



The Thinking Car



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SPITS has won the "Innovation Champion" award 2010

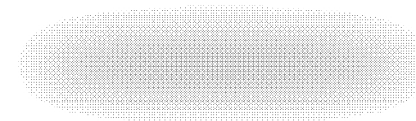


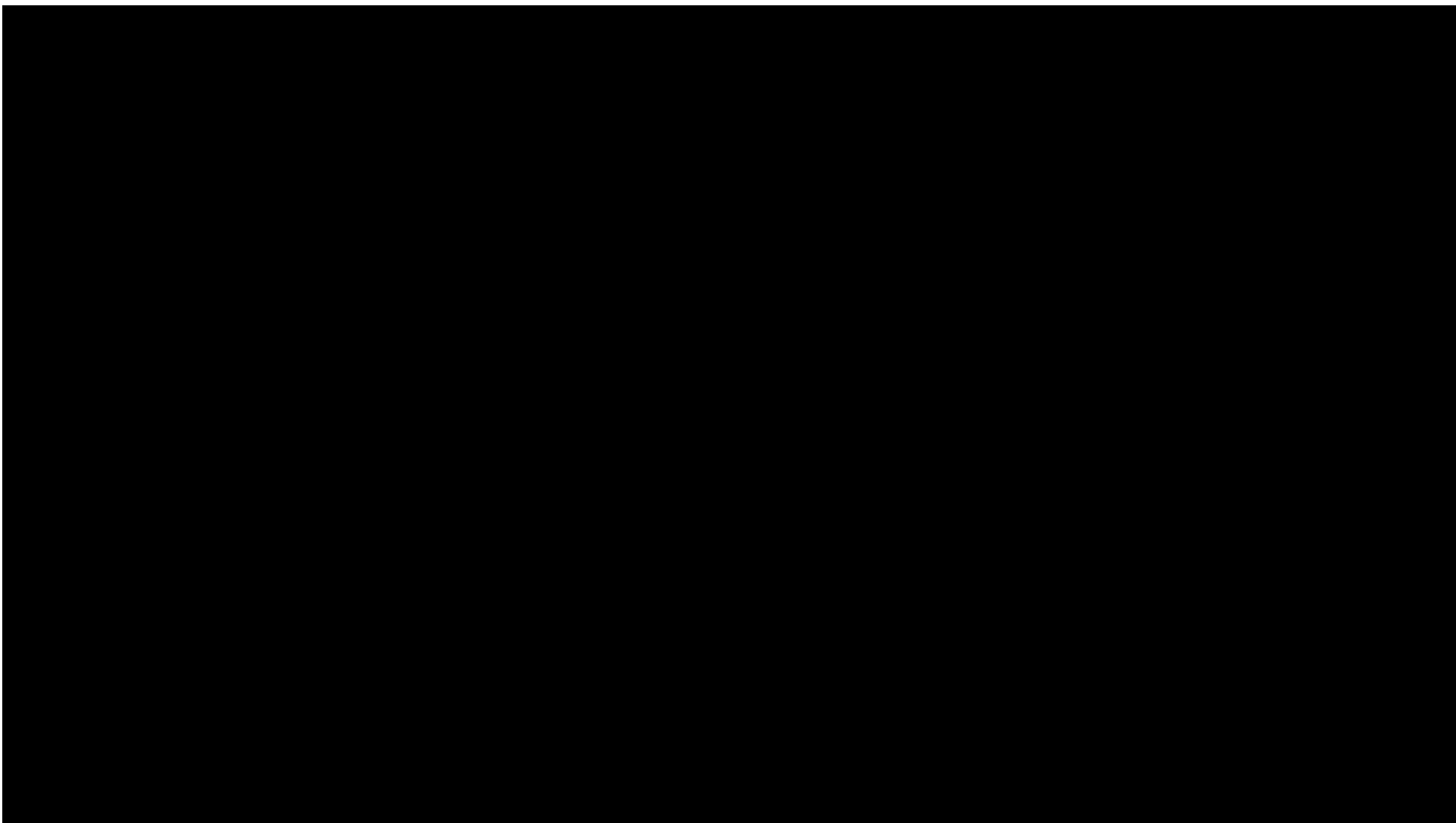




Why SPITS?

- Mobility, safety and environmental challenges
 - Society needs
 - Economic growth, better air quality, and safer traffic
 - Businesses and consumers needs
 - Efficiency, driver assistance, and infotainment
- Large potential for in-vehicle intelligence
 - Platform and applications need to be:
 - Available and affordable
 - Standard and open
 - Easy to connect and upgradeable





State of the Art Today

Vehicle to Remote Server



- The **connected car** is linked to a **remote server** via mobile connectivity
 - Map and speed info static and updateable off-line
 - Dynamic traffic information available every 3 minutes



Potential Applications

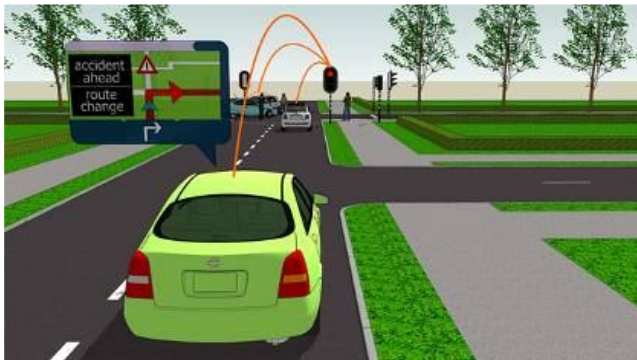
- Eco-routing
- Insure-How-You-Drive
- Logistical management
- Driving Time Assistant
- B-Call / E-Call
- Remote Diagnostics

Linking to the Roadside

Vehicle to Remote Server + Infrastructure



- The **connected car** also receives information from **road-side units** to update on dynamic situations
 - Dynamic information available from road side
 - Infrastructure able to guide traffic to optimise flow



Potential Applications

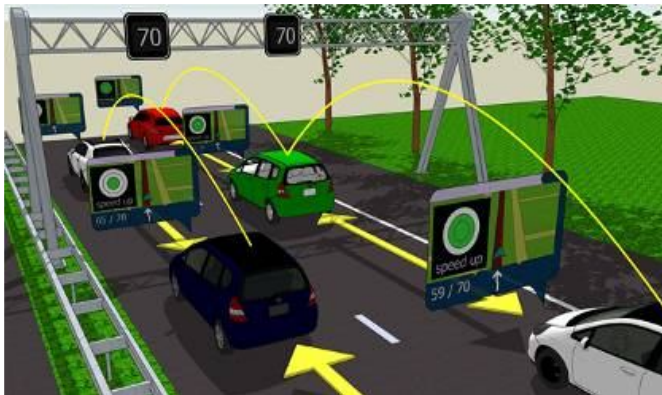
- Adaptive Speed Limits
- Green Wave
- Green Zones
- Curve speed warnings
- Shockwave dampening (V2I)
- Accident Warnings

Linking to Other Vehicles

Vehicle to Remote Server + Infrastructure + Vehicle



- The **connected car** also interacts with other **vehicles** to provide constantly up-to-date situational awareness
 - Instant interaction with immediate surroundings
 - Quick-response safety applications & increased throughput of roads



Potential Applications

- Cooperative-Adaptive Cruise Control
- Accident Warnings
- Shockwave dampening (V2V)
- Road trains / Platooning

Longer term vision for Traffic Management

Connected Traffic



- **Centralised systems** are provided with current traffic situation and optimally route traffic for conditions
 - Individual routing replaced by cooperative routing schemes
 - Dynamic load balancing of network



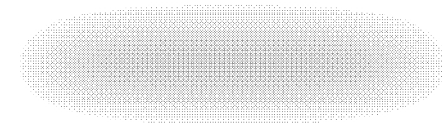
Potential Applications

- Safety support systems (e.g. VRU's)
- Cooperative network balancing
- Urban congestion mitigation



Reaching the Goal: HW Upgradeability

- Innovation freeze on the Connected car once it is sold
- Life times of vehicles (10-15 years) means it is part of the system for a long time
- SPITS open and upgradeable HW platform ensures innovation can continue on through after-sales
 - Dealer upgrade options for new connectivity solutions and additional hardware components





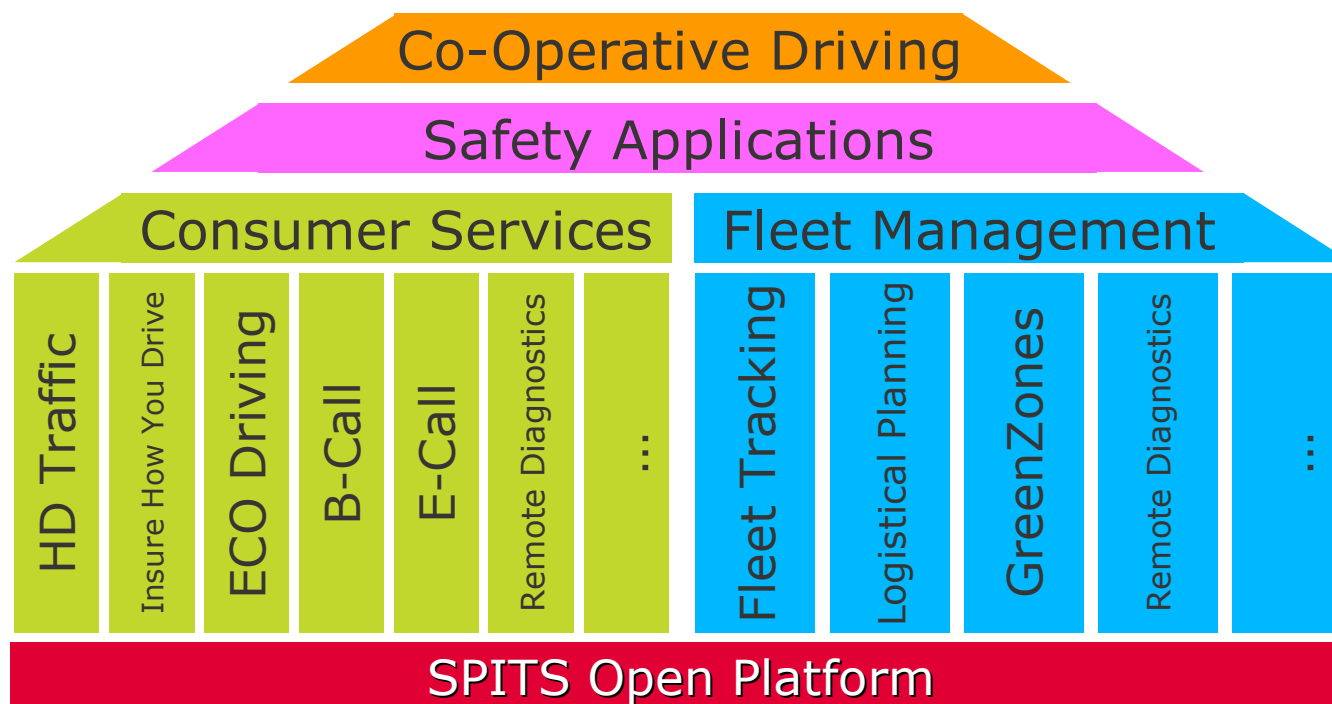
Reaching the Goal: Downloadable Services

- SPITS defines specifications for service download, lifecycle management and backoffice communication
- Enables third parties to develop services for consumers and business on a single, common platform – building an install base.
 - Infotainment, ADAS, navigation, content provision
 - Fleet management, low emission zone routing
- Safety and cooperative applications are not possible without an adoption rate of at least 15-20%
 - = an install base of ~ 2 million vehicles for NL
- Through the combination of hardware upgradeability and software downloads, we can enable these new applications with the SPITS open platform





Reaching the Goal: Downloadable Services





Societal Impact of SPITS

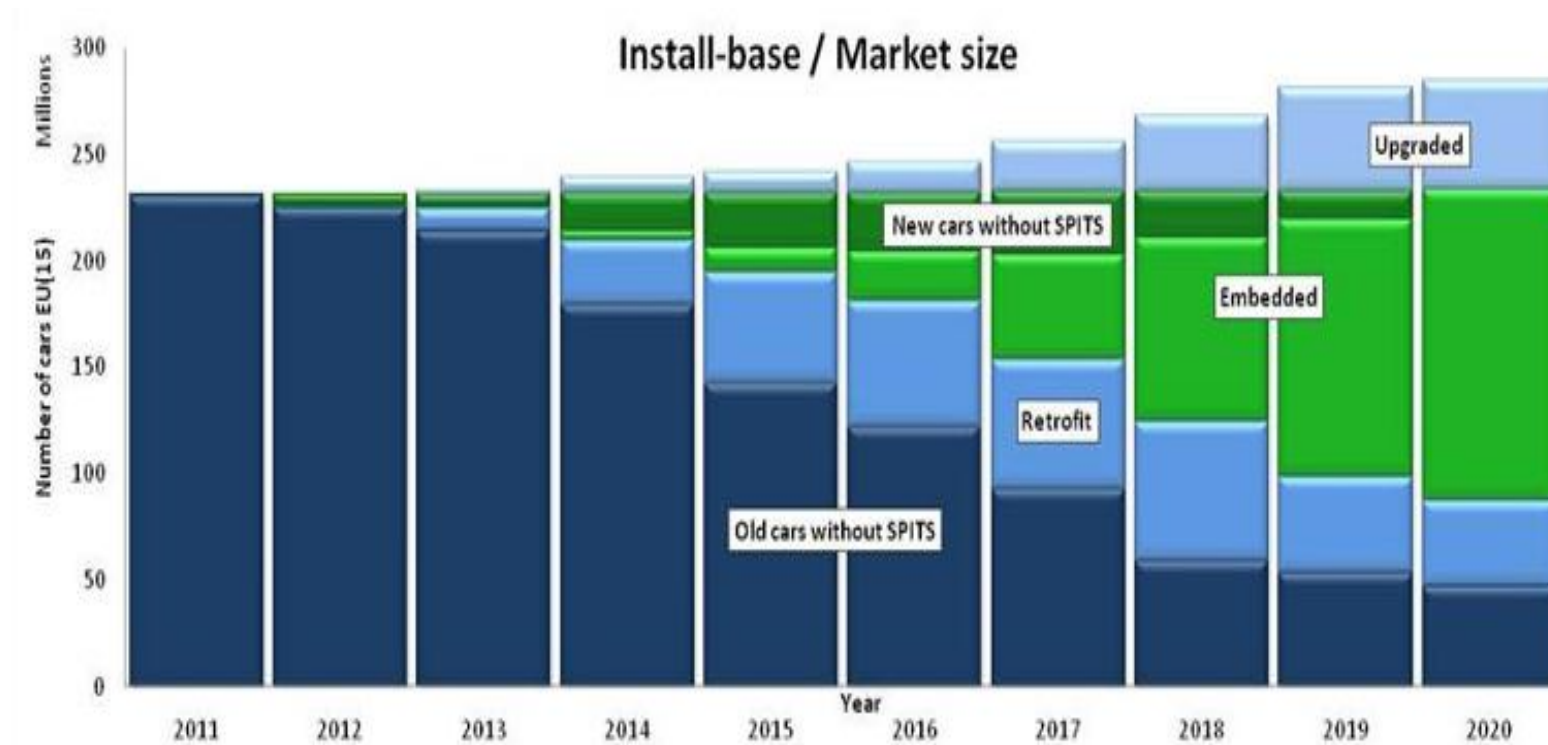
Potential of ITS applications enabled by SPITS

- In 10-15 years reduction of:
 - 50% congestion,
 - 25% fatalities,
 - 10% CO2 and
 - 20% urban air pollution

- Increased employment in automotive and services industry



Economic Impact of SPITS





Whats next? DITCM

DITCM – (say: *ditsum*) Dutch Integrated Testsite Cooperative Mobility

- ... collaboration on cooperative mobility
- ... acceleration of new mobility concepts
- ... solving mobility problems
 - » Better use of existing infrastructure
 - » Improving traffic flow
 - » Increasing road safety
 - » Improving air quality
 - » Upgrading comfort



Unique cooperation in the triple helix



Fontys Automotive

TU/e Technische Universiteit Eindhoven University of Technology

TNO innovation for life

TU Delft

NHTV Internationaal hoger onderwijs Breda

Rijkswaterstaat Ministerie van Infrastructuur en Milieu

SRE Samenwerkingsverband Regio Eindhoven

Brainport Development

Gemeente Helmond

HTAS AUTOMOTIVE INNOVATION

Provincie Noord-Brabant

Beter Bereikbaar Zuidoost-Brabant

HighTechAutomotiveCampus.nl

TomTom

Vialis

Logica

NXP

DAF

NAVTEQ

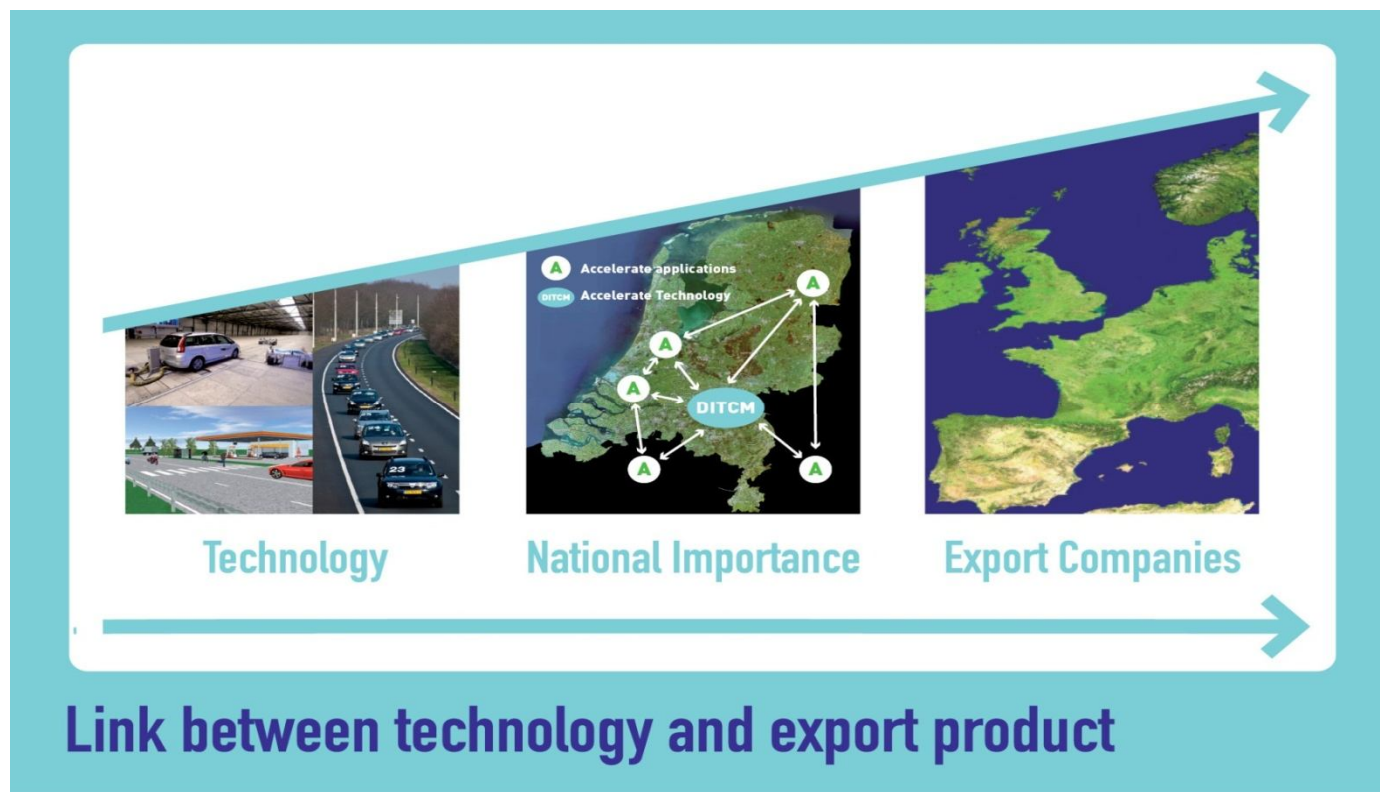
IBM

PEEK traffic solutions

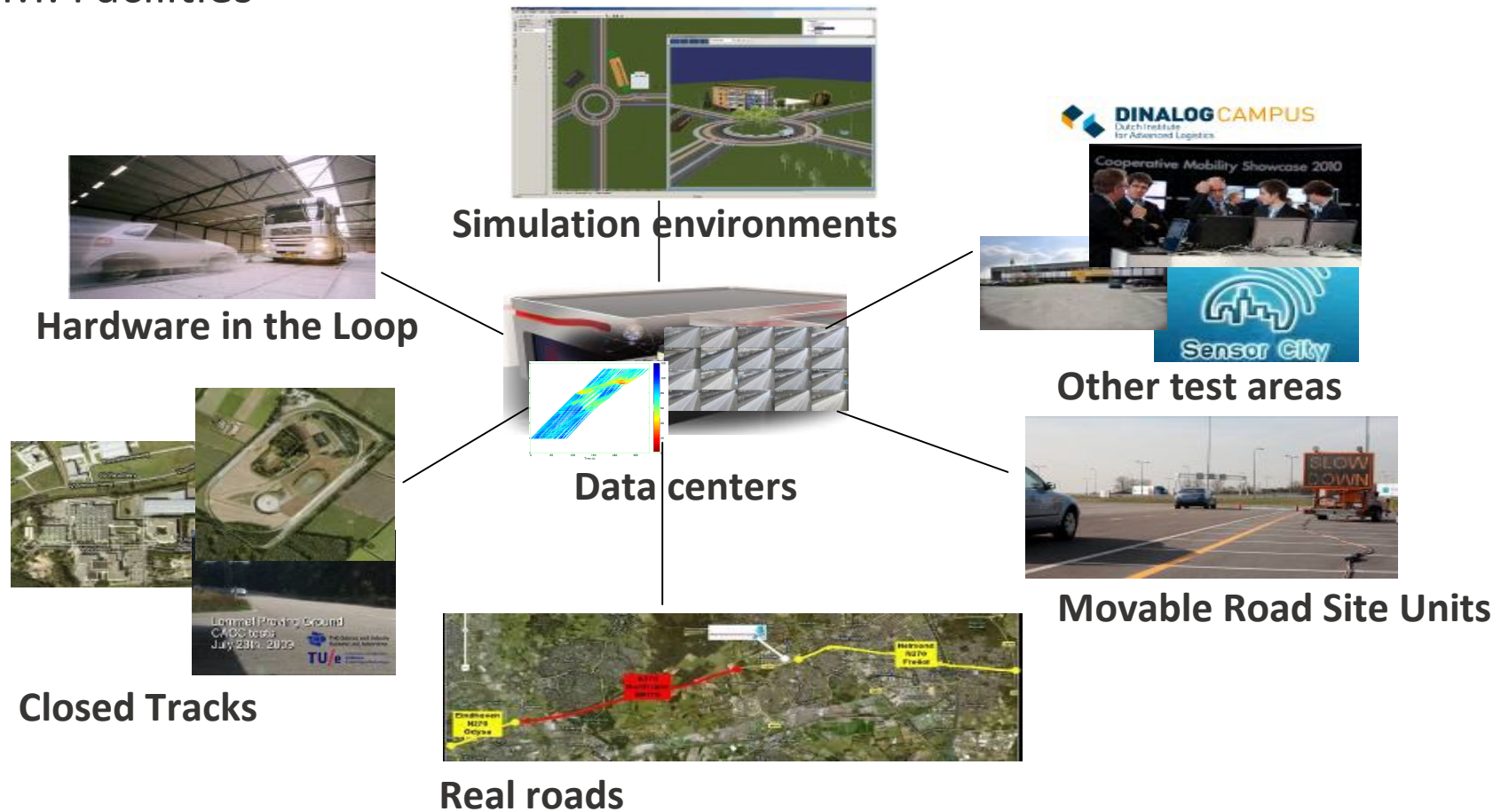
Faster, safer and cleaner traffic by unique cooperation



Start in Dutch region, European context



DITCM: Facilities



Chris Bannink, ITAPA Conference 25 October 2011

Thank you for your attention

Questions?



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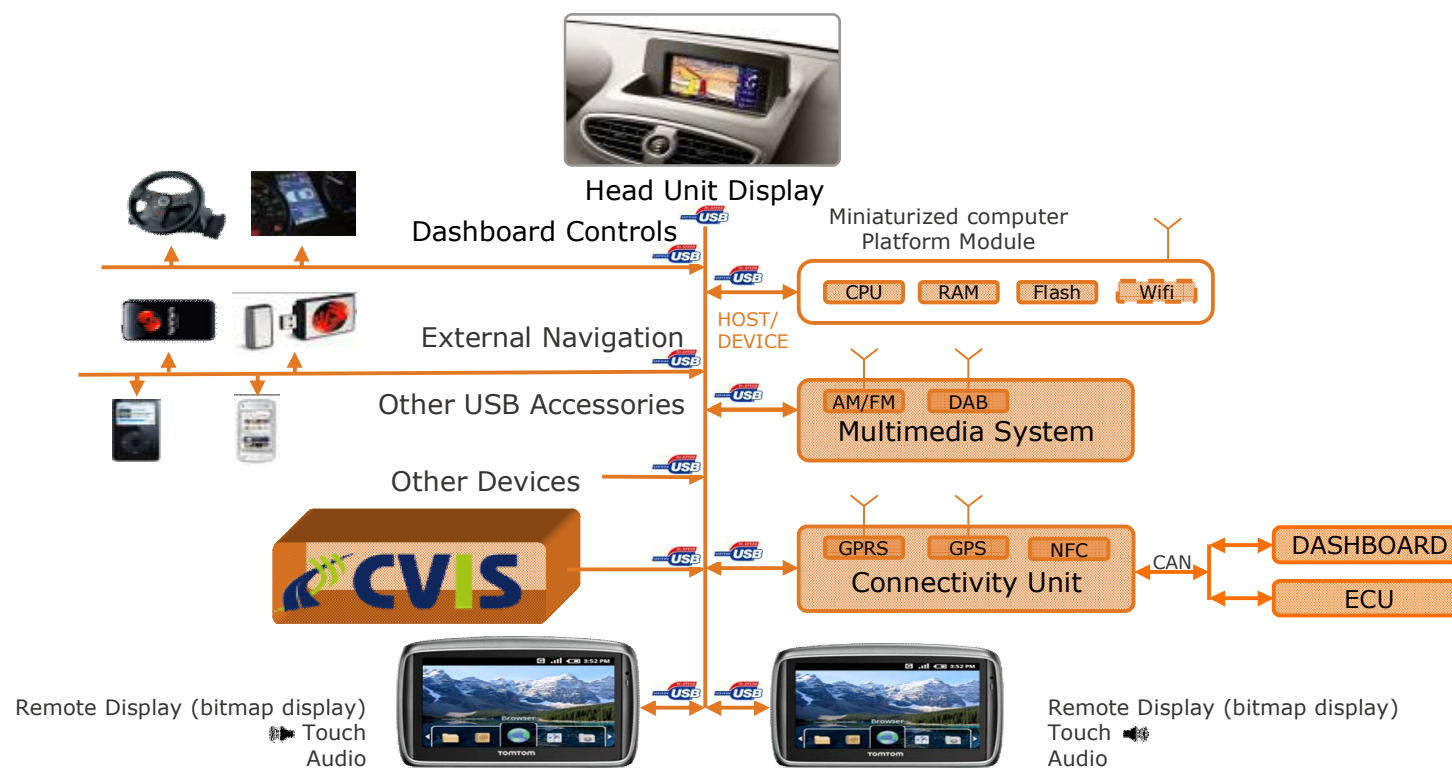
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Reaching the Goal: HW Upgradeability





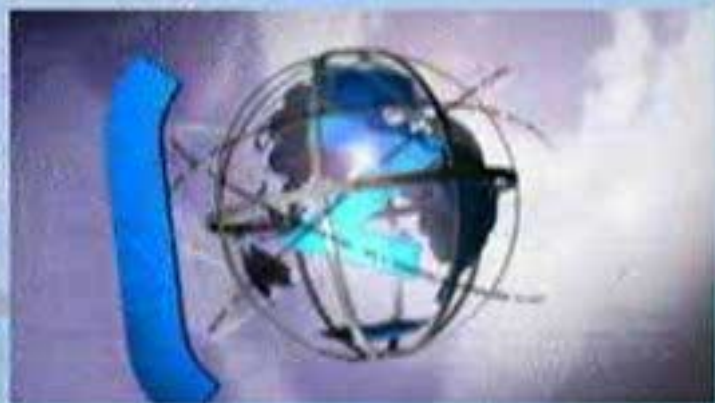
Societal Impact of SPITS

- Potential of ITS applications enabled by SPITS
 - In 10-15 years reduction of: 50% congestion, 25% fatalities, 10% CO2 and 20% urban air pollution
 - Increased employment in automotive and services industry

	Throughput Increase	Safety Impact	Environmental Impact
Speed Alerts	1-7%	12-24%	-
Lane Keeping Schemes	11%	Car: 25-37% Truck: 9%	-
Cooperative Cruise Control	30% at 10% IB 50% at 60% IB	8%	10%
Local Warnings	-	5%	-
E-Call	-	4-5%	-



rt | XE



<http://www.youtube.com/watch?v=dbToCVL0f3E>



