Standards that make Innovation Possible

ITS and GIS standards to support autonomous driving

UNWGIC-meeting 2018-11-20, Deqing

Agenda

1. Four ITS-trends
2. Standards as platform for innovation
3. Please disrupt us!

Four ITS-Trends

AUTONOMOUS VEHICLES
- Self contained cars
- Driver relief and increased traffic safety

CONNECTED CAR/COOPERATIVE ITS
- Self contained and connected
- Effortless negotiation of traffic and less emission

MOBILITY AS A SERVICE
- Sharing all transport resources
- Seamless travel – fewer vehicles

EMISSION FREE VEHICLES
- Less complicated
- No local emissions

Source: compiled from the internet ITS Stuttgart

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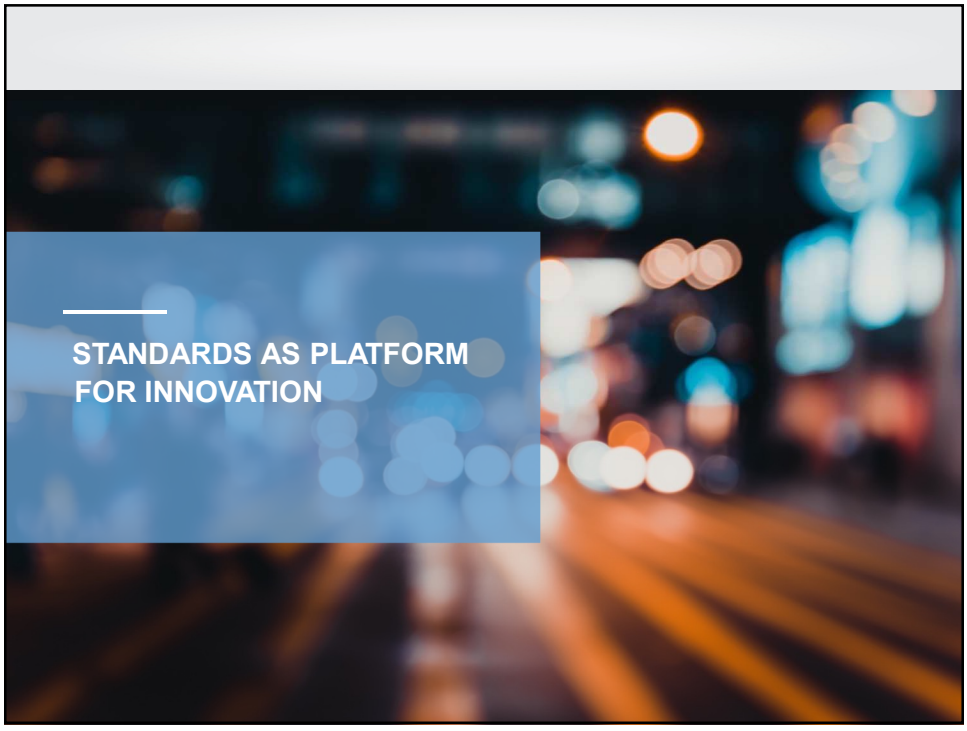
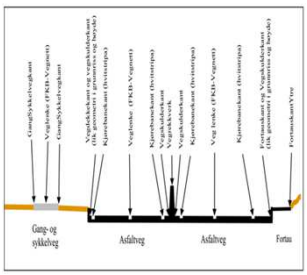
Self-driving cars

Source: Compiled from the internet - ITS Norge, Sopra Steria

Cooperating cars – ITS Station

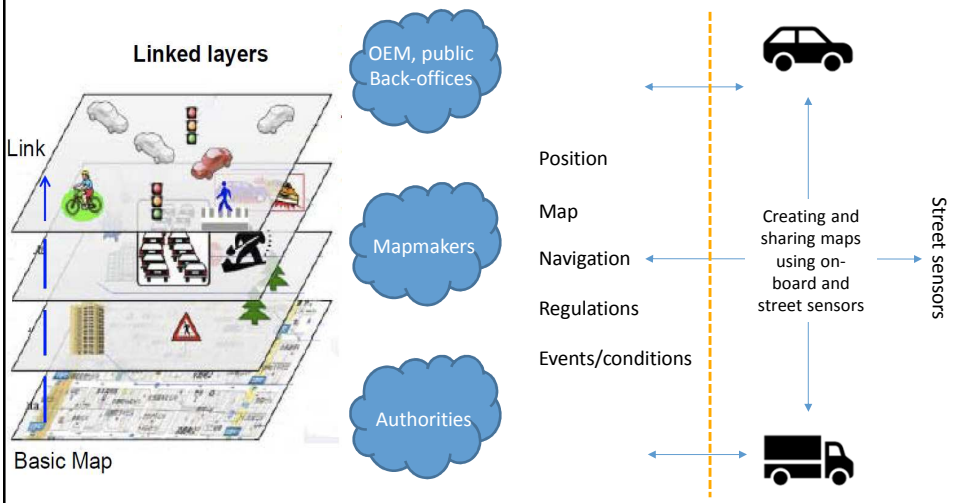


Geometry based on maps or sensors?



Source: Mobile Eye, NPRA

Dynamic Map Concept – Services – ISO/NDS



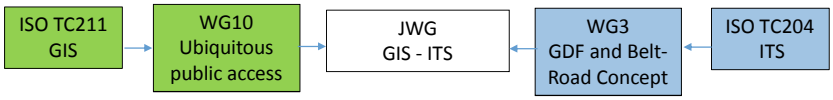
Source: TC204, NDS, ITS Norway

The Belt-Road Concept

STANDARDS

Mapping authorities Road authorities TC211 family	Commercial mapmakers TC204/GDF	Commercial/OEM Delivery centre TC204/GDF	In-vehicle Mapping - C-ITS TC204/GDF
Dynamic (seconds): (Traffic lights) C-ITS			
ISO 14813 C-ITS (TMC – Road-side)		ISO 14813 C-ITS	ISO 14296: C-ITS
Semi-dynamic (minutes): (Congestions, events) DATEX II		TPEG or RDM-TMC	TS 20452: Storage
Semi-static (hours:) (Roadwork, deviations) DATEXII/TN-ITS		TPEG or RDM-TMC	
Static (days): (Regulation, roads/lanes) TN-ITS		ISO 24099: Navigation data delivery	
ISO 19103 – 19109 family	ISO 14825/20524: Geographic Data Files – GDF including Belt concept		
ISO 19148 Linear referencing	ISO 17572: Location Referencing		

Cooperation



WI 1: Gap-analysis GDF and TC211 based model – TR

- Redefine the GDF-model based on TC211-standards
- Enable handling of very detailed and accurate geometries
- Enable map-data exchange between all actors
- Align with data models based on ISO 19100 like TISA, TN-ITS, Datex II, etc.

WI 2: Linear/Location references – TR

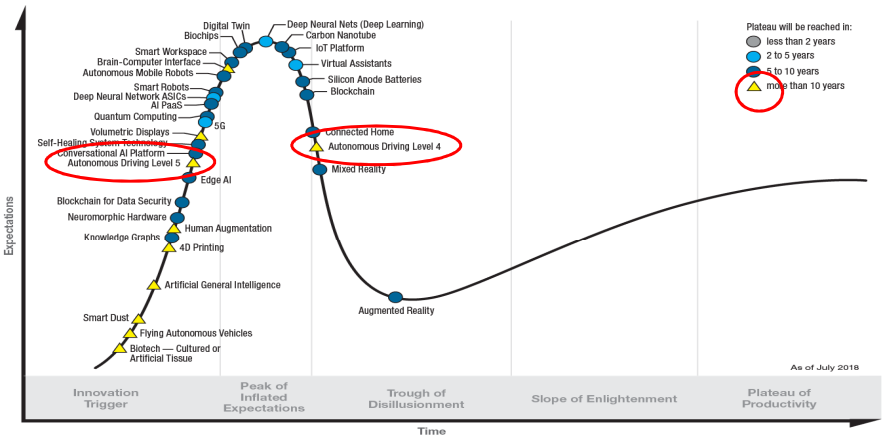
- Support for the belt road concept, shareable database and dynamic data
- Input to the revision of 19148

WI 3: Terminology – investigation by TMG

- JWG members will investigate terminology issues between the two TCs
- Report in the form of a standing document

Please disrupt us!

Hype Cycle for Emerging Technologies, 2018



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Source: Gartner (August 2018)
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Gartner

If not… we have a lot of work in front of us!

A truly autonomous ecosystem of vehicles requires:

- A shared, detailed and accurate geometry
- Creation of belts – planned and on the spot
- Cooperation
- New regulations and standards
- A robust communication system
- Validation and certification procedures
- Redundant 24/7/365 operation

Innovate to make it work!

Questions?