



Implementation Road Map for Dynamic Traffic Management – Vehicle Systems Co-operation

A: Technology

Main implementation issues

- **A) Technology issues including interoperability**
- **B) Business models and markets**
- **C) User acceptance and safety**
- **D) Legal issues, e.g. privacy, liability and security**



Participants A

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A) Technology issues

- Technology is developing all the time, when and how should we fix the technologies used
- **don't fix on technologies**
- **work with open platforms**
- **think modular -
means decide on ITS Architecture**
- **technologies should be replaceable,
intergratable**



A) Technology issues

- What technologies should we rely on now
- **Exploit existing services, even if they are proprietary**
- **First step: get data from the vehicle to a centre, Second step: addressing vehicle**
 - For instance: maps
- **Following technologies might be mature enough:**
 - RDS-TMC!!
 - maps??
 - Communication means??
 -
- **No common view on that**

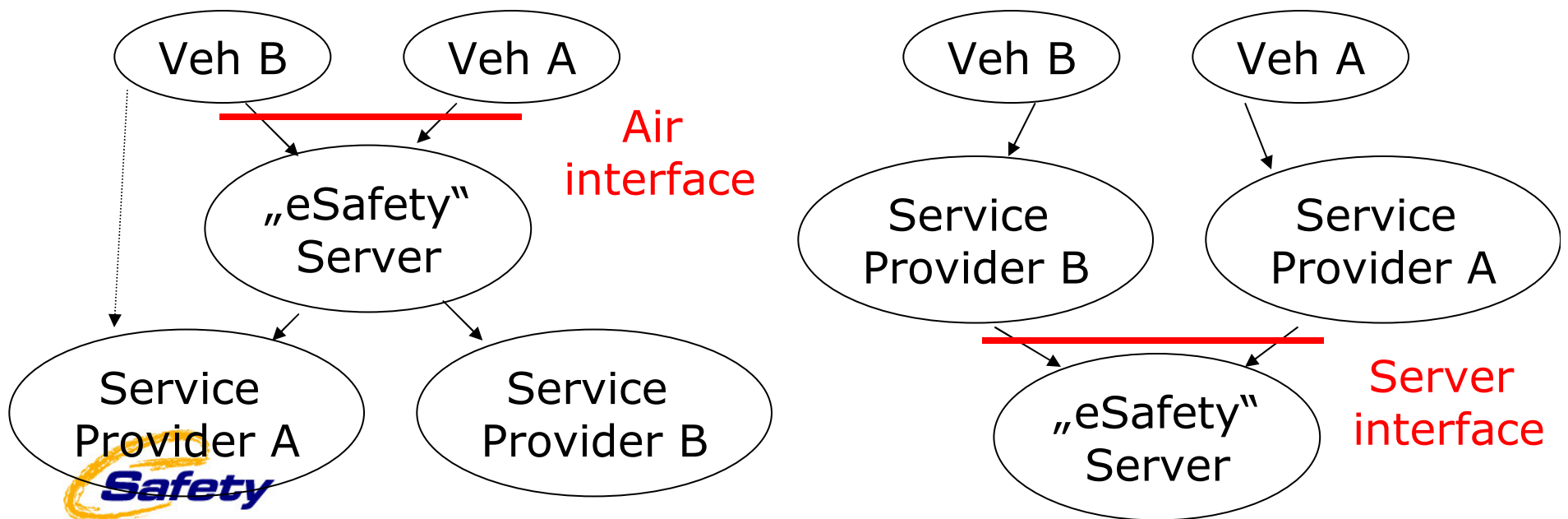


A) Technology issues

- Ensuring the quality of data
- Issues in data fusion and filtering

**Common Interfaces are crucial
Standardisation quickly**

Possible Data Exchange scenarios are:



A) Technology issues

- Ensuring the quality of data
- Issues in data fusion and filtering
- **there is a need for different data sources**
- **challenge is to decide which is right**
- **define confidential rates for different data sources (quality level)**



A) Technology issues

- **Identifying the application gaps for V2V**
- **reliable and safe technology and communication not yet available**
- **tests with big fleets missing so far (only “laboratory environment” tests)**
- **introduction scenario is complex (no business case)**



A) Technology issues

- **In-vehicle systems should be able to co-operate with infrastructure systems in whole EU/globally: interoperability**
- **Seamless communication**
- **Desirable but more discussion is needed here**



A) Technology issues

- Need for common system architectures
- **YES**



B: Business case

What are the most important issues and obstacles for deployment?

- **Sustainable technology platform and interface**
 - **Benefit /cost model**
 - **Compulsory HW entry platform.**
 - **Vehicle interface standard to solve the differences in product cycle time**



B: Business case

- 1. It is important to follow the base principle of "Those who benefit also need to share the cost".**
 - In a multi-stakeholder business there are always companies which are just waiting until one company takes all the risk to install a platform they then can have a "free" ride on for their own content or applications**
 - The main benefitters on safety are the customers, the insurances, and the public side. Car companies mainly benefit from the sales of the devices, same as their suppliers while the others receive a continuous benefit and repeating income stream**
 - On the information and infotainment side the main benefitters are the customers, the telecom companies (through increased airtime and customer retention), the content and service providers and also car manufacturers (e.g. remote diagnostics)**
 - Costs are mainly on the vehicle manufacturer side (R&D efforts, purchase of systems (hard-soft ware), vehicle integration).**



B: Business case

- 2) To restart a telematics business all stakeholders need to work together and contribute to the initial build up as without shared responsibility the business opportunity will not be explored or lead to a very fragmented market with smaller volumes and higher costs. The new eSafety WG on Servie oriented architecture would provide a good platform for the "willing" who are seriously interested to invest in creating a new business opportunity**
- 3) To achieve an eSociety requires full connectivity of customers and vehicles. For vehicle this means to have a standard "connector" in the car to enable a number of beneficial services. To overload such a system from the beginning would probably delay the whole introduction for years as no agreement could be reached. Therefore, the system needs to be simple but smart and enable an increase in services and application through a flexible and modular (open) platform. Last but not least it needs to be sustainable in a way that customers changing their short living consumer electronic devices to a new system will still be able to use the new one in the same car. This can be reached through common standards and protocols (e.g. Bluetooth). The crucial question is, however, who will pay for it and how can it be accelerated?**



B: Business case

4) There are basically three possibilities:

- 1. Member States mandate such a system to be put in each new vehicle from a certain date onwards. The probability is relatively low as 25 Member need to agree on such legislation. Furthermore, due to the fast moving technology and complexity, the need for parallel infrastructures, etc. legislation is almost impossible to adopt when changes occur. Last but not least the customer must have a choice himself as he is finally responsible for the driving and cars need to stay affordable. Many governmental services are either not accepted by the customer or not used so that any mandatory introduction will be seen as highly critical**
- 2. An investor (probably a car manufacturer) puts such systems in the vehicle and charge royalties or licence fees for opening up service interfaces. What seems to be normal business practise is difficult to introduce in this kind of service business with very many suppliers and service providers as long as service providers do not give a guarantee on volumes.**



B: Business case

- 4) There are basically three possibilities (continued from previous page):
3. All seriously interested stakeholders come together and develop a shared business model where those who benefit also contribute financially to putting the system in the vehicle. This group would also agree on a safe standard interface and would probably charge a licence fee to those who would like to use the interface later for their own services. In case no agreement could be reached on benefits or costs (benefits are normally played down while costs are exaggerated) a neutral research company could be charged to develop a clear cost-benefits analysis. In this option it would be important to select those services and applications with the highest positive impact (with regard to saving life, meeting customer requirements in the area of road safety, information and infotainment (in this sequence), volume, return on investment, etc. These are the musts, which then can be followed by the "nices of have" later. This option is probably difficult as it represents a different but smart business approach and would probably lead to a more sustainable and mass market feasible approach.
- 5) A common platform or interface should never restrict further innovations or profitable competition in the area of road safety but raise the pre-competitive level to stay in the lead on a global basis.



B: Business case

- **Nomadic / aftermarket / OEM devices**
- **Integrated platform in vehicles**
- **Concentrated inside the vehicle**
- **Initial investment needed before any benefits; how to solve this**
- **Possibly investment on infrastructure based systems could be better used in intelligent platforms in vehicles?**
- **Different objectives = different business cases for different stakeholders**
- **Try to find win-win situation**
- **Useful American book on business cases**
- **Sharing of the benefits to those who pay the investments and costs**



B: Business case

- **Integrated solution:**
 - Smart, Sustainable, Simple, ...
- **Service oriented architectures to tackle the issue of synthesising the objectives**
- **Good examples**
 - Use of existing fleet management systems
 - Motorway operator and eCall
 - VW's ESC insurance incentives



B: Business case

What actions should be carried out to overcome these issues and obstacles?

- Standard
- High volume of interface



C) User acceptance and safety

- **Facts on the benefits of the in-vehicle system - dynamic traffic management co-operation to convince**
 - **buyers of vehicle systems and services**
 - **operators of traffic management systems**
 - **insurance companies etc.**
- **How to make the vehicle buyers and owners aware of these benefits**
- **How to make them willing to pay for such systems/services**
- **Risk of reduced driving competence**
- **Risk of information overflow and cognitive overload - HMI**



Main implementation issues

Key elements for wider deployment of eSafety – related systems

C) User acceptance and willingness to pay what can be delivered?

increase customer awareness in generally
comfort and safety, efficiency fuel consumption
high level of quality for pay for

green wave information, intelligent traffic lights
speed alert to avoid tickets..

Acceptable traffic signs (30km/h school) and relevant,
(Insurance – track and trace privacy aspect) only if
prevention of accidents are covered
situation based information, image of high tech things



Main implementation issues

Key elements for wider deployment of eSafety – related systems

C) User acceptance and willingness to pay

How to make the vehicle buyers and owners aware of these benefits:

there should be a need for this information/service

user preferences / customised services

international consistent marketing

collective measures; MCS (motorway control system) also have to be acceptable and reliable
relevant, also a marketing is needed,



Main implementation issues

Toll roads can support more service...

Combination of different info – sources

Construction information digital maps, content all available information,

Obstacles also by willingness to support the available data by difference authorities,

Risk of reduced driving competence

for example ISA;

there is a risk of this, - WG D -



Main implementation issues

Risk of information overflow and cognitive overload
- HMI

Field operational tests to find out some good solutions,

Public awareness for the results from all these tests and projects in future is necessary....





Implementation Road Map for Dynamic Traffic Management – Vehicle Systems Co-operation

Group D: Legal Issues

D) Legal issues - privacy

- **how to ensure the privacy of owners of in-vehicle systems**
 - Random IDs to vehicles / users
 - Telecom operators: possible to monitor phones during ongoing calls
- **Use the 29 group**
 - Article 29 Group dealing with all issues of data protection and privacy: recommendations (common opinion) ~ regulations
 - MS representatives to take up any problems at the group
 - Time: immediately
- **Use vehicle systems in a different manner**
 - More intelligence in the vehicles so that results can be calculated in the vehicle rather than in a server



D) Legal issues - privacy

- **Are public roads really public?**
 - Discussion and debate should start



D) Legal issues - security

- **how can the vehicle systems be safeguarded from outside disturbance due to "cracking" or viruses**
- **Manipulation by the driver /owner**
 - Article 29 group, as in previous point
 - Only dangerous goods transports and supply chain in the white paper review's security part
 - eSafety Forum should form an eSecurity group immediately
 - Utilisation of national platforms and their results or conclusions as much as possible
 - FP7 R&D should be targeted in the domain



D) Legal issues - certification

- **certification of the security of the systems**
 - **Part of annual vehicle inspection to check for any manipulation**
 - **Similar as for the EFC**



D) Legal issues - liability

- **who is liable for inaccuracies of information provided from traffic management systems to in-vehicle systems and vice versa**
- **problem with intervening systems**
 - **Driver should always have the control of the vehicle**
 - **If not, the driver should be clearly told who has taken over**
 - **Intervention acceptable only if accident imminent in ca. <1 sec**
 - **Code of practice idea a good starting point, also for infrastructure systems**



D) Legal issues – EFC

- **can the EFC systems be utilised for other purposes**
 - Funding regulations (no cross-funding etc)
- **the technologies and solutions (e.g. security) should be utilised**



D) Legal issues - standardisation

- **eCall – delayed by delays in standardisation of data protocol ensuring data protection and privacy**
- **Data protocol for v2i and i2v needed**



D) Legal issues - regulation

- **Commission to work as a moderator – if regulation needed, it should be used**
- **A dedicated German conference 2007 for better safety and security, and to promote proposals that are politically acceptable**
 - **Minimum data requirements to road operators**
 - **Define requirements for safe frequencies**
 - **Pooling public and private information also across borders**
 - **Take actions towards misuse and manipulation**



D) Legal issues - funding

- **Legal restrictions to funding of the systems such as intelligent information infrastructure**
 - **ITS is not accepted as part of the infrastructure in the regulations concerning investments in many countries**
 - **Changes in legislation needed in these countries**
- **Restrictions to R&D funding**

