SIS98 Digital infrastructure for the deployment of automated vehicles

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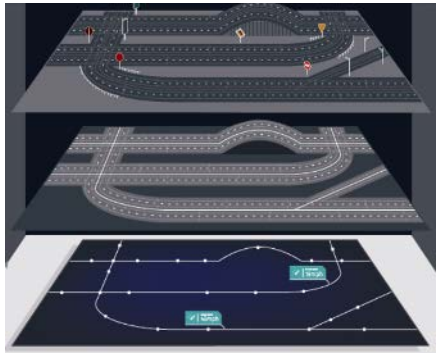
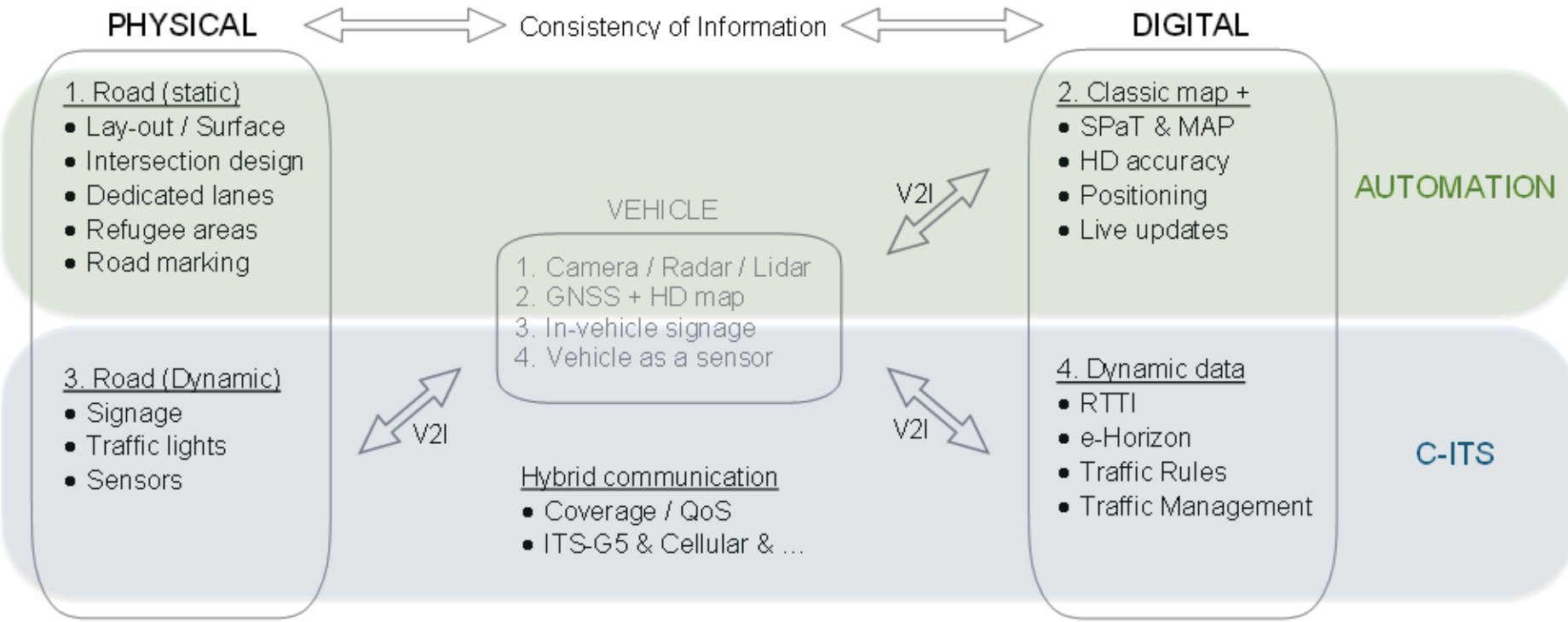


Contents

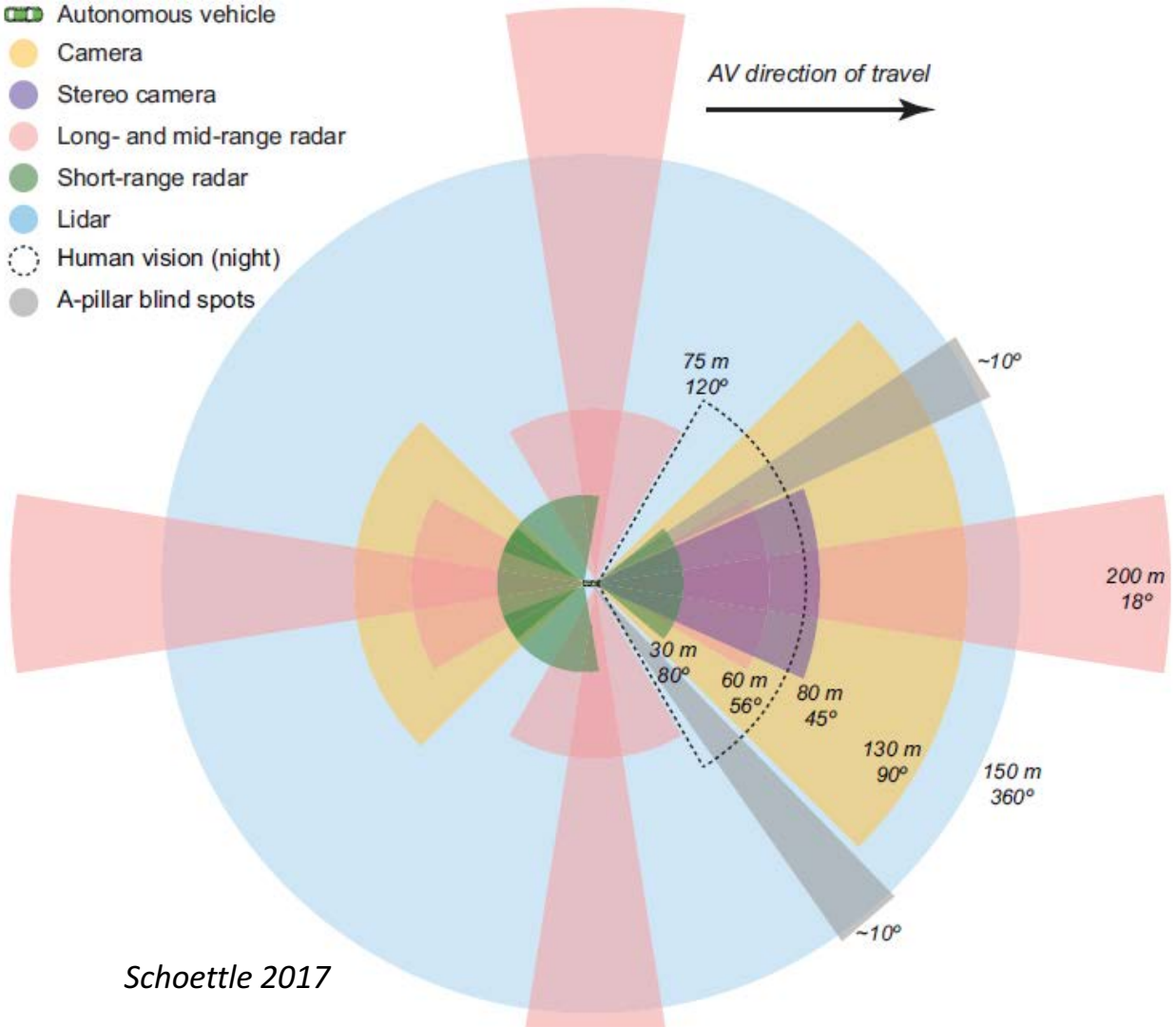
- Digital infrastructure as discussed in Europe
- Discussions in CARTRE, ERTRAC, C-ITS Platform, EU EIP, CEDR
- Examples from Finland and Nordic countries
  - Maps - Digiroad
  - Data - NordicWay

Digital and Physical Infrastructure



C-ITS Platform Final report September 2017

Need for electronic horizon & digital infra: Sensor ”sight” distances



Schoettle 2017

Common Ground

- Higher levels of road vehicle automation will have specific requirements and also consequences for both the digital and physical road and road-side infrastructure
- Vehicle able to cope with existing physical infrastructure? If not, what demands can be set to adapt the existing infra? How these demands differ from one automation use case to another?
- No general agreement on roles and responsibilities of different stakeholders in implementing, maintaining, operating and financing especially digital infrastructures for automated driving

Selected Challenges

- Who should pay and how to implement/maintain/operate PDI?
- Where is digital infrastructure necessarily needed for different levels of automation?
- How to manage/verify changes in physical infrastructure, and guarantee the level of quality of the information in the digital infrastructure?
- Quality of especially event and incident information needs to be very high to ensure accurate event horizon!
- How to cope communication failures, GPS/GNSS inaccuracy, spoofing, lack of coverage, and other failures?

Selected Statements

- Safety-relevant data generated by AVs need to be shared openly
- Also other than real-time vehicle produced data is relevant for different stakeholders: need for post-trip delivery of relevant data
- Need for methods and processes to assure privacy when sharing data, even safety-relevant
- Need for a trusted mechanism and a secure process for updating of the relevant layers of dynamic maps in vehicles with regard to infrastructure changes
- The added infrastructure investment will be mainly in the digital infrastructure, with increased future importance

CARTRE
Coordination of Automated Road Transport Deployment for Europe

Data maintenance tools

Browser application

Data interface

Files (shapefile, mapinfo, cad, pdf…)

Digiroad database

Digiroad operator

Does the work, supports providers & users

Data download services

Data interface

File download

The TN-ITS interface

Data users

Municipalities

+ planning, transportation services, Open Streetmap ….

Feedback

Data providers

The National Land Survey

The Finnish Transport Agency

Municipalities

Regional administration

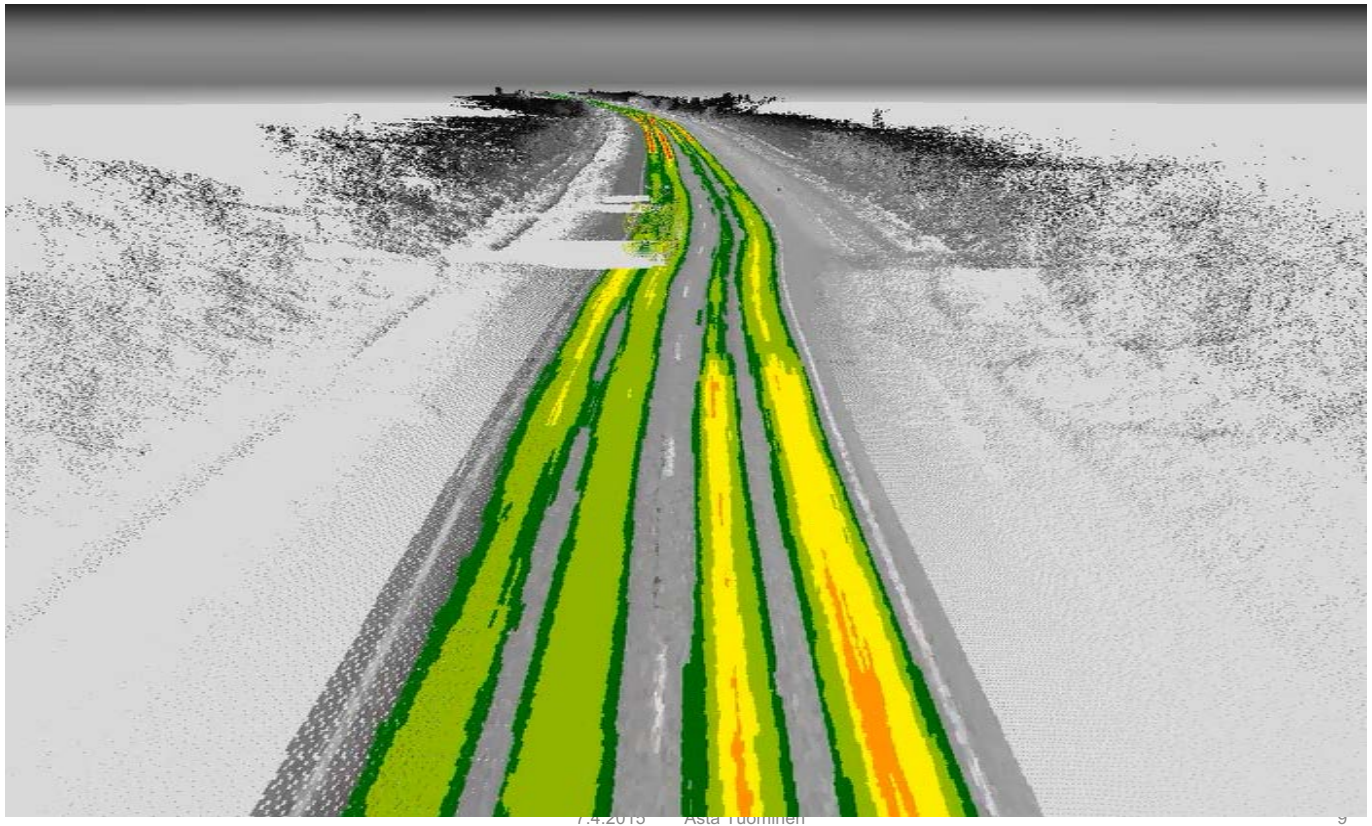
Digiroad

Open Data

Matti Pesu, Finnish Transport agency

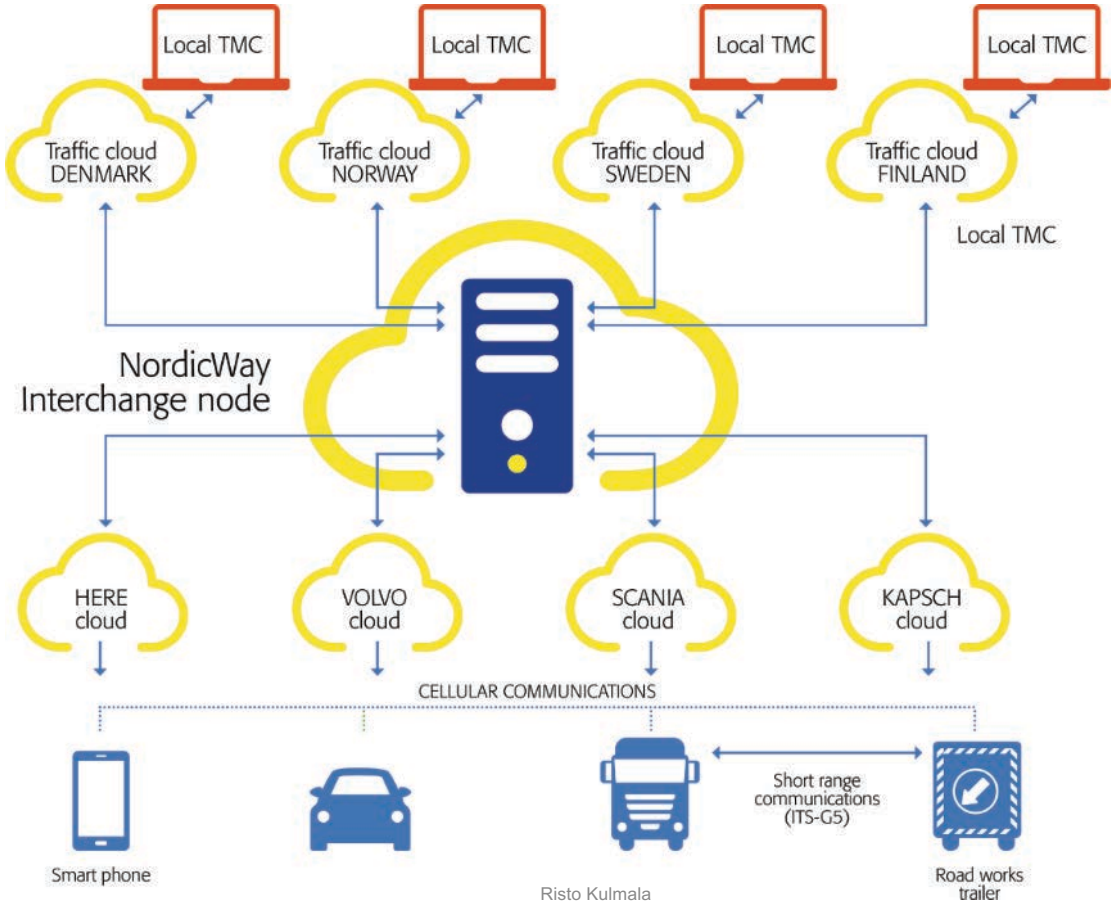
Possible next steps

Laser scanner based road surface analytics to identify and add into database e.g. road surface damages and deformations



Data sharing: NordicWay interchange node

Real-time sharing of safety related data via cellural networks by incorporating a ”neutral server”



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Connecting Europe Facility

Demo: it works!

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