5G-DRIVE / 5G-MOBIX workshop, Tampere, 17.12.2019
Jukka Laitinen

What is ITS Factory?

innovation, experimentation and development environment, where companies and individual developers can **develop, test and productize** Intelligent Traffic Systems and Solutions **in real life with real users**

ITS FACTORY
INNOVATIVE TAMPERE SITE

Public-Private partnership

- Local and state administration
- Education & Research
- Private companies (traffic operators, product & service companies, traffic information providers)

Strong political support

- City of Tampere and other authorities from ITS field
- ITS Factory in National ITS Strategy
- The City Mayor's Programme – ITS Factory ranked high
- Tampere City Strategy

ITS Factory network
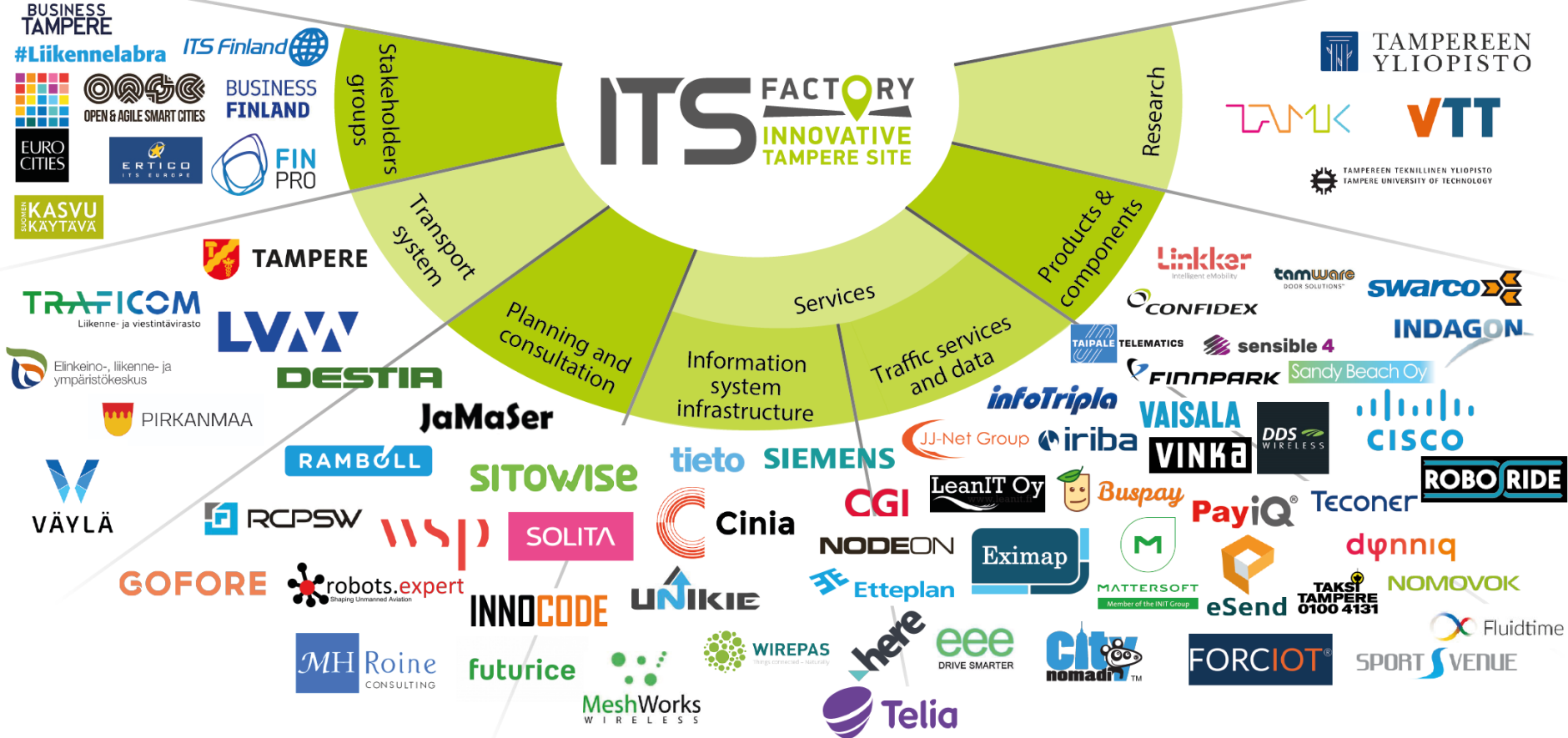
Trends

Four trends will change the way the auto industry develops cars.

4 "ACES" trends

Autonomous driving

Shared mobility

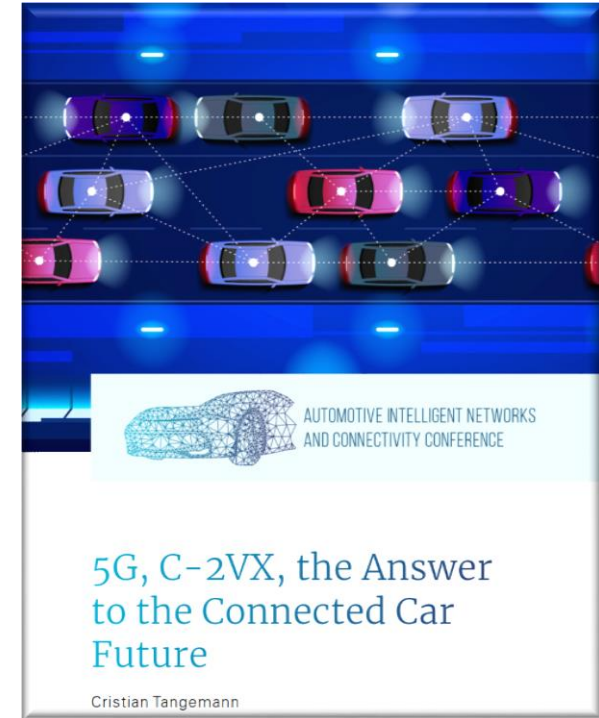

Connectivity

Electrification

McKinsey & Company

5G and Mobility

- Jim Misener Qualcomm (23.10. Singapore) "*5G is essential for future mobility services*".

- 5G enables new mobility services and related applications both in smart cities and outside, especially where data capacity, low latency and reliability are needed.

- Autonomous transport and remote controlling especially benefit largely of 5G.

- Because of low latency 5G is very useful in safety critical services.

- Bacause of smaller cells 5G-based positioning is more accurate than older network-based alternatives.

- Since 5G will not be everywhere, also other communication means will be needed.

High bandwidth, up to 10 Gbps

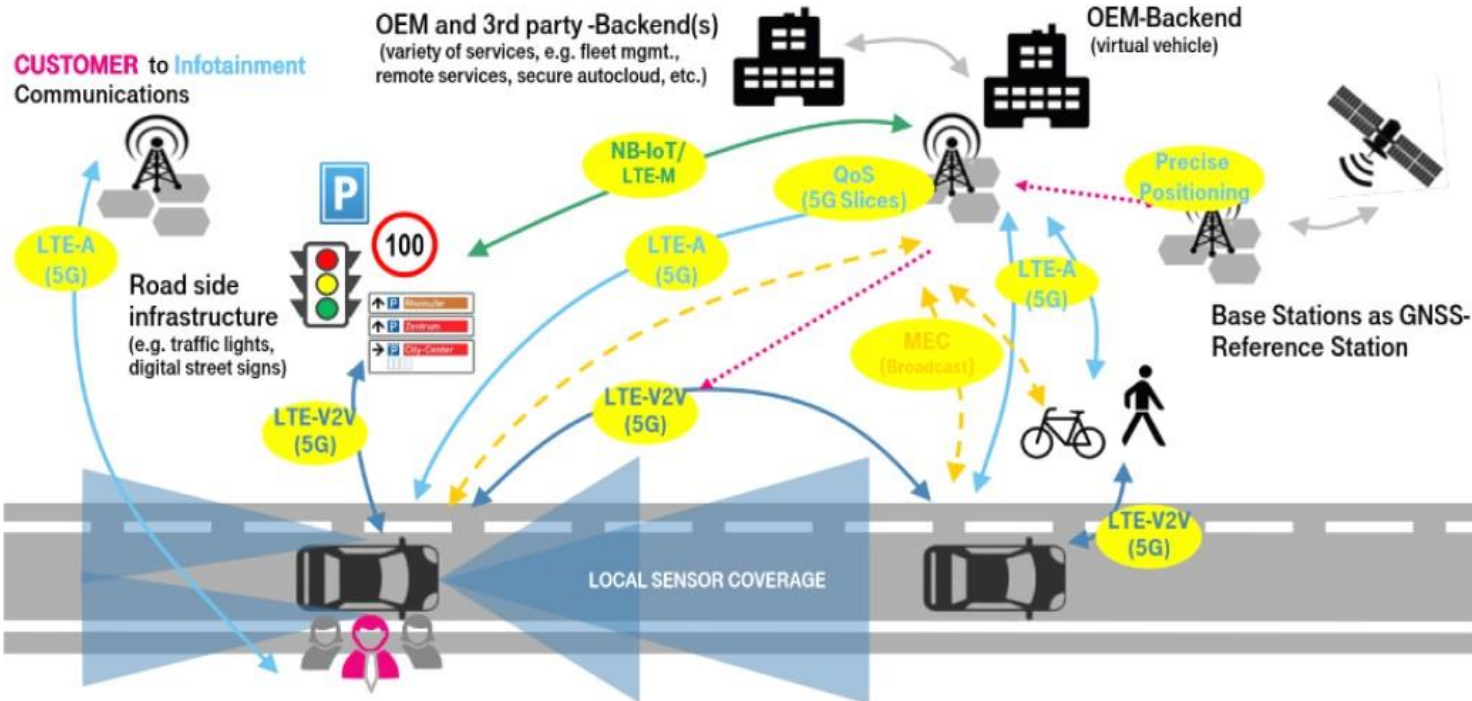Low latency, almost real-time

5G, C-V2X and Autonomous Driving

- C-V2X (Cellular Vehicle to X) communictea with moving units either directly or via cellular network.

- OEMs such as Audi, BMW, Daimler & Volvo have started to put effort to utilization of LTE and in the future 5G in connected and autonomous vehicles and encouraged the European Commission to support new technologies that would speed up the utilisation of 5G networks in communication between vehicles.

- The OEMS above prefer C-V2X technology and keep it better than WiFi-based ITS-G5 and think that C-V2X would increase their competitiveness

- Also Ford has announced that they will go for C-V2X-technology.

- In Finlad the view is that C-V2X, ITS-G5 and all other technologies should be regarded as equal alternatives.

AUTOMOTIVE INTELLIGENT NETWORKS AND CONNECTIVITY CONFERENCE
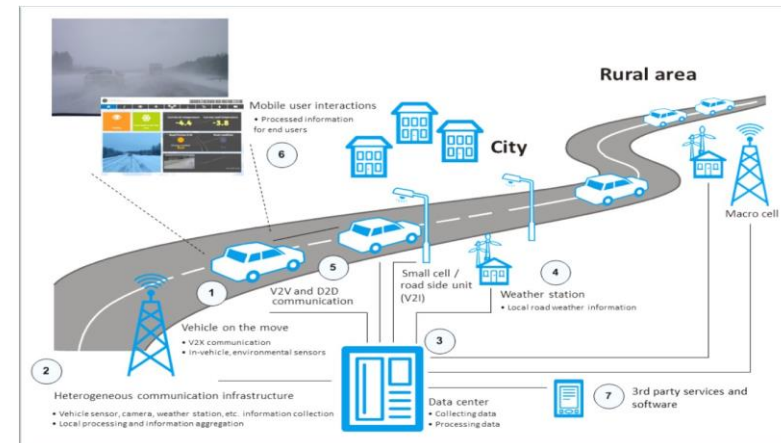
5G, C-2VX, the Answer to the Connected Car Future

Cristian Tangemann

5G in Connected & Automated Driving

Deutsche Telecom

Example 5G-Safe-Plus

- 5G-SAFE-Plus supports wide-scale implementation of advanced road weather & road maintenance services with 5G networking capabilities and service enablers.

- 5G-SAFE-Plus will produce innovations on 5G-based vehicular connectivity, distributed data processing, and novel road weather & safety services that benefit connected and automated vehicles, road operators and 3rd party organizations.

- Industrial & academic collaboration in identifying novel road safety use cases and services enabled by 5G.

- The Finnish partners in 5G-Safe-Plus are:
  - Sitowise (international co-ordinator)
  - VTT (international co-ordinator)
  - FMI
  - Destia
  - Infotripla
  - Vaisala
  - Teconer
  - Unikie
- Funding decision was received in November
- Decisions from Sweden, Portugal, Romania, the UK and Canada are being waited .