



5G HEART

5GHEART.ORG

WELCOME AND INTRODUCTION

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5G HEART Webinar #2

04 December 2020

5G HEALTH AQUACULTURE AND TRANSPORT VALIDATION TRIALS

Outline

- 5G-HEART overview
- Transport use cases
- Transport trial facilities
- Few highlights
- Summary



1.

5G-HEART overview

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- **5G-HEART:** 5G HEalth AquacultuRe and Transport validation trials.
- **Call:** H2020-ICT-2018-3.
- **Topic:** ICT-19-2019 - Advanced 5G validation trials across multiple vertical industries.
- **Period:** from 01/06/2019 to 30/11/2022.

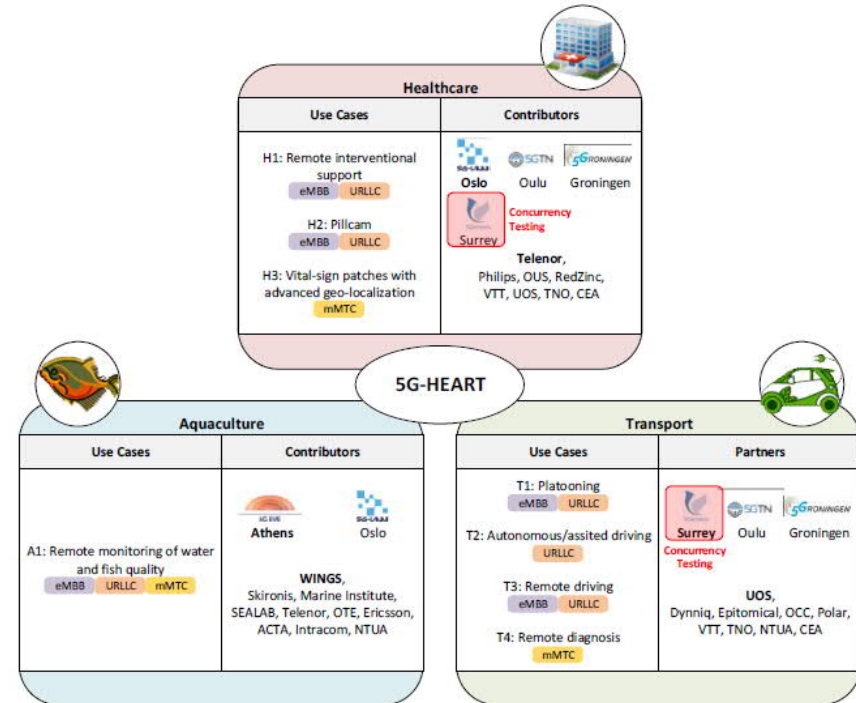


Figure 1 5G-HEART Ecosystem

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 - ✓ Transport
 - ✓ Aquaculture
 - ✓ Healthcare

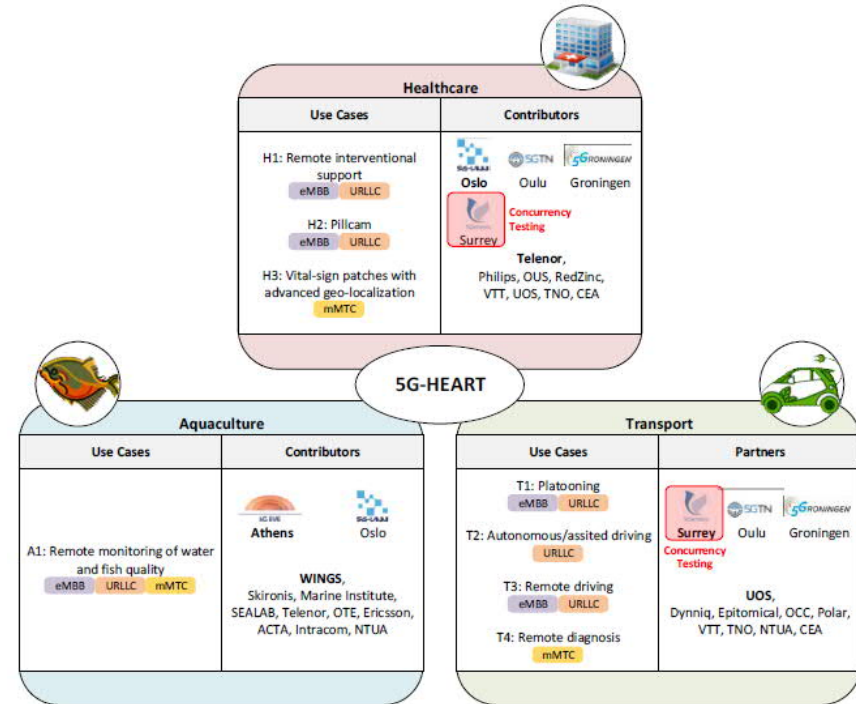


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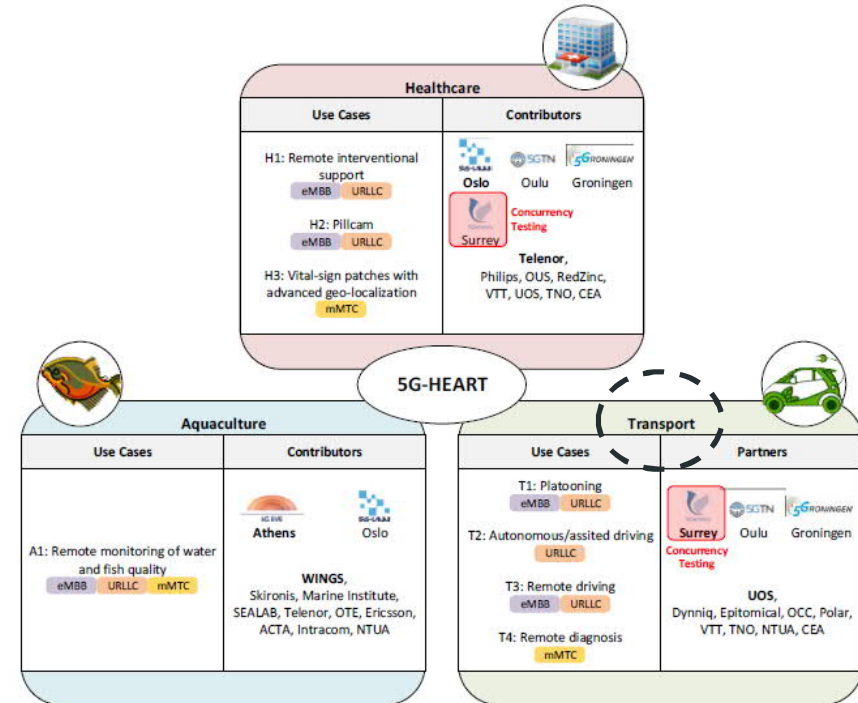


Figure 1 5G-HEART Ecosystem



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.**

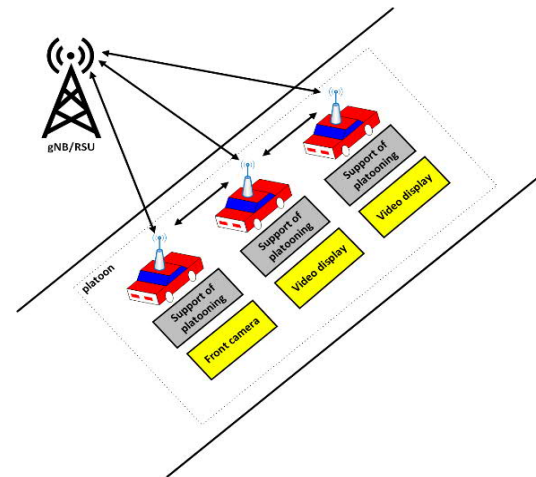


Figure 2 See-through for platooning

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.**

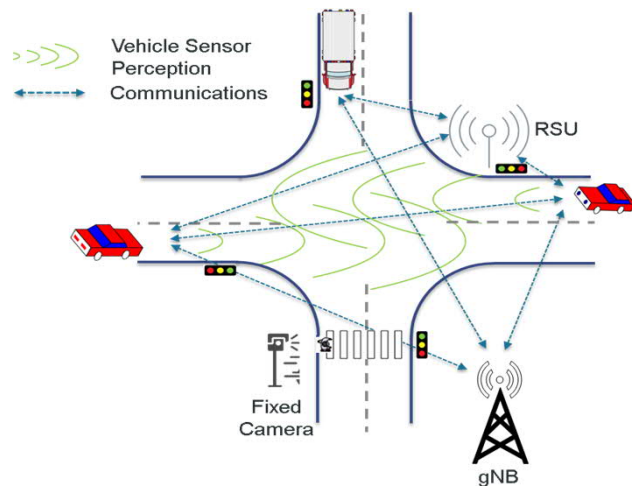


Figure 3 Network-assisted collision warning

Transport use cases – T3 support for remote driving

- 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.**

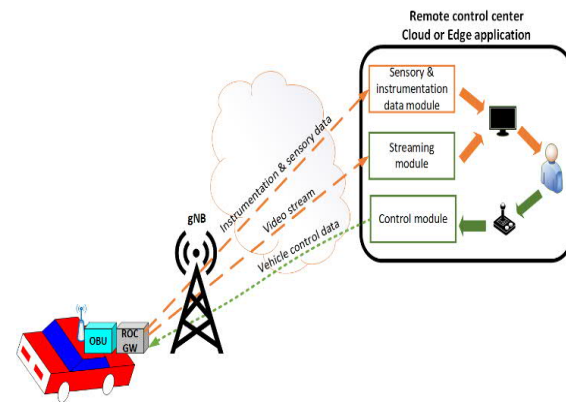


Figure 4 Remote Driving

Transport use cases – T4 vehicle data services

- 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.**

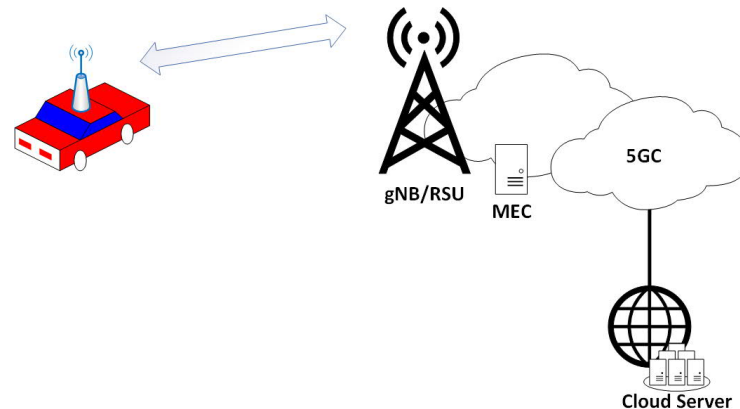


Figure 5 Indicative architecture for vehicle data services



3.

Transport trial facilities

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 km²).

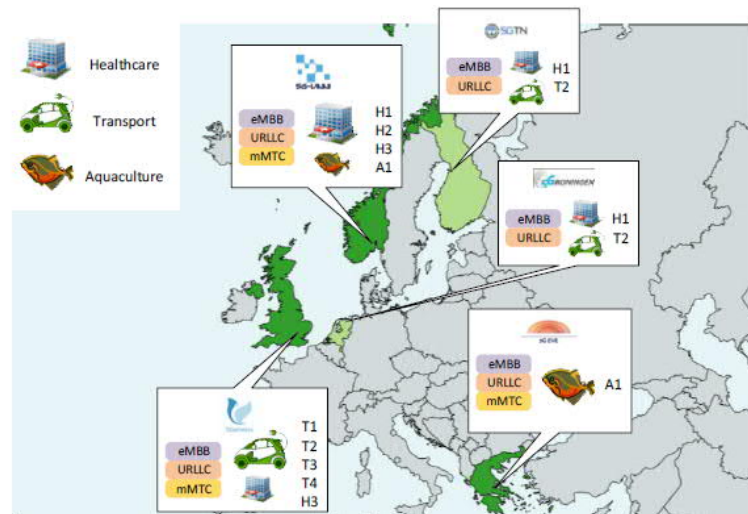


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- Supporting trial facilities
 - ✓ 5GTN in Oulu, Finland.
 - ✓ 5GRONINGEN in the Netherlands.

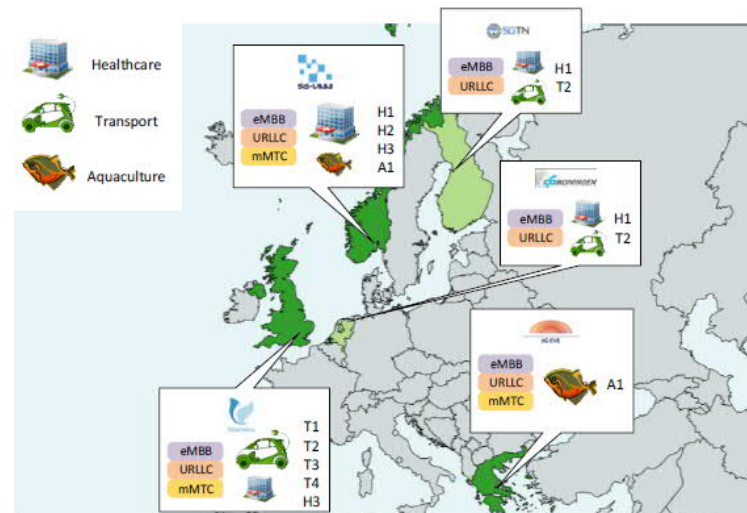


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- Trials will start with local tests and evolve towards interconnected multi-site scenarios.

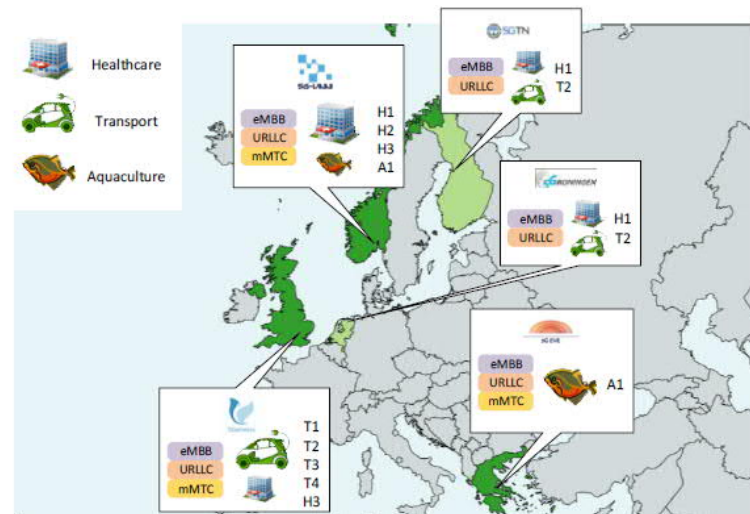


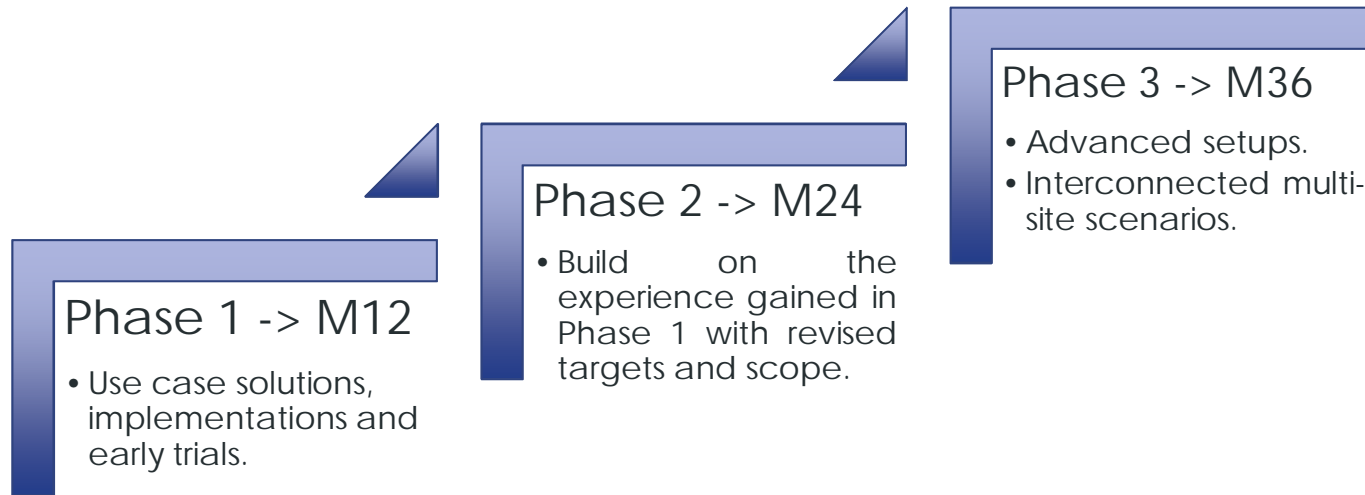
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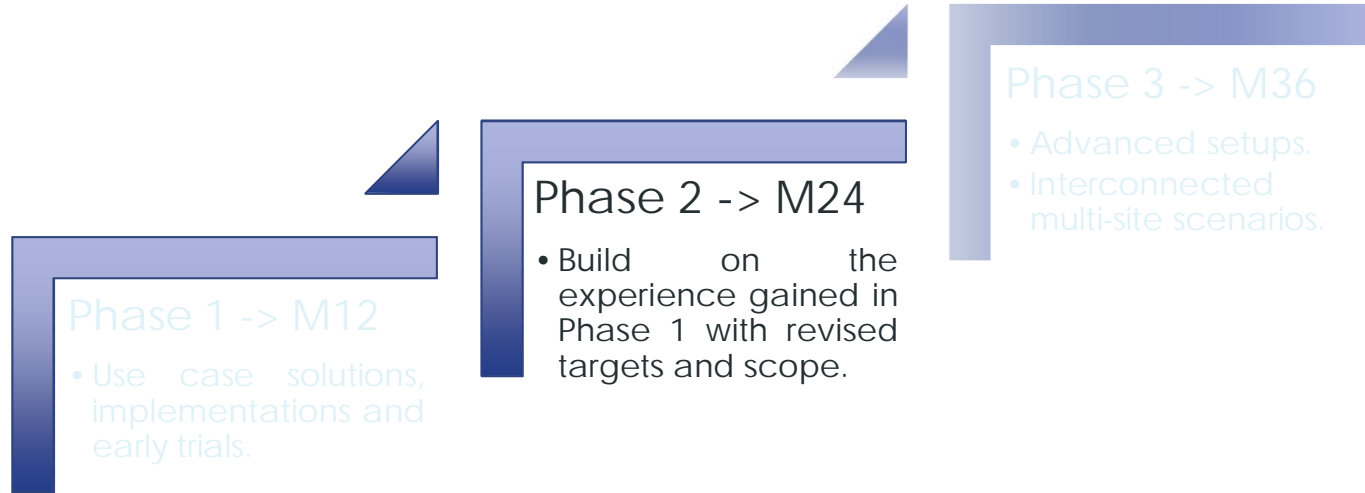
4.

Few highlights

Few highlights, phased trial approach



Few highlights, phased trial approach



THANK YOU FOR YOUR ATTENTION



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