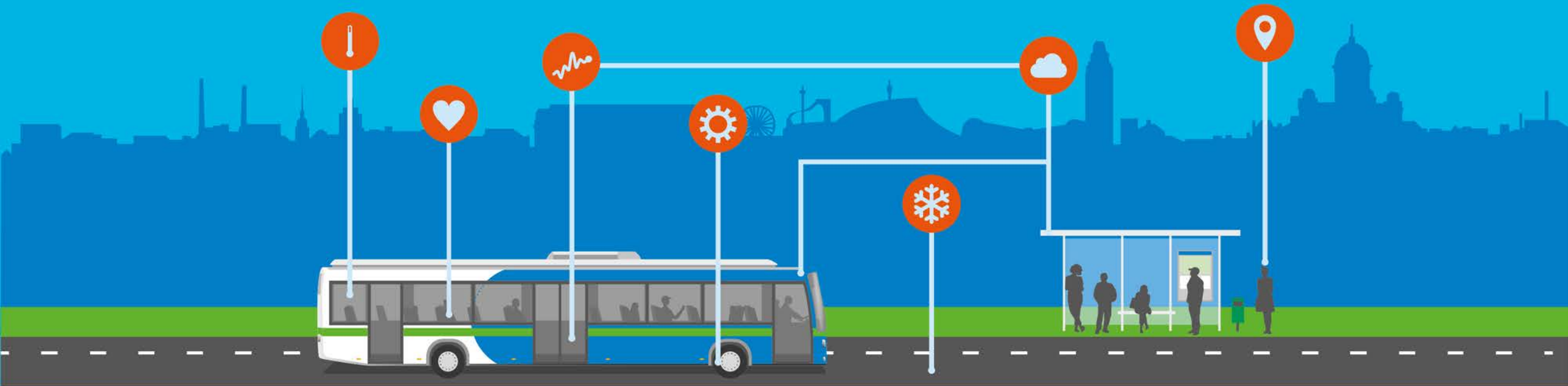


BETTER USER EXPERIENCE AND RAPID PRODUCT DEVELOPMENT WITH AGILE PILOTING

TRANSSMART SEMINAR 16 FEB 2017

JUHO KOSTIAINEN
VTT TECHNICAL RESEARCH CENTRE OF FINLAND LTD



Living Lab Bus – Open innovation and test platform

Innovative electric buses serve as a test platform in real use environment.

Service and technology developers and providers are welcome to develop and test their solutions.

Real context and references – co-development and business ecosystem



THE GOAL

Enabling and supporting faster development of mobility services through a concrete, open test environment in a real public transport context.



OBJECTIVES

- Open platform for technology and service providers
- Quick prototyping and testing of solutions
- Real context and feedback from real users
- Co-development ecosystem and collaboration



BUSES AS A PLATFORM

Real buses as concrete test platform

Electric buses operating in the Helsinki region and Tampere



VTT's test bus

Bus mule for prototypes and testing before deployment



DEVICES, DATA AND SERVICES

On-board ICT components



Sensors, BLE Beacons
(temperature, humidity, air pressure, acceleration, ...)



(Real-time) data:

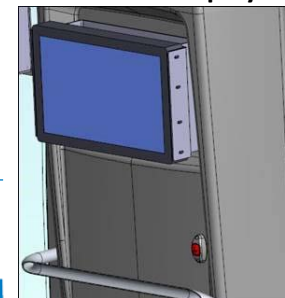
- sensor data
- CAN data

Data cloud

IoT device mgmt

APIs for developers

On-board displays



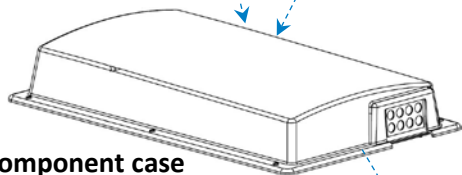
Mobile channels



Fleet mgmt etc.



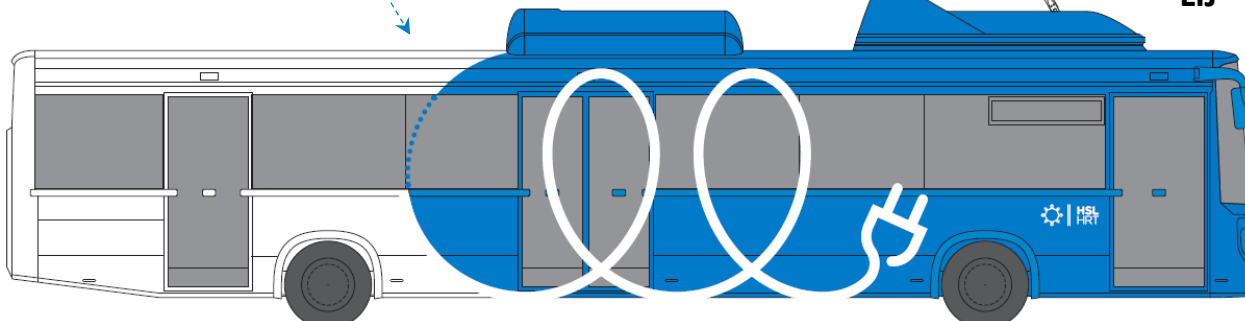
Component case



DC 24V

CAN data

LIJ

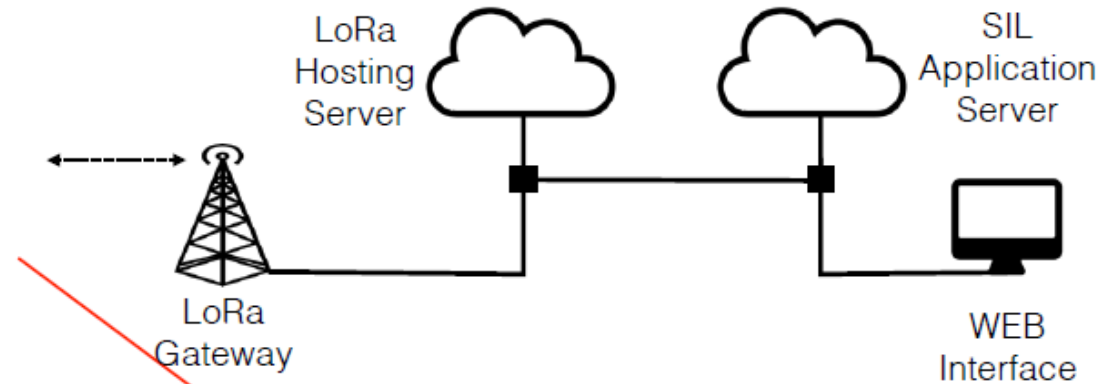
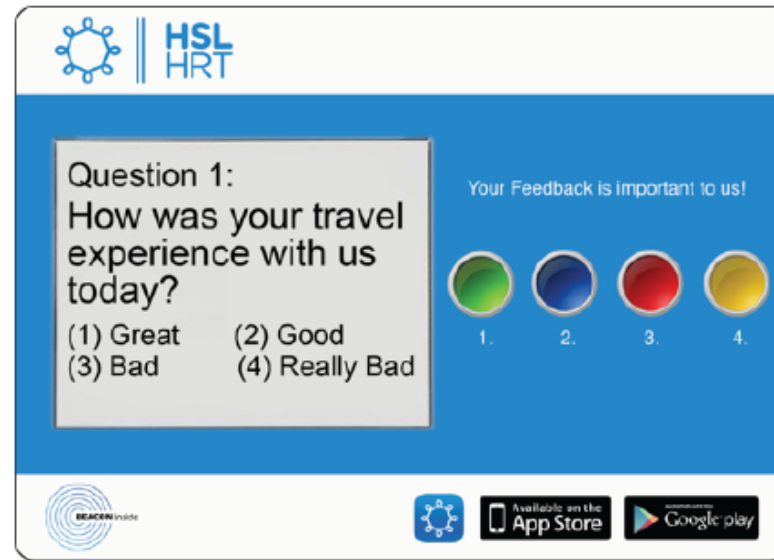


EXAMPLES

- New solutions could be, for example:
 - Bus interior design choices; comfort and passenger experience
 - Passenger services such as real-time information on connections or alternative options (e.g. availability of nearby city bikes and last-mile solutions)
 - Environmental monitoring technologies (e.g. indoor and outdoor air quality)
 - Sensor and IoT data from the vehicle and environment for service development
 - Technology testing and validation (e.g. passenger counting, V2X)
 - ...



EXAMPLE: Dynamic Feedback Panel

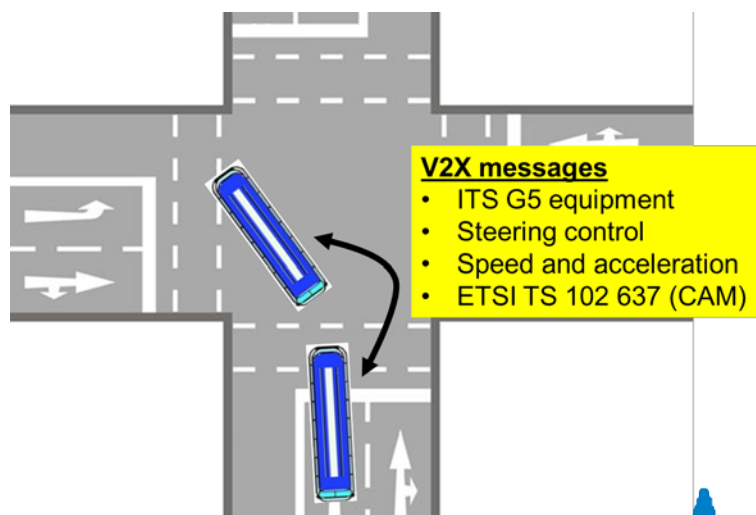
SIL⁺

- E-Paper for Dynamic Campaigns
- 3G (driver's smartphone) LoRa for Communication
- Support Multi Questions Campaign
- Plug & Play (battery operated)
- Daily reporting



EXAMPLE: LINKKER FOLLOWING LINKKER

- Increasing transport capacity when needed
- Part of the fleet can be 'dummy' => bus platooning





Services

- *Seamless travel*
- *Co-development*
- *Business*



User Experience

- Ease of use
- Comfort
- Interactivity



Technology

- Economic efficiency
- Emissions
- Safety

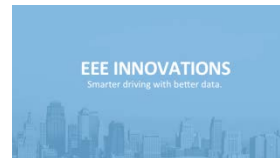
Mobility services based on user needs with enabling technology



RESEARCH ORGANIZATIONS



COLLABORATING COMPANIES



ENABLERS AND SUPPORTERS



THIRD PARTY PARTICIPATION

New ideas and users are welcome!

You?



UTILISING LIVING LAB BUS



**Get in contact and let's discuss your ideas & needs
and how to make it happen!**



THANK YOU!

JUHO KOSTIAINEN
VTT TECHNICAL RESEARCH CENTRE OF FINLAND LTD
juho.kostiainen@vtt.fi

