

# Vehicular Networks

## “A personal opinion”

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## Our role as Telecom Operator.

To provide ICT that enables vehicular networks.

- Next Generation Networks
  - Based on Internet Protocol /IP
  - Enables new services for both business and home customers
  - Open collaboration with other industries
    - Automated meter reading for in-car services such as navigation, navigation, and vehicular servicing
- Tackling mainly
  - Security (privacy, authentication, etc.)
  - Trusted entity
  - Data management (profiles, billing, etc)

## Steps towards ICT for car industry. Collaboration with other major players.

*“IBM Announces Development Agreement with Deutsche Telekom AG / T-Com”  
(Feb, 2007)*

*“T-Systems collaborates with its clients: BMW, Volkswagen, Daimler, in a one-stop ICT company”  
(March, 2008)*

*“Deutsche Telekom collaborates in the EICT (European Center for Information and Communication Technologies) initiative to create Telematics solutions”  
(EICT started in 2004)*

## The case of the EICT.

The goal is to exploit synergies between partners.

- The EICT is a public-private partnership of scientific institutions, institutes of applied research and leading industrial companies.
- Long-term society problems.
- One of the main areas is ICT solutions for the car industry.
- Innovation cluster based on partners cooperation.
- Projects
  - SPARC(EU)
  - PreVENT (EU)

## SPARC.

The switch from reactive active safety to preventive active safety.

### Description:

The goal of SPARC is to substantially improve traffic safety and efficiency for heavy goods vehicles using intelligent x-by-wire technologies in the powertrain. To prove this standardised concept an automotive Software/Hardware platform will be developed that is scalable and usable from heavy goods vehicles down to small passenger cars (sPC) and be integrated therein.

SPARC will propose a complete automotive concept of an open system architecture, where software functionality's of different partners can be integrated easily. 2 validator vehicles of this architecture will be build and evaluated.

### Partners:

DCAG, 2 OEMs, 19 suppliers, 5 institutes/universities

### Link:

[www.sparc-eu.net](http://www.sparc-eu.net)



# PReVENT.

## Safety in the roads.

### Description:

The Integrated Project PReVENT is a European automotive industry activity co-funded by the European Commission to contribute to road safety by developing and demonstrating preventive safety applications and technologies.

Preventive safety applications help drivers to avoid or mitigate an accident through the use of in-vehicle systems which sense the nature and significance of the danger, while taking the driver's state into account.

### Partners:

DCAG, 12 OEMs, 22 suppliers, 15 institutes/universities, 6 others

### Link:

[www.prevent-ip.org](http://www.prevent-ip.org)



# Unsecure safety solutions.

Safety applications on top of a “secure” platform.

- **Security!!!**
  - Privacy!!!
  - Authentication
  - No space for spoofing, DoS attacks, etc.
- **Availability!!!**
  - Demand for real-time services
  - Special communication networks for vehicle solutions
- **Mobility**
  - Not there yet
  - Low tolerance to errors, delays, etc.
- **Regulation**
  - Governments and car manufacturers should collaborate
  - Long term process

So?

## Can we overcome these challenges?

- Can we overcome these problems?
- Are we in the correct path?
  - Multi-hop vs. One-hop
  - Connected car to the Internet vs. dedicated network
  - Supporting NEMO, MANEMO vs. direct access for every car
- Are we doing this as an academic exercise or do we want to achieve real solutions?
  - Distributed security, not trusted environment, privacy, etc.
  - VANET, MANEMO, etc.
- Can we only deliver in-vehicle entertainment?