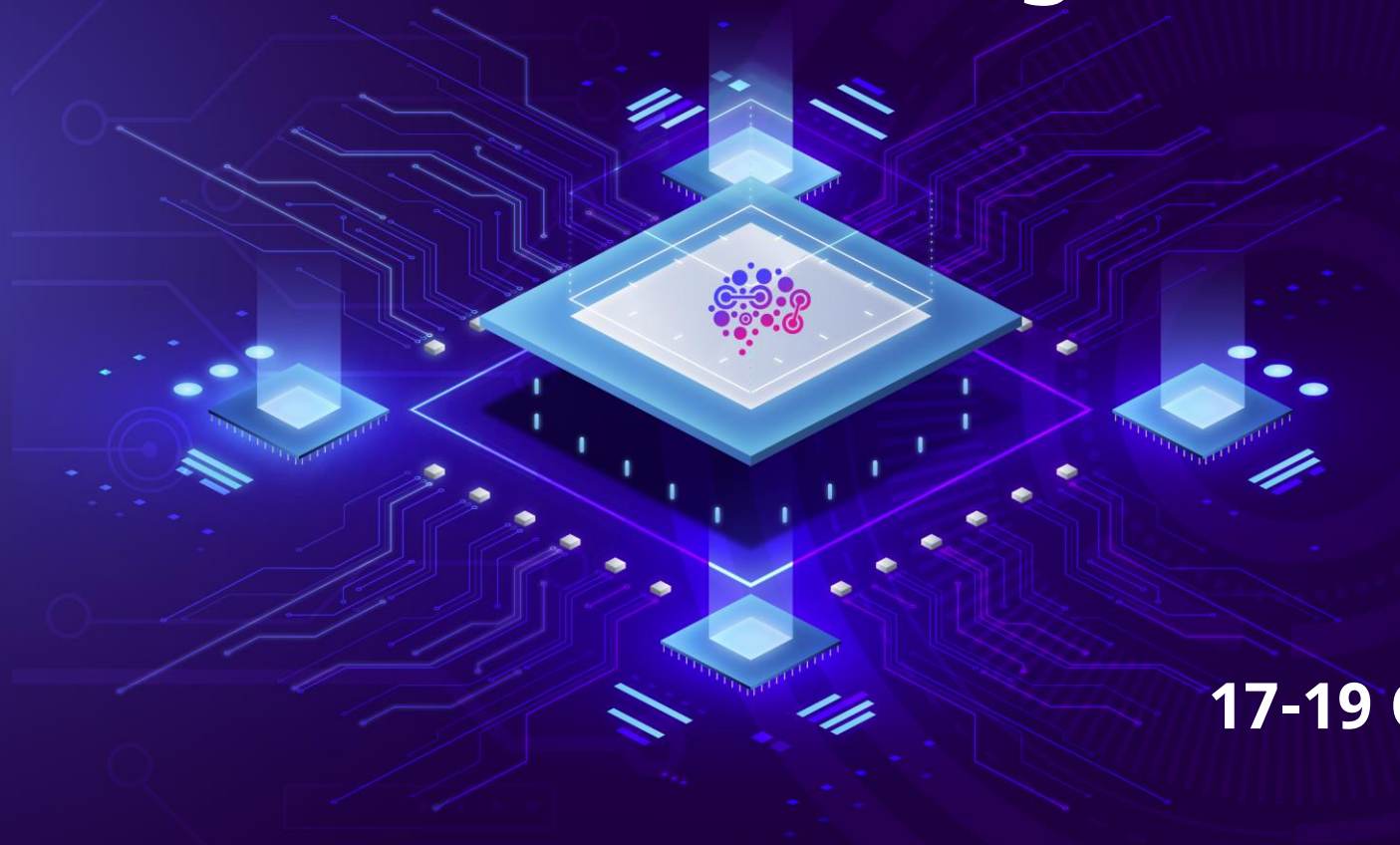
European Conference on EDGE AI Technologies and Applications - EEAI



Advancing emerging edge AI technologies and driving next generation intelligent applications.

17-19 October 2023, Athens, Greece

European Conference on EDGE AI Technologies and Applications - EEAI

InSecTT – Intelligent Secure Trustable Things

Nikolai Ebinger, Virtual Vehicle, Austria

17-19 October 2023 Athens, Greece

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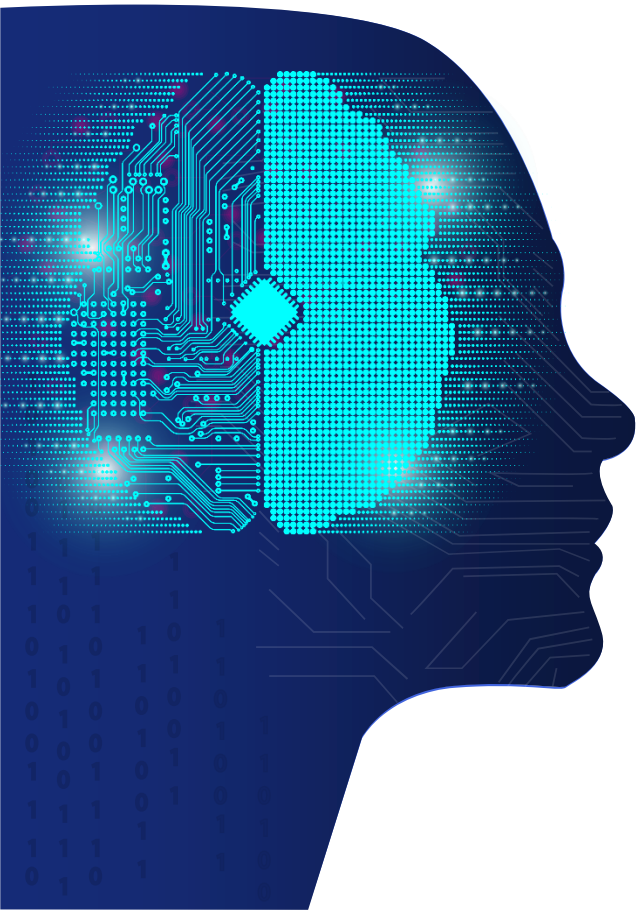
Presentation Outline



- Overview
- Use Cases / Domains Driving the Project
- Highlights

InSecTT has received funding from the ECSEL Joint Undertaking (JU) under grant agreement No 876038. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Austria, Sweden, Spain, Italy, France, Portugal, Ireland, Finland, Slovenia, Poland, Netherlands, Turkey

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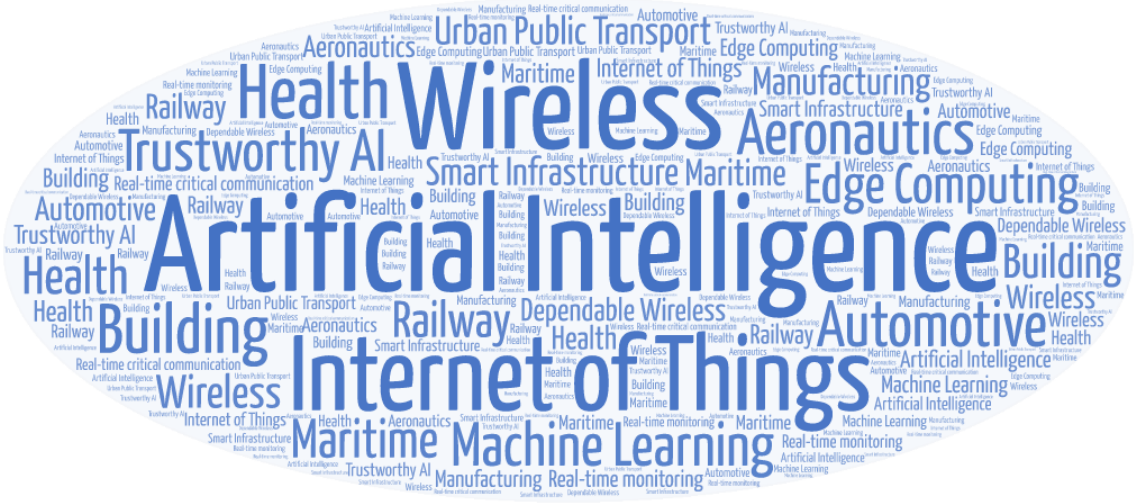
Project Overview

- **In**telligent
  - Intelligent processing of **data applications** and communication characteristics **locally at the edge**
- **Sec**ure
  - Industrial-grade **secure, safe and reliable solutions** that can cope with cyberattacks and difficult network conditions
- **T**rustable
  - **Increase trust for user acceptance**, make AI explainable and give the user control over AI functionality
- **T**hings
  - With energy- and processing constraints, in heterogeneous and **hostile/harsh environments**
- applied in **industrial solutions for European industry**



Bringing Internet of Things and Artificial Intelligence together

→ **AI + IoT = AIoT** (Artificial Intelligence of Things)

InSecTT

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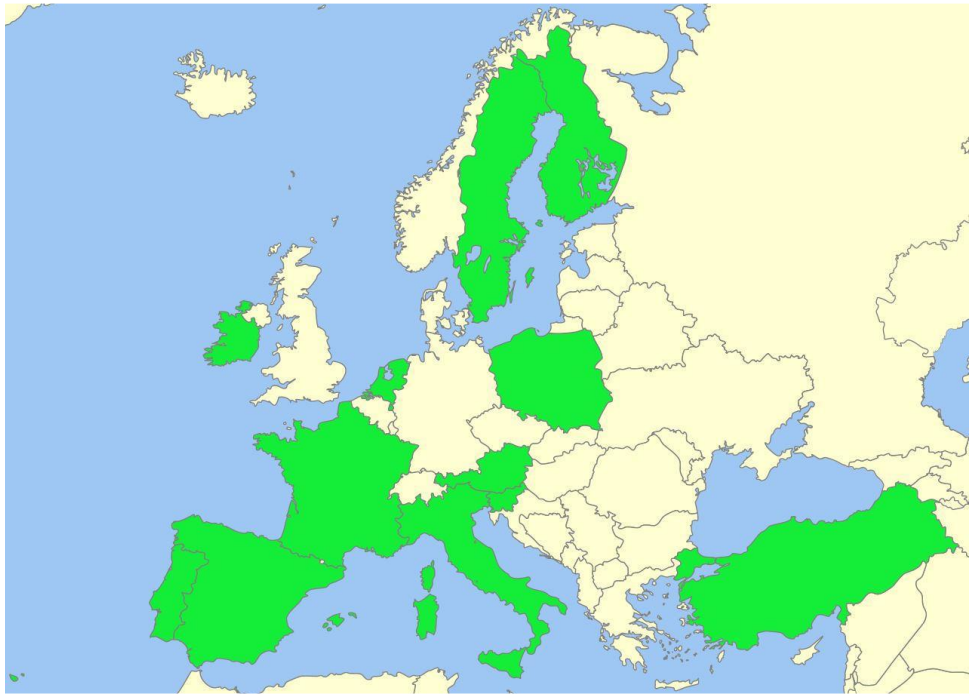
Project Overview

- **Funding**: ECSEL Call 2019 – Innovation Action
- **Coordinator**: VIRTUAL VEHICLE Research GmbH
- **Duration**: 36 months (June 2020 – May 2023)
- **Partners**: 52 from 12 countries (EU+Turkey)
- **Use Cases**: 16 from 9 industrial domains
- **Building Blocks**: 5 (reliable AI for IoT)
  5 (secure, safe and reliable wireless systems)
- **Effort**: 5600 person months (~155 full-time equivalents over 3 years)
- **Project size**:
  - Total: 48 Mio EUR / 25 Mio EUR Funding



Partners, e.g. VIF, ABB, AVL, Altran, CISC, CEA-LIST, Indra, JKU, Leonardo, Liebherr, KTH, NXP, RISE, Silicon Austria Labs, ST Microelectronics…

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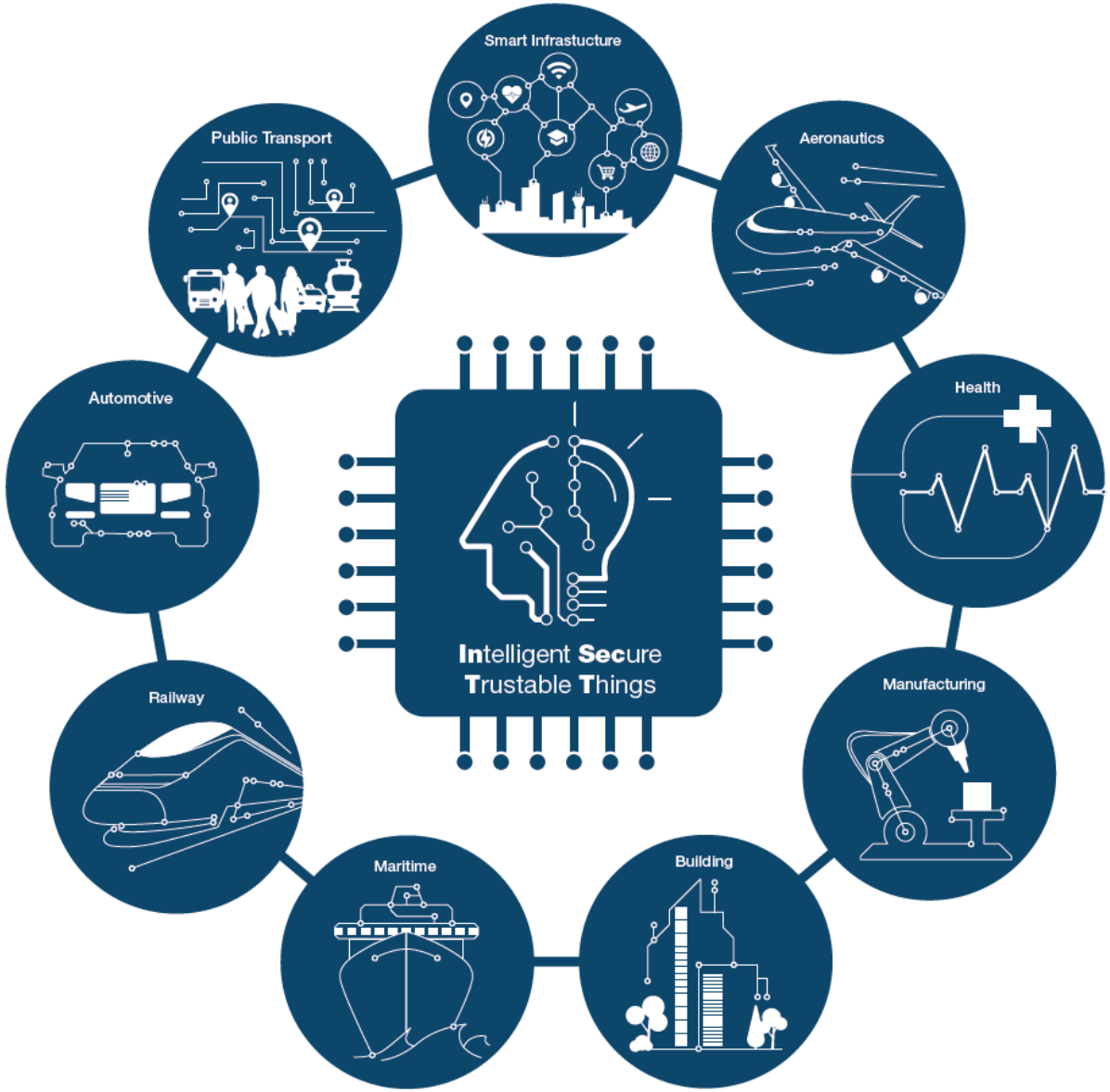
Use Cases / Domains Driving the Project



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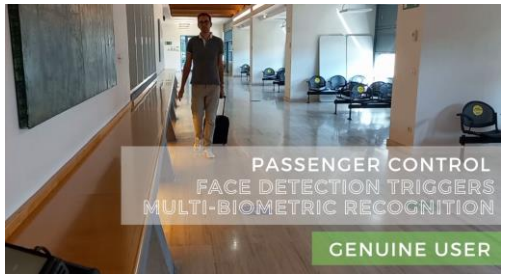
Project Highlights

- Project **finished by August 2023**, successful review meeting last week
- Finished **Building Block development & integration** → **validation** within lab and real-life demonstrators
- **All 30+ Demonstrators validated**
- **Examples from demonstrators:**
  - **Localisation and secure communication within port infrastructure (port, vessels)**
  - **Automated cyber-security testing for intelligent connected vehicles**
  - **Integrated demonstrators for location awareness & bed management in healthcare**



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Project Highlights

- **Reference Architecture** for intelligent, secure, trustable things **extended by AI perspective, and aligned with all Use Cases -> Released**

- **Total: 5 patents (more are planned to be submitted), 150+ publications, 250+ dissemination activities**
- **InSecTT Book (Open Access)**
- **70+ exploitable items with clear exploitation paths**
  - **E.g. Localisation system for hospitals, magnetic and acoustic underwater barriers, automotive cybersecurity testbed, eIQ toolkit for explainability and robustness,…**

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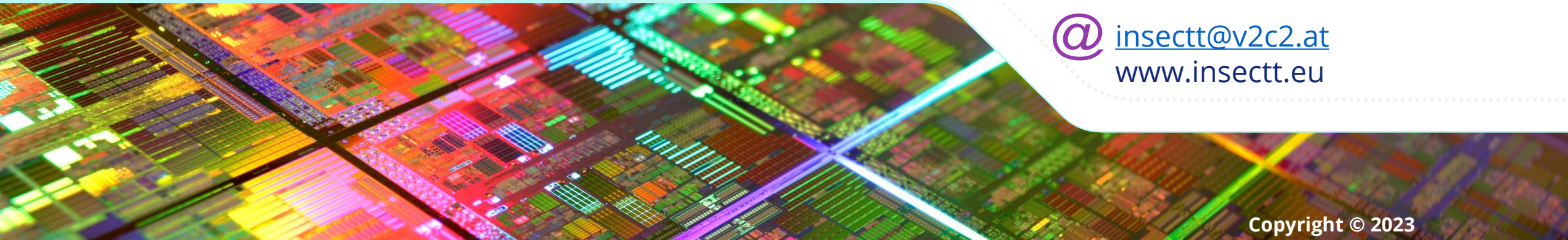
EDGE AI

Thank You

For your attention



@ insectt@v2c2.at
www.insectt.eu

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