WELCOME AND INTRODUCTION

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5G HEART Webinar #2
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Outline

- 5G-HEART overview
- Transport use cases
- Transport trial facilities
- Few highlights
- Summary
5G-HEART overview
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- **5G-HEART**: 5G HEalth Aquaculture and Transport validation trials.
- **Call**: H2020-ICT-2018-3.
- **Period**: from 01/06/2019 to 30/11/2022.

Figure 1 5G-HEART Ecosystem
5G-HEART overview

- **5G-HEART**: 5G HEalth Aquaculture and Transport validation trials.
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- **Period**: from 01/06/2019 to 30/11/2022.
- **Three target verticals**:
  - Transport
  - Aquaculture
  - Healthcare

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Figure 1 5G-HEART Ecosystem
2. Transport use cases
Transport use cases - T1 platooning

- Vehicles move like a train with virtual strings.
- Reduces the distance between vehicles, overall fuel consumption and number of needed drivers.
  - T1S1&T1S2: High bandwidth in-vehicle situational awareness and see-through for platooning.
  - T1S3: Dynamic channel management for traffic progression.
  - Trial facility: 5GENESIS (Surrey)
  - eMBB and URLLC requirements.

Figure 2 See-through for platooning
Transport use cases - T2 autonomous/assisted driving

- Combine sensor data and communication capabilities to support advanced driving modes.
  - T2S1&T2S2: Smart junctions and network assisted & cooperative collision avoidance (CoCA).
  - T2S3: QoS for advanced driving.
  - T2S4: Human tachograph.
  - Trial facilities: 5GTN (Oulu), 5GRONINGEN (Groningen) and 5GENESIS (Surrey).
  - **URLLC requirement.**

Figure 3 Network-assisted collision warning
Remote driving is a concept in which a vehicle is controlled remotely by either a human operator or cloud computing.

- Efficient road construction, control of multiple autonomous vehicles from a single human operator (e.g., snow plowing).
- Cost-efficient step towards purely automated driving.
- Trial facility: 5GENESIS (Surrey)
- eMBB and URLLC requirements.

Figure 4 Remote Driving
The network collects actionable information from the vehicles and road users to provide various services.

- **T4S1:** Vehicle prognostics.
- **T4S2:** Over-The-Air (OTA) updates
- **T4S3:** Smart traffic corridors
- **T4S4:** Location based advertising
- **T4S5:** End-to-End (E2E) slicing
- **T4S6:** Vehicle sourced HD mapping
- **T4S7:** Environmental services
- **Locations:** 5GENESIS (Surrey) and 5GTN (Oulu).
- **mMTC requirement.**
3. Transport trial facilities
The main Transport trial facility is ICT-17 5GENESIS (Surrey, UK).

- Employs the best of evolving network function virtualisation (NFV) and software-defined networking (SDN) implementations and features.
- Testbed covers the main campus of the University of Surrey (area of around 4 km$^2$).
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- Supporting trial facilities
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  - 5G RONINGEN in the Netherlands.

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Trials will start with local tests and evolve towards interconnected multi-site scenarios.
4. Few highlights
Few highlights, phased trial approach

Phase 1 -> M12
- Use case solutions, implementations and early trials.

Phase 2 -> M24
- Build on the experience gained in Phase 1 with revised targets and scope.

Phase 3 -> M36
- Advanced setups.
- Interconnected multi-site scenarios.
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