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Bundesamt für Strassen ASTRA

NAVIGARE 2010: ION-CH

GNSS in ITS: the path of cooperation

NAVIGARE, 30 June 2010
EPFL, Ecublens - Lausanne

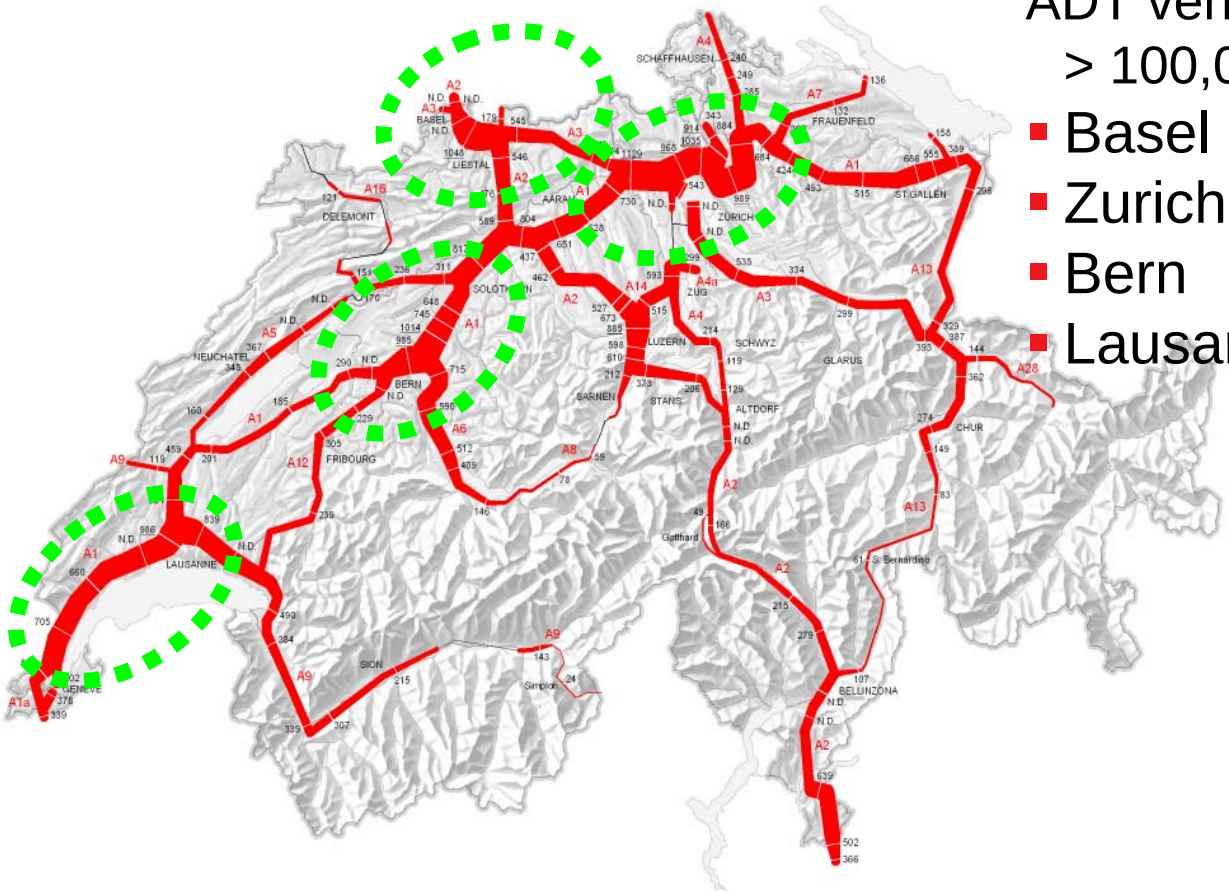
Heinz Suter, Head of Traffic Management, FEDRO

Outline

- Traffic situation in Switzerland today
- Traffic management TM-CH overview, goals
- ITS-CH concept, SA-CH, TM functions, etc.
- Traffic management: role of GPS/GNSS
- Final conclusions, questions
- Contact

Traffic situation in Switzerland today

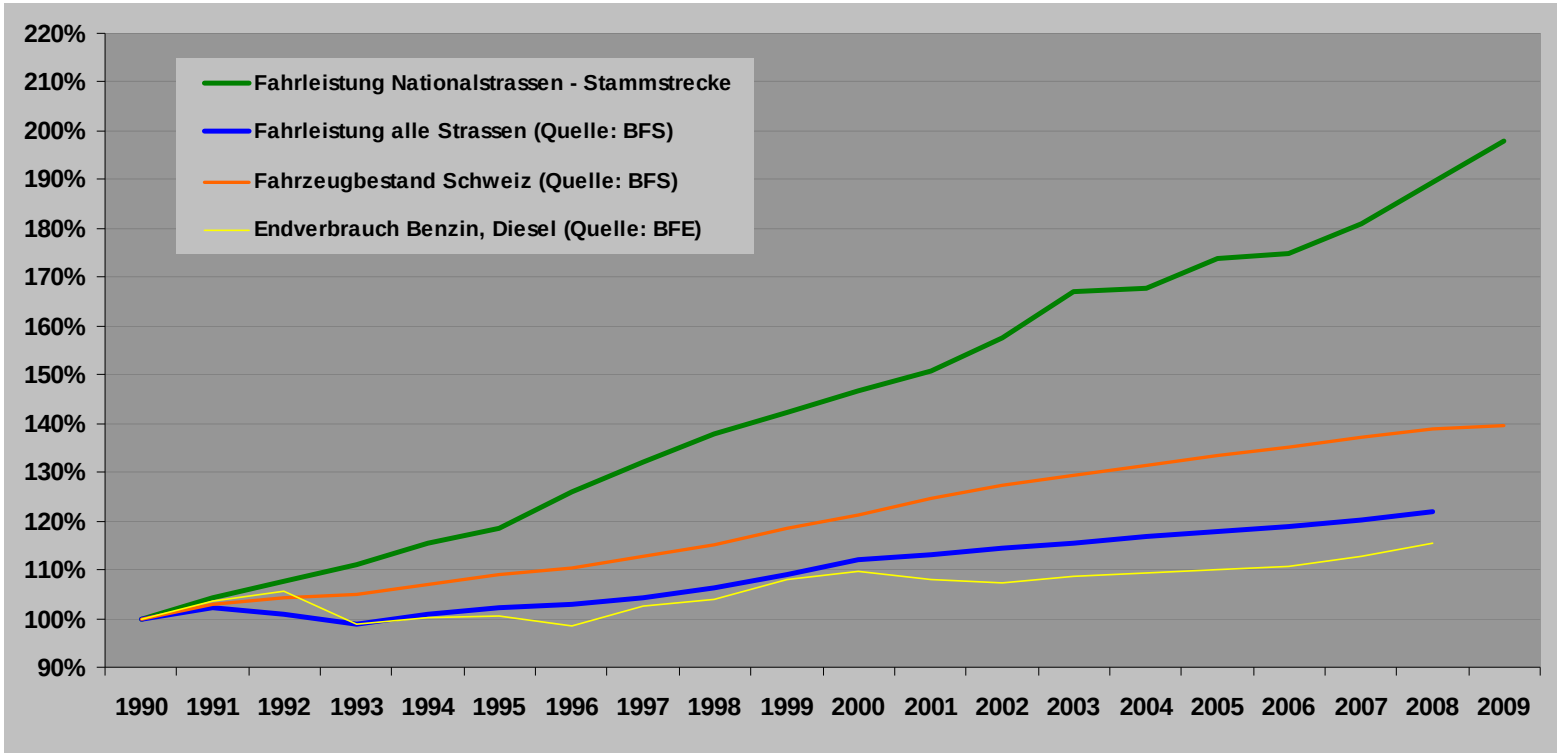
Average daily traffic on national roads



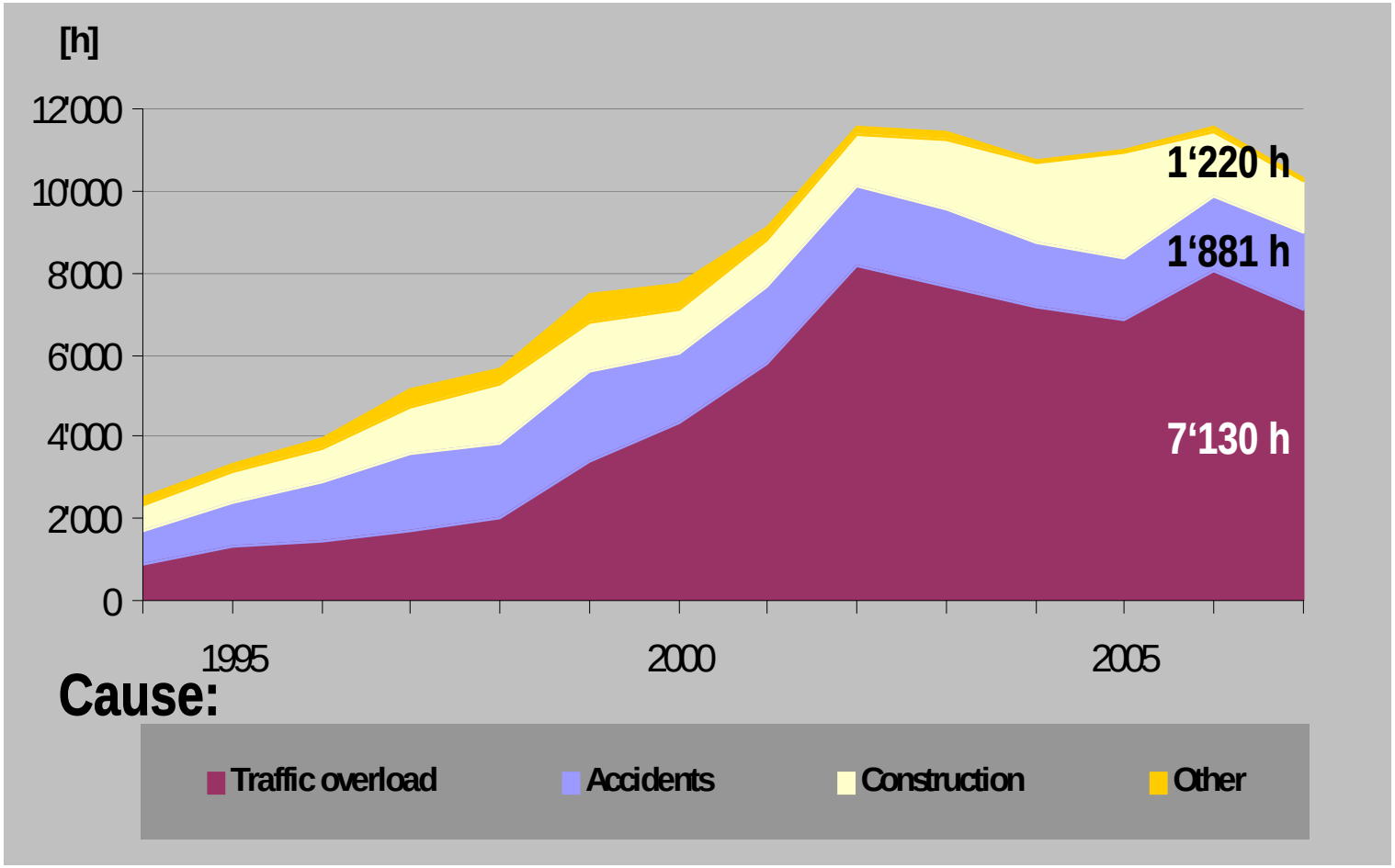
ADT vehicles per day
> 100,000 in

- Basel
- Zurich
- Bern
- Lausanne

Increase in traffic in CH since 1990



Time lost due to traffic congestion



Traffic Management TM-CH overview

Responsibilities at federal, cantonal and local government levels

- **Federal government:** national road network, current total length 1800 km, NFA since 1.1.08
  ⇨ **Traffic Management Switzerland (TM-CH)**
- **Cantons and local authorities:** remaining road network (main cantonal and local roads)
- Cantonal roads – total length 16,000 km
- Local roads - total length 51,000 km

Main goals and objectives of TM

- Improving road and traffic safety
- Optimal use of the road infrastructure
- Enhanced reliability of all national roads
- Reduced congestion and emissions
- Less fuel and diesel consumption

What TM CH hopes to achieve

- Optimal and best TM on the National Roads
- Improved coordination of TM measures and the dissemination of traffic information nationwide
- Guaranty of TM/IT systems interoperability
- Implementation of common operational standards
- Coordination of efficient allocation of resources

ITS-CH 2012 concept for Switzerland

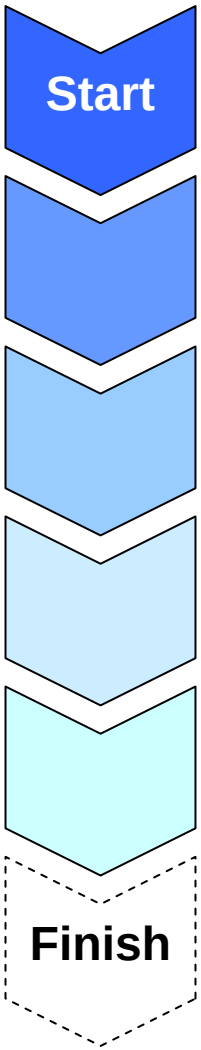
Need for a harmonised ITS-CH 2012 concept

The Confederation's strategy

ITS-CH 2012 main guidelines for

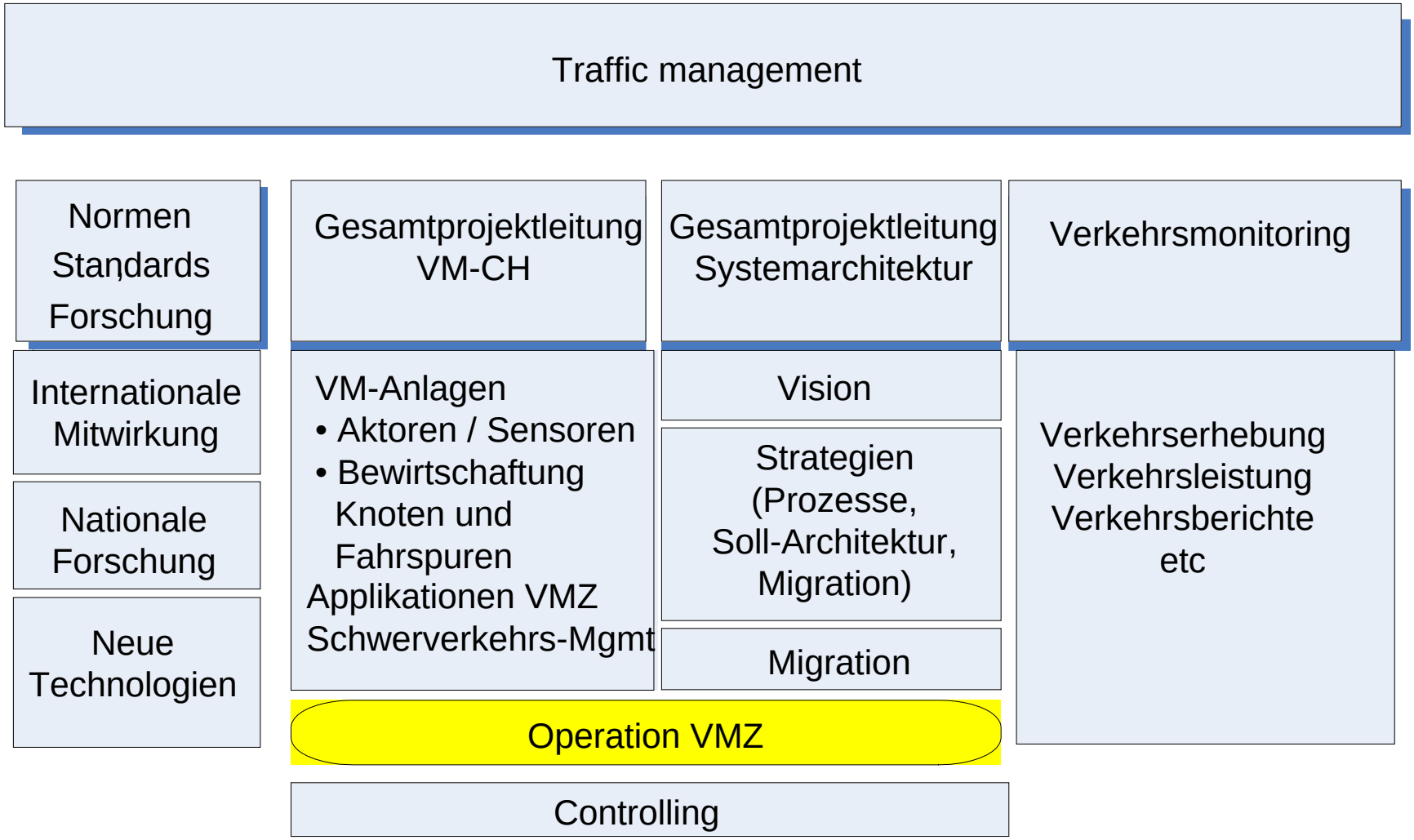
- National traffic management
- National network management
- Traffic control on national roads
- Multimodal traffic data exchange

Developing traffic management



2008	Start Traffic Management Centre TMC-CH, Traffic management plans are developed Structuring and networking with partners
2009	First traffic video cameras installed
2010	Start of traffic management plans implementation and traffic data exchange operational
2011	Implementation of TM-CH IT systems and optimisation of TM procedures
2013	Migration of TM-CH applications and data, TM-CH with integrated systems operational
2015	Ongoing TM optimisation and improvement, implementation of additional IT applications

Traffic management TM - Activities



ASTRA
Applikationen und Fachapplikationen (Schalen 1 – 3)

Beispiele:
•MISTRA Basissystem (M-BS)
•EMS-CH (M-EMS)
•V-MON
•……

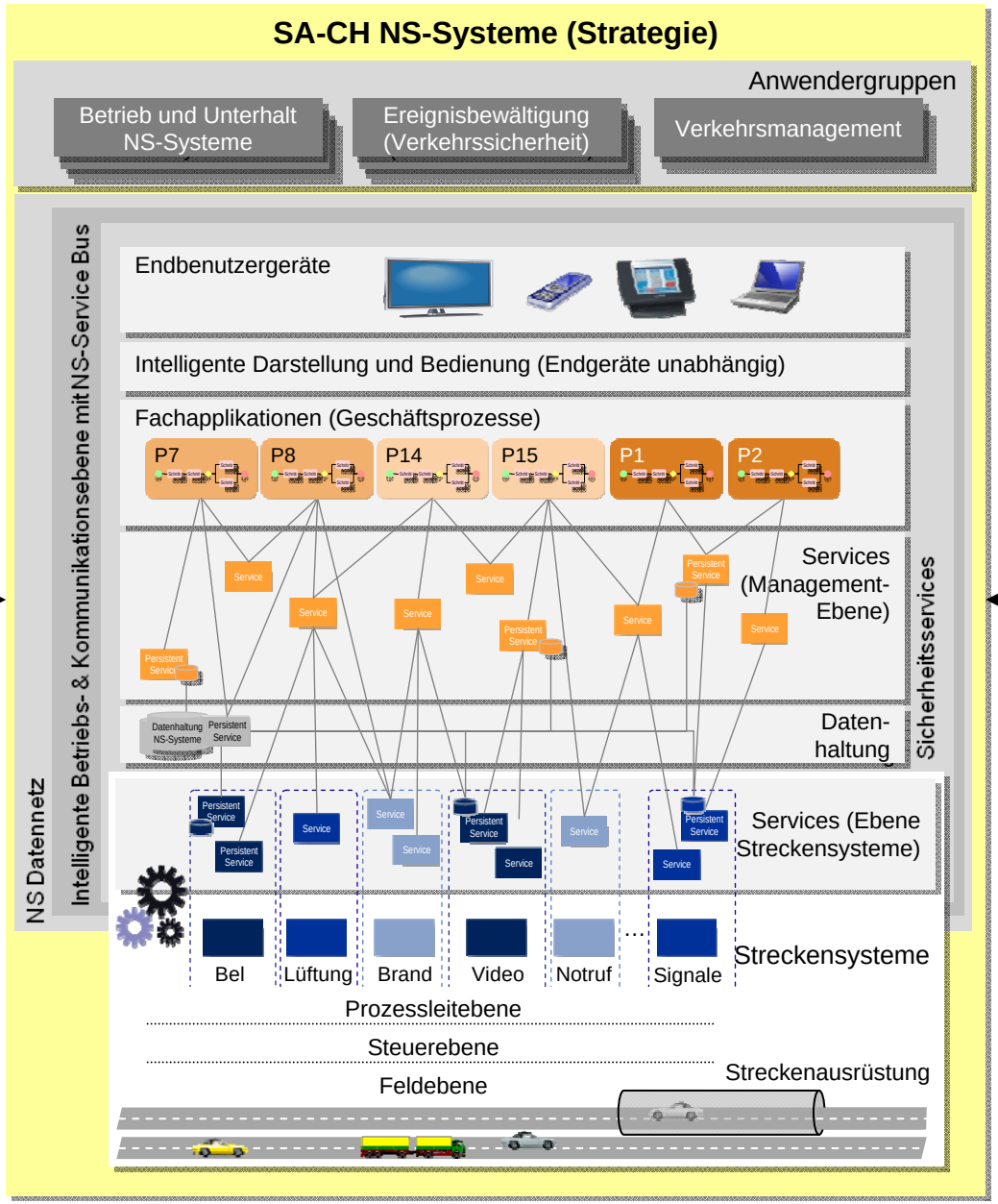
Fachapplikationen Schale 3b
(z.B. MISTRA M-EMS)

Fachapplikationen Schale 3a
(z.B. GEVER, MISTRA M-BS)

Applikationen Schale 2

Applikationen Schale 1

Strategische Informatikplanung (SIP) ASTRA



Externe

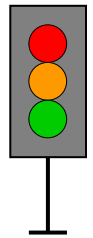
•Erhaltungsmanagement der GE / Planung Unterhaltspersonal
•Einsatzleitsysteme / Interventionssysteme BORS
•Systeme anderer Netzbetreiber
•Andere Strassennetze
•Verkehrsinformations-zentrale (VIZ)
•Meteodaten
•Car-to-Infrastructure (C2I)
•e-Vignette
•Schwerverkehrszentren

•Datenlieferanten V-Daten (Floating Car Data FCD, Floating Phone Data FPD, etc.)
•V-Lage an Dritte
•Warnung vor klein-räumigen V-Störungen
•Langfristige Verkehrs-Entwicklungsplanung (ARE)
•LSVA
•Mobility Pricing
•Nachbarstaaten
•Autoverlad
•öV intermodal
•Galileo-Service-Zentrale
•Private Dienstanbieter
•……
•……

Traffic management functions

Main traffic management functions

- **Informing** ⇨ Radio RDS/TMC traffic information 
- **Routing** ⇨ VMS signalisation, alternative route 
- **Guiding** ⇨ Guiding traffic along road segment 

- **Control** ⇨ on-site, object-related measures 

Traffic management key words

- Road safety
- Reliability
- Travel time
- Traffic quality
- Prioritisation
- Pull-off lanes
- Heavy traffic management
- Congestion handling
- Construction sites
- Prior public transport
- Road haulage/pricing
- Cross-border info
- Police enforcement


sister
Satcoms In Support of Transport on European Roads
Enhanced GNSS Services
Chris Hill, The University of Nottingham
SIXTH FRAMEWORK
PROGRAMME

Traffic management: Role of GNSS

- General remarks: efficient traffic management requires a great deal of real time and precise traffic data!
- E.g. for tracking and tracing of vehicles and trucks, the actual location and positioning is very important.
- Location can be linear, axial u/v or planar x/y
- Satellite-based location and positioning can be very helpful for broad surfaced, covered tracking and tracing of vehicles, trucks, dangerous goods, etc.

TM: GNSS IT Applications

- Location and actual positioning of vehicles, e.g. floating car data FCD as an input for travel time
- Location of vehicles, length of traffic congestions
- Traffic incident and accident detection as data input for EU-wide eCall rescue services
- Tracing, tracking and location of stolen vehicles
- Location and tracking of vehicles for road pricing
- Location and tracking of vehicles for speed control
- Location and positioning for ADAS applications.

Final conclusions, questions

- Cost of navigation devices is low due to mass production
- Modern satellite-based navigation devices are user friendly
- Millions of GPS/GNSS-based navigation devices are in use
- Due to risk that GPS/GNSS-based applications may not always be functioning everywhere at all times and that the system can fail, it is very risky to base and use only these tools for safety relevant traffic management, IT systems and applications
- Thank you very much for listening!

- Questions?

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