ERTICO platforms:

focus on ADASIS & TN-ITS Map Update Exchange

Jean-Charles Pandazis, ERTICO - ITS Europe

SIP-adus workshop, dynamic map (DM) session
Tokyo, 13/11/2018

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Content

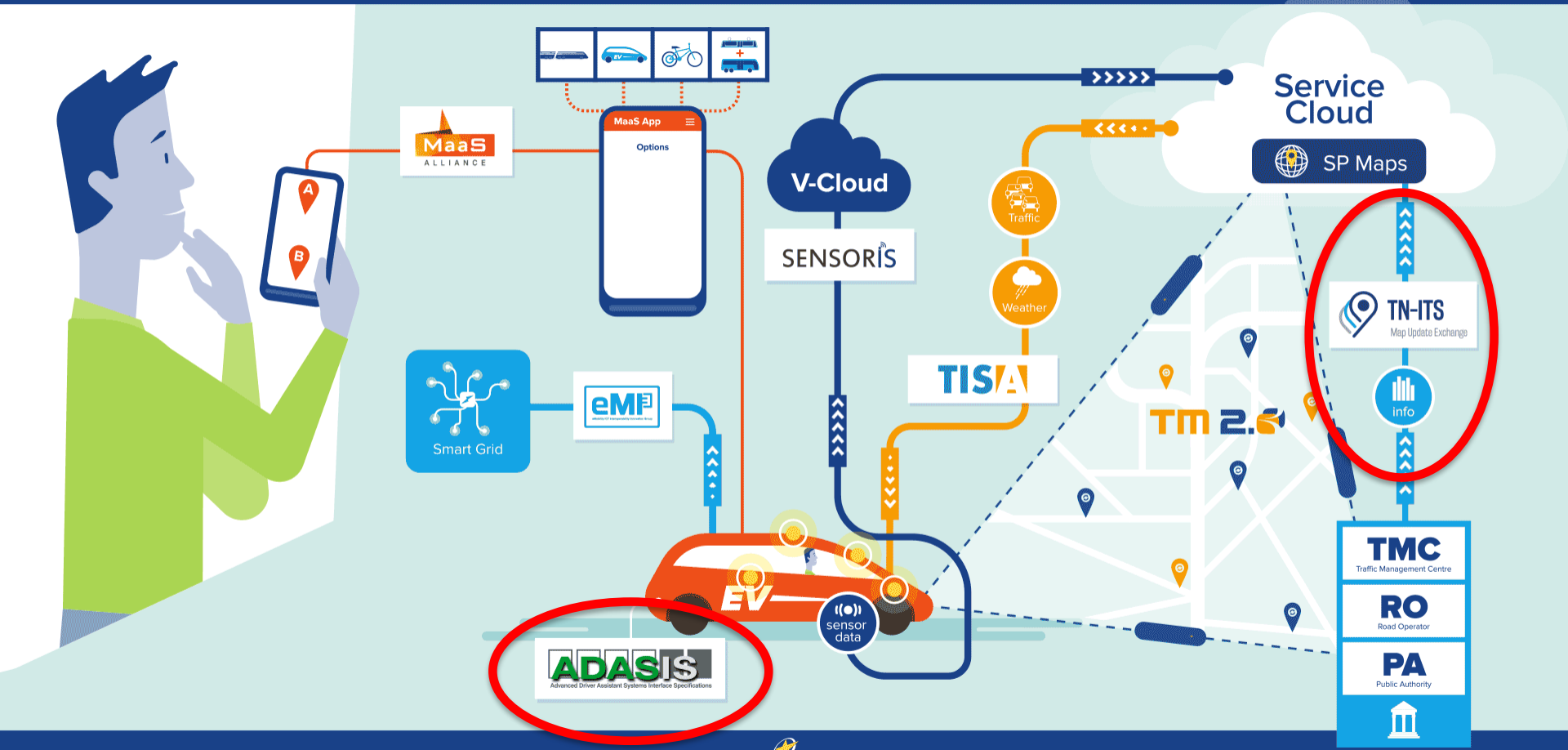
- ERTICO in two words
- Innovation platforms for Smart Mobility deployment
- ADASIS v3 to support Automated Driving
- Update on TN-ITS

117 ERTICO Partners

in

8 sectors

SMART MOBILITY DEPLOYMENT BY ERTICO PARTNERSHIP



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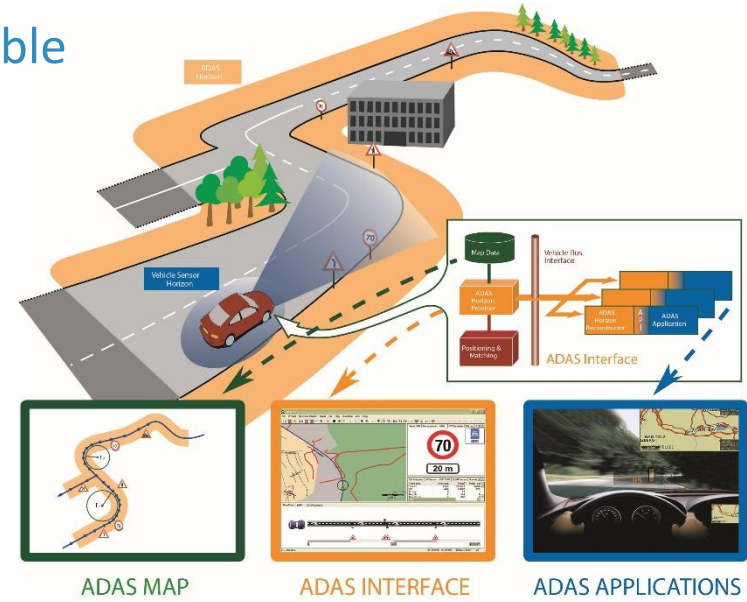
ADASIS quick overview

- Initiated by Navtech, Constituted 2002 by ERTICO industrial partners
- ADASIS v1 in 2005, tested & validated in EU project MAPS&ADAS until 2007
- ADASIS v2 in 2010 enabled first predictive applications on the road in 2012
- Since May 2018 is a Non-Profit International Association
- **In 2018 ADASISv3 is released** inernally to enable Automated Driving, *public release 08/2019*
- Reference implementation is available for ADASIS members only

ADASIS horizon addresses all major future mobility trends: connected, electrified and automated



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ADASIS AISBL membership (51)

Vehicle manufacturers (13)
Adam Opel AG
BMW AG
Daimler AG
Ford Forschungszentrum Aachen GmbH
Honda
Hyundai Mnsoft
Jaguar Land Rover Limited
Nissan Motor Co., Ltd.
Renault
Toyota Motor Europe
Volkswagen AG
Volvo Car
Volvo Group Trucks Technology

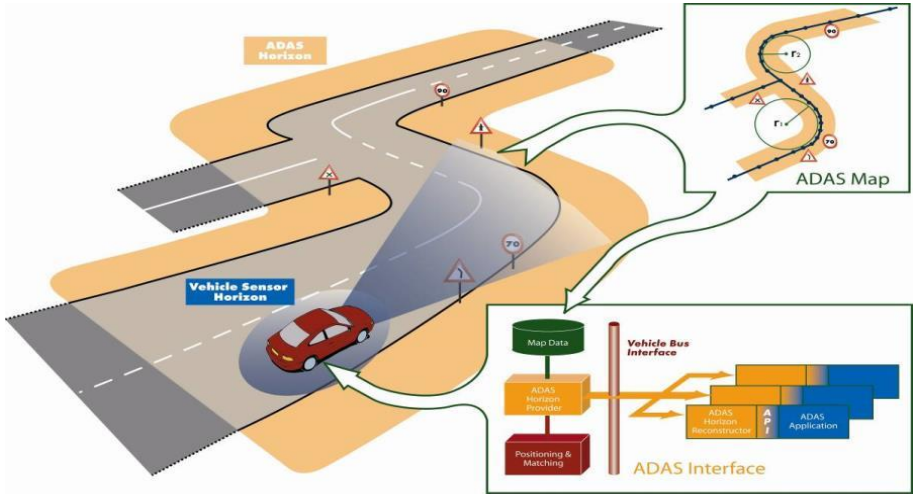
ADAS manufacturers (13)
Aptiv (former Delphi)
Continental Automotive GmbH
CTAG
DENSO
Denso Ten (Europe) GmbH
Hitachi Automotive Systems, Ltd.
Huizhou Desay SV Automotive
Ibeo Automotive Systems GmbH
Knorr-Bremse
LG Electronics
MAGNA
Valeo Comfort and Driving Assistance
Visteon

Navigation system manufacturers (16)
AISIN AW
ALPINE ELECTRONICS, INC
Banma Network Technology
Bosch SoftTec
CarLink Software Ltd., Co.
Elektrobit Automotive GmbH
Garmin
Harman/Becker Automotive
Mappers Co.
Mitsubishi Electric Automotive
MXNavi
Neusoft
NNG
Panasonic Automotive
TeleNav
Veoneer (Autoliv)

Map & data providers (9)	
AutoNavi (Alibaba Group)	Kuandeng
Baidu	NavInfo Co.Ltd.
EnGis Technologies	TomTom International B.V.
HERE Global B.V.	Zenrin
Wuhan Kotei	

ADASIS Chair, Bosch SoftTec GmbH (Michael Klingsöhr)

ADASIS horizon



Map database

Layers

e. g. hazard spots

e. g. traffic information

e. g. speed limits

30

Digital map (static)

TISA

Map data (e.g. NDS Format)

- location and most probable path (MPP)
- Enrichment of MPP with e.g. topography, speed limits, etc.
- Conversion into ADASIS format

Relevant information for road ahead (ADASIS Format)

In-vehicle systems

HMI

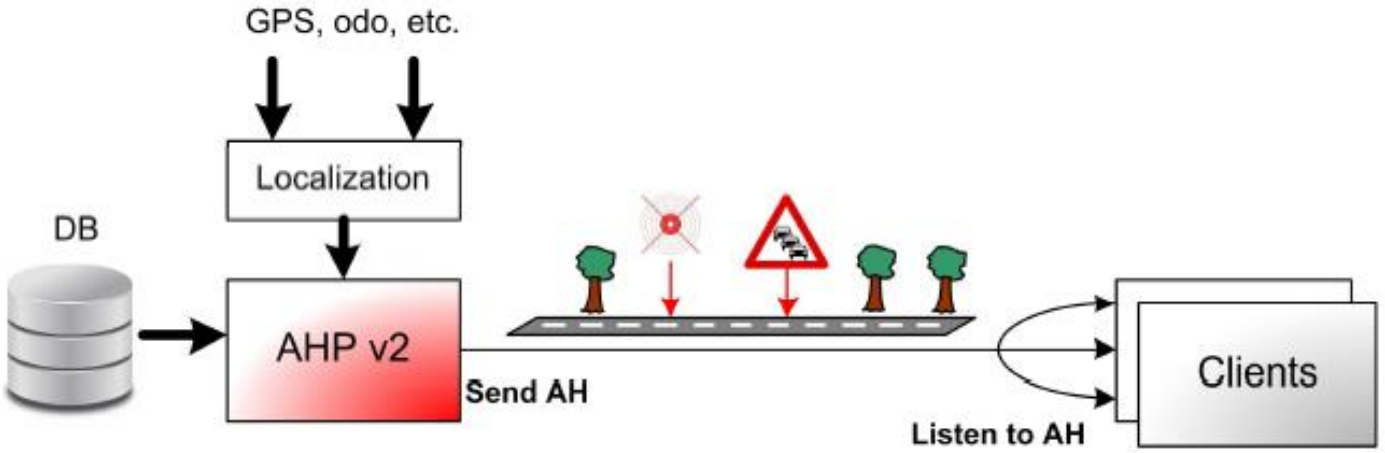
ADAS, Energy Management

From v2 to v3

- v2 Messages vs. v3 Profiles
  - v2 was CAN-Msg. concentrated, v3 is focused on Profiles
  - each attribute is transmitted via one profile
  - multiple profile values can be packed into one message
- main changes / improvements v2 -> v3
  - Resolution 0.01 meter instead of 1.0 meter
  - Vehicle position message now contains the most probable position and all alternative positions
  - Detailed lane and line geometry
  - Additional data (e.g., landmarks)
  - Support of detailed information (HD maps…)

ADASIS v2 architecture

- ADASIS v2 supports only 1 ADAS Horizon (AH) Provider

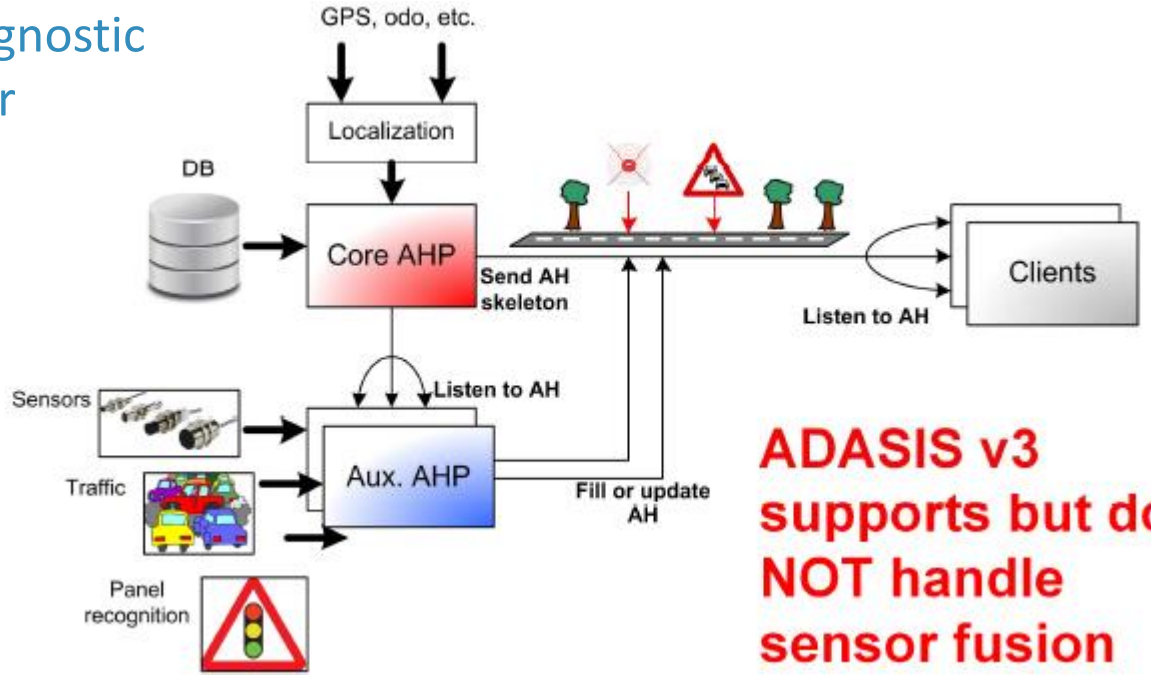


- Primary goal is to provide localization and static information from a DB

ADASIS v3 architecture

- ADASIS v3 must support progressive development of future autonomous car
- ADASIS v3 brings flexibility thanks to multiple AH providers architecture
- ADASIS v3 must be agnostic about automated car architecture

ADASIS v3 brings flexibility thanks to multiple AH providers architecture



ADASIS v3 supports but does NOT handle sensor fusion

Next steps

- Continue development of new features:
  - connecting paths
  - localization objects
  - communication schemes
  - low level communication protocol
- ADASIS v3 public release planned one year after (Q3/2019)
- Update of the reference implementation for ADASIS members only
- Strengthen collaboration with other standardisation groups (in particular OADF)
- ADASIS meeting in Japan in November 2019:
  Initiate cooperation with ITS Japan & presentation to Japanese industry

TN-ITS Vision and Mission

Vision

Bringing fresher map data to intelligent transport services

Mission

Facilitate and foster the exchange of ITS-related spatial road data between road authorities as trusted data providers, and, data users as map makers and other parties.

The TN-ITS data chain

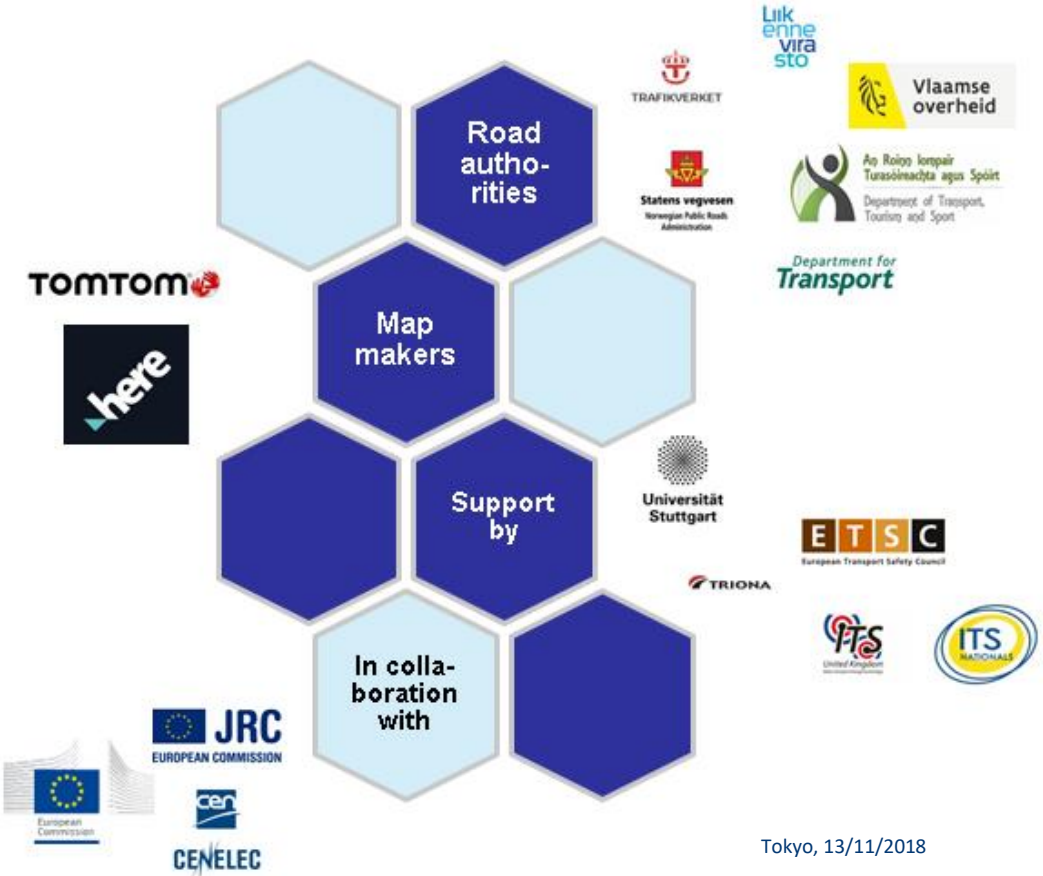
Road Authorities publish changes of road data as part of their SDI maintenance

Map makers retrieve, verify and integrate these changes in their db and bring this to map users

Drivers can benefit from up-to-date fresh map data in their in-vehicle system, stand-alone navigation

→ to share effectively any changes to road data and ensure a seamless data chain

TN-ITS Members



TN-ITS Storyboard

2013: TN-ITS founded as ERTICO Platform

2014-2015: Transportation Pilot with JRC & EULF: operational services NO, SE

2016-2017: CEF Pilot EIP A4.7: five MS: IE, UK, BE/FL, FI, FR

2017- 2018: CEN TC278 Technical Specification CEN/TS17268

2018-2020: CEF Grant **TN-ITS GO**: nine additional MS: NL, HU, CY, SL, EE, LT, PT, ES, GR

→ Towards TN-ITS services in 15 EU countries

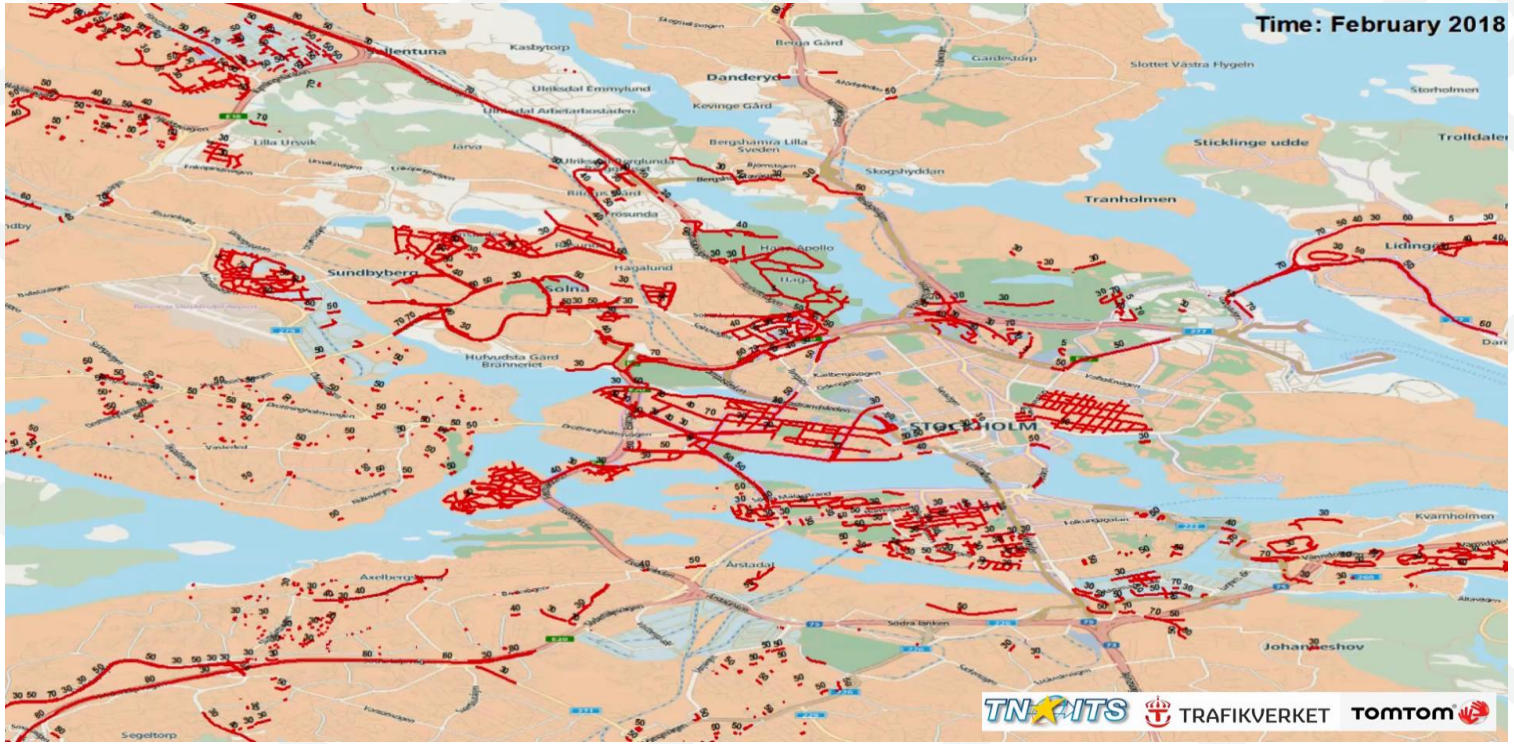
TN-ITS Services & Status

Country	Provider	Service Status	Coverage	Key Map Attributes	Location References	Data License	Update Frequency
Sweden	STA	Operational	All roads	Speed Limits, Restrictions, Roadinfo	OLR, INSP, GML	OpenData	Daily
Norway	NPRA	Operational	All roads	Speed Limits, Warning, Stop, Roadinfo	OLR, INSP, GML	OpenData	Daily
Finland	FTA	Operational	All roads	Speed Limits	OLR, INSP, GML	OpenData Attribution	Batch
Flanders	AWV/MOW	Pilot	Regional/ All roads	Speed Limits, Traf restrictions	OLR, GML	OpenData Attribution	Batch
France	IGN	Pilot	Regional/ All roads	FRC,FOW,LaneInfo, DTRF,AccessInfo	GML	Special License	Batch, daily, weekly
UK	DfT	Pilot	Regional/ All roads/TEN-T	Speed Limits, Restrictions	GML, INSP	Special License	Batch
Ireland	DTTaS Nium	Pilot	Regional/ TEN-T	FRC,FOW,SpeedLim.,LanInfo	OLR, GML	OpenData Attribution	TBD

PHASE 1 : 2013 - 2018

WCE NorthWest	Flanders	FIN	NOR	SWE
SpeedLimit	✓	✓	✓	✓
MaxDimension		✓	✓	✓
StreetName			✓	✓
RoadNumber			✓	✓
TrafficSign			✓	
Traffic flow direction				✓

Re-Use at Map & Service Providers



Updates of Speed Restrictions near Stockholm in 2 ½ years

TN-ITS Next Steps

- Establish TN-ITS as the reference interface for updates of static road data between public authorities and map service providers
- Reach out to more stakeholders, e.g. automotive community
- Extend specifications to support more ITS use cases
- Alignment specifications with other data exchange groups
- Include TN-ITS in ‘ITS National Access Points’

Thank you for your attention!

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