### SAFESPOT INTEGRATED PROJECT - IST-4-026963-IP

DELIVERABLE

**SP6 – BLADE –**

Business models, Legal Aspects, and DEployment

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#### D6.4.4 Stakeholder consultation report

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<td>H. Zwijnenberg, F. Faber, M. de Kievit, P. Feenstra (TNO)</td>
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<td>S. Manfredi, S. Marco, E. Morello (CSST)</td>
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<td>T. Alkim (RWS)</td>
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<td>M. Robery (Thomas Miller)</td>
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## Revision Log

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<td>Section Innovation and Contribution to the SAFESPOT Objectives; Section Methodology Section Conclusions Annexes</td>
<td>Han Zwijnenberg, TNO</td>
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<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>ABS</td>
<td>Anti-lock Braking System</td>
</tr>
<tr>
<td>ADAS</td>
<td>Advanced Driver Assistance System</td>
</tr>
<tr>
<td>CALM</td>
<td>Communications, Air-interface, Long and Medium range</td>
</tr>
<tr>
<td>CEDR</td>
<td>Conference for European Directors of Roads</td>
</tr>
<tr>
<td>ESOP</td>
<td>European Statement Of Principles</td>
</tr>
<tr>
<td>ESC</td>
<td>Electronic Stability Control</td>
</tr>
<tr>
<td>FOT</td>
<td>Field Operational Test</td>
</tr>
<tr>
<td>HMI</td>
<td>Human Machine Interface</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organization</td>
</tr>
<tr>
<td>NRA</td>
<td>National Road Authority</td>
</tr>
<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
</tr>
<tr>
<td>IEEE</td>
<td>Institute of Electrical and Electronics Engineers</td>
</tr>
<tr>
<td>RDS-TMC</td>
<td>Radio Data System - Traffic Message Channel</td>
</tr>
<tr>
<td>RSU</td>
<td>Road Side Unit</td>
</tr>
<tr>
<td>RTTI</td>
<td>Real time Travel and Traffic Information</td>
</tr>
<tr>
<td>SP</td>
<td>Sub Project</td>
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<tr>
<td>US-DOT</td>
<td>US Department of Transportation</td>
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<tr>
<td>V2V</td>
<td>Vehicle to Vehicle</td>
</tr>
<tr>
<td>V2I</td>
<td>Vehicle to Infrastructure</td>
</tr>
<tr>
<td>VICS</td>
<td>Vehicle Information and Communication System</td>
</tr>
<tr>
<td>WAVE</td>
<td>Wireless Access in Vehicular Environments</td>
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<td>WP</td>
<td>Work Package</td>
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EXECUTIVE SUMMARY

This document contains the description of the methodology and organization of the BLADE Consultation process, together with a presentation of the main results (SAFESPOT task 6.4.4). The nature of this report is not scientific, but it is an account of a step in the BLADE process. The consultation was based on interviews with a limited number of SAFESPOT stakeholders and a workshop incorporated in the SAFESPOT - WATCH OVER user forum that was organized in Stuttgart, Germany, on the 21st and 22nd of January 2008. In a later stage a workshop with the project group Capacity and Users from the CEDR (Conference of European Directors of Road) on the 12th of February 2009 was conducted in order to obtain explicit views from the road authorities.

The stakeholder consultation workshop was named: “Realising the SAFESPOT potential” and aimed to bring together all stakeholders in the area of the cooperative safety (V2V and V2I) to provide feedback on the BLADE risk analysis and mitigation strategies. 118 participants from different key-stakeholder companies of the European ITS sector provided in a lively discussion important feedback on the current state of the work performed in BLADE. These discussions were divided into three separate sessions in alignment with the main discussion topics: User and technical issues for deployment (1), Full scale deployment of SAFESPOT (2), Actor Responsibilities in the SAFESPOT Service Chain (3).

The consultation workshop was organised by the BLADE project team, the University of Stuttgart (DE) in cooperation with ICCS (EL). It contributed to the dissemination goal of reaching and informing the scientific and expert’s community on the projects’ expected results and their respective market potential. Also, it provided the opportunity of receiving feedback on the current actions and results that will eventually influence the project’s future course.

The workshop at CEDR provided insight in the position of European road administrations and road authorities towards cooperative safety systems. The main conclusions are that European road authorities are still hesitating to take a clear position. This is due to the uncertainties about the exact functionality and about the effects. Further research on alternative government strategies is being done in D 6.6.2. Currently the road administrations and road authorities are developing policies and strategies on cooperative systems, but no clear deployment decisions have been made. The road authorities concentrate primarily on measures influencing throughput.

Consequently, the consultation activities not only succeeded in reaching a variety of selected experts from Europe and in disseminating the projects’ achievements so far and expected results, but also contributed to receiving valuable experts’ opinions on the open issues to be addressed in the future work within BLADE, SAFESPOT and beyond.
1. Introduction

The stakeholder consultation is an important step in finishing the first phase of the risk analysis (WP6.4.), which is part of the SP6 BLADE process to develop a deployment programme. The results of the mitigation strategies, which were formulated in the previous task of the risk identification process, were combined with results from the legal analysis in order to compose proper recommendations for dealing with risks and legal aspects.

The stakeholder consultation was combined with the WATCH OVER user forum held in Stuttgart, Germany, on the 21st and 22nd of January 2008, to create synergy and the required body for such a discussion. The stakeholder consultation provided the opportunity for the involvement of a wide range of parties and generated useful reflection on our preliminary results and even new input for the sharpening of the recommendations.

The minutes of the combined WATCH-OVER – SAFESPOT user forum are reported in a separate deliverable. The nature of this report is not scientific, but it is an account of a step in the BLADE process.

1.1. Innovation and Contribution to the SAFESPOT Objectives

The key objective of the workshop was to bring together stakeholders in the area of cooperative systems for road safety to discuss the BLADE project’s recent results and to provide reflection on these results.

The main innovation of the stakeholder consultation process was an important validity check of the achievements as formulated during the SAFESPOT risk identification process. 118 experts from around Europe, working in different areas such as OEMs, universities, industries, authorities etc. contributed to that goal (the list of participants can be found at Annex IV). A secondary but valuable result of the stakeholder consultation was the creation of awareness among the different stakeholders that have an interest in SAFESPOT in the deployment phase and to raise their interest for the SAFESPOT system.

1.2. Methodology

The main goal of stakeholder consultation was to verify the results of D6.4.3 - mitigation strategies and D6.4.2 - legal analysis, as a sequential step to the preliminary recommendations. The consultation was performed in four steps:

1. A selection was made of the topics that would need verification. The selection was based on the results of the analysis performed in the risk analysis, the mitigation process and the legal analysis. These topics/issues were assembled and addressed by means of an interview protocol (Annex I).

2. A limited number of key stakeholders are chosen representing all SAFESPOT stakeholder groups. These persons were interviewed in order to check the following: sense of urgency and attractiveness of the
topic/issue to be addressed in a workshop. Issues/topics that were important to address but were missing on the list. The input from the interviews was to create a final agenda for the positioning and content of the workshops.

3. The third step was the workshop itself, where a number of topics and issues were validated.

4. In a later stage (2009) an additional workshop was organised in order to evaluate the position of the road operators, and to include this in this Stakeholder Validation report.

### T6.4.4 Stakeholder Consultation Methodology

![Diagram](image)

- **1** Select strategies, stakeholders
  - Create interviews
  - Prepare workshop

- **2** Conduct interviews with selected stakeholders

- **3** Conduct stakeholder consultation workshop
  - Stuttgart

- **4** CEDR workshop Stockholm

**Figure 1: Methodology for Stakeholder Consultation**

Specifically for the consultation workshop (step three) the outcome of the interviews was used to test the topics and scope of the different parallel sessions, to be scheduled in the programme of the consultation workshop. The results of the interviews were combined together and regrouped into three compact parallel sessions addressing more or less horizontal topics:

- SAFESPOT User and Technology Related Issues
- Full scale deployment of SAFESPOT
- Actor Responsibilities in the SAFESPOT Service Chain
These sessions were integrated in the programme of the combined SAFESPOT-WATCH OVER user forum workshop.

### 1.2.1. Programme of the user forum

The programme of the user forum workshop consisted of three different blocks. The first block was an introduction of the stakeholders to SAFESPOT, with a non-technical view of the system. In the second block the stakeholders were introduced briefly into the process which resulted in the mitigation strategies. The last block of the workshop was an interactive and open session where suggestions, proposals were formulated and discussed between the participants.

### T6.4.4 Stakeholder Consultation Workshop Programme

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<td>facing the challenge of reducing deployment risks (Han Zwijnenberg, TNO)</td>
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<td>facing the challenge of sharing responsibilities and allocating risks (Kiliaan van Wees, FUA)</td>
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#### Goals for parallel sessions

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<th>#2: full scale deployment of Safespot</th>
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<td>Moderator: Tom Alkim Rijkwaterstaat</td>
<td>Moderator: Marion Robery Thomas Miller</td>
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Figure 2: Workshop Programme

All of the results of the stakeholder consultation are also incorporated in the analysis of the preliminary recommendation and described in detail in the SAFESPOT deliverable D6.4.5 “Preliminary recommendations” on the risks and legal analysis.

### 1.2.2. Additional CEDR workshop

Additional to the stakeholder consultation workshop in January 2008, a special workshop was organised in 2009 with the CEDR (Conference of European Directors of Roads) in order to get a good idea of the perspective of road administrations towards cooperative safety systems.
This workshop addressed the topics business modelling and deployment. On both topics the SAFESPOT research approach was presented, followed by a discussion based on the statements (see chapter 4 for a description of the results and the workshop agenda, and Appendix V for a report on the workshop).

Because of the progress we made in BLADE between January 2008 and February 2009, we positioned the validation discussion within the context of the knowledge of the actual status of the BLADE project. This meant that also a connection was made with business modelling and the deployment programme.

The preliminary results of the stakeholder consultation workshop and the CEDR workshop are presented and introduced in this document. The knowledge and insights that was gained from the discussions is also used in the preliminary recommendation report (SAFESPOT deliverable 6.4.5) and will be used in the deployment programme (SAFESPOT deliverable 6.7.1).

The CEDR session was a good opportunity to organise a workshop, but due to the meeting frequency and one cancelled CEDR meeting (for which the workshop was planned), the workshop eventually took place more than 1 year later.

### 1.3. Deliverable structure

After the introductory chapter 1, the core content of the deliverable is reported in chapter 2 and chapter 3. Paragraphs 2.1, 2.2, 2.3, 2.4 are dedicated to the preparation of the stakeholder consultation workshop sessions and the outcome of each of the three consultation sessions: Session #1: User and technical issues for deployment, Session #2: Full scale deployment of SAFESPOT, Session # 3: Actor Responsibilities in the SAFESPOT Service Chain.

Every paragraph is structured according to the same four sub-paragraphs: in the first one (Session description) a description of the session is provided, with the main issues to be discussed, the participating stakeholders’ perspective and the performed consultation activities. In the second one (Goals of the session), the main objectives and issues to be investigated are reported. In the third sub-paragraph (Session outcome) the stakeholders’ interventions are summarized, with a further subdivision per discussed topic. The fourth sub-paragraph, finally, (Conclusions) contains the conclusions of the consultation session.

Although an “outcome” paragraph is included for each session, this document is more focused on the consultation methodology and organisation description; the full outcome of the discussion sessions and the analysis of the gathered information are fully addressed in D6.4.5.

The CEDR workshop session, additional to the consultation workshop, is reported in chapter 3. Section 3.1 describes the methodology applied in the workshop. The results are presented in section 3.2 and section 3.3 draws conclusions about deployment based on the results.
The document ends with the overall **Conclusions** chapter (4), where a summary of the results of the whole consultation is drawn.
2. Stakeholder consultation sessions

Validation of results is in EU research a valuable issue. Therefore in BLADE special attention is paid to the participating stakeholders of SAFESPOT. Work Package 6.4.4 is entirely dedicated to this issue in order to provide a validation for the work done in the risk and legal analysis and the formulation of the mitigation strategies.

2.1. Preparation of the workshop by means of interviews

For the preparation of the workshop, a number of interviews were performed to arrange an interesting workshop (see Annex I for the interview protocol and Annex II for the workshop preparation). The following steps were taken.

Firstly all the BLADE-partners were asked to select strategies derived from SAFESPOT deliverable 6.4.3 Mitigation of Risks, that needed verification. These strategies were included in a questionnaire with general issues and to the stakeholder tailored open questions. The second step consisted of a series of interviews with representatives of the identified stakeholder groups from D6.4.3 and was based on the questionnaire. The representatives were contacted directly in order to verify the identified strategies and to identify if potentially ‘new insights’ were missed or should be added in the preliminary recommendations (T6.4.5).

2.1.1. Interview goals

Prior to the stakeholder consultation workshop a series of interviews with key stakeholders of the SAFESPOT project were conducted. The purpose of these interviews was threefold:

1. to check with senior representatives that within the scope of the workshop the right topics were targeted and that the right questions within these topics were asked;
2. to structure the discussions in the stakeholder workshop under the right main topics;
3. to seize the opportunity to discuss with some of these key stakeholders possible recommendations and directions for the deployment bottlenecks identified in the research period.

2.1.2. Approach to the interviews

The following steps were performed in order to conduct the interviews:

- An interview protocol was established based on the results and outcome of the work performed in Risk Analysis, the Mitigation Strategies and the Legal Analysis (SAFESPOT deliverables 6.4.1, 6.4.2 and 64.3).
- A list of key stakeholders in the SAFESPOT project environment was compiled, spread over the different stakeholder groups. A selection of
key persons was made combining practical criteria of knowledge, overview, vision and availability. These persons were contacted by the BLADE team members who had easy access and opportunity to do so.

The results of the interviews were combined together and regrouped into three compact parallel sessions addressing more or less horizontal topics:

- SAFESPOT User and Technology Related Issues
- Full scale deployment of SAFESPOT
- Actor Responsibilities in the SAFESPOT Service Chain

2.1.3. Invitation and participants of the workshop and handout.

For the invitation to the workshop an addition 40 email addresses to the SAFESPOT-Watch-over contact list were provided.

118 experts from around Europe, working in different areas such as OEMs, universities, industries, authorities etc. have participated in the workshop. (the list of participants can be found at Annex IV).

These participants can be grouped into the three groups of researchers, car industry (OEMs and suppliers), and public sector. Since two of the three sessions were less relevant for public stakeholders the share of participants from the public was the smallest.

![Figure 3: distribution of stakeholders](image)

For each of the sessions a short description of the context was provided in the handout. See Annex III. The stakeholder consultation workshop consisted of three sessions. The results of these sessions are shown in the sections below: 2.2, 2.3 and 2.4.
2.2. Session #1: User and technical issues for deployment

2.2.1. Session description
Besides pure technology driven issues like the accuracy and timing of warnings, the acceptance of the SAFESPOT system by the end-user and the associated impact on safety affected by the end-user is a key element in deployment. The early identification of the risks and measures to reduce or prevent the risks influences the take up of the system and the ultimate success of its deployment. Moreover, a marketable system is innovative, clear and profitable for the user.

In order to find the different views relating to the existing uncertainties and gain advice for recommendations how to minimize the user and technology related risks, a session on user and technical issues for deployment was organized. The main objective of this session was to get a discussion on what kind of SAFESPOT system needs to be deployed.

In total twenty-eight participants attended the session on user and technical issues. The three groups were randomly chosen such that the stakeholders were approximately uniformly distributed among the groups. Each group had a different discussion topic
a. HMI related questions
b. issues on standards
c. feedback of the user

The stakeholders were distributed among three groups. One group focussed on HMI questions, one focussed on standards and one focussed on feedback from the user. The separation in three groups had the advantage that more topics could be discussed during the session.

2.2.2. Goals of the session
As mentioned earlier, the goals for the session were:
• get a discussion on what kind of SAFESPOT system needs to be deployed;
• find different views for the existing uncertainties;
• gain advice for recommendations how to minimize the user and technology related risks.

2.2.3. Session outcome
a. User interface
The first group discussed topics related to the in-vehicle user interface. The participants regarded three different types of SAFESPOT systems and were asked about possible motivations to buy such a system.
<table>
<thead>
<tr>
<th>System name</th>
<th>Amount of information</th>
<th>Quality of operation</th>
<th>Tuneable items of user interface</th>
<th>Price</th>
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<td>Simple</td>
<td>Little</td>
<td>Good</td>
<td>Minimal</td>
<td>Low</td>
</tr>
<tr>
<td>Complete</td>
<td>Many</td>
<td>Good</td>
<td>Minimal</td>
<td>Medium</td>
</tr>
<tr>
<td>Tailor made</td>
<td>Many</td>
<td>Good</td>
<td>• Selection of User groups;</td>
<td>High</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Automatic reacts on driving conditions (e.g. workload, weather);</td>
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<td></td>
<td></td>
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<td>• etc.</td>
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Table 1: Three different types of SAFESPOT systems

The low price of a simple system was mentioned as a buying motivation. Moreover, a simple system may be used to get people better accustomed to the SAFESPOT system, i.e., they first use a simple system with low information density.

A next step would be the introduction of a more advanced system with additional information. Initially younger or in particular students and not wealthy elderly were mentioned as potential user groups because of the lower price and complexity respectively. At the end of the discussion it turned out that age was not a proper factor to describe the user groups. Instead, it would be better to make a separation based on their love for technology. For the ‘complete’ system an increase in safety would be the buying motivation. The users were described as the family type. Finally, the selling motivation for a ‘tailor made’ system might be the status of owning such a system and the ability to personalize the system. Initially disabled people were identified as a user group because of the possibility to personalize the interface. Other possible user groups for a tailor made systems were wealthy elderly and rich youngsters. These groups could buy the system because of the status. Again at the end of the discussion these user groups were declined for the tuneable system. Instead a separation based on the interest in technical was proposed.

b. System standards

The second group of participants discussed topics related to the systems standards. The SAFESPOT system will include many applications that, for example, identify potential red light violators, warn drivers in case of a dangerous event on the road, provide to drivers the recommended speed etc. According to the participants, the car industry, road authorities and public authorities are the main stakeholders that can influence whether or not application will be included in the Safespot system. This depends on whether or not it is an infrastructure based application. Furthermore, it should be an interactive decision between road authorities representing the end user and the car manufactures.

Due to the innovative character of the SAFESPOT system, there is a lack of clarity concerning the standardization of different aspects, e.g., human machine interfacing, communication between vehicles and the infrastructure, robustness and quality criteria and the effect on traffic safety.
In order to structure the development and implementation of the different Intelligent Transportation Systems (SAFESPOT and others) within the EU or national wide, standards and rules are crucial. The participants have made a summary of the standards that do already exist:

- Regarding Human Machine Interfacing (HMI) the recommendations from European work group (ESOP: European Statement Of Principles) and the Japanese VICS (Vehicle Information and Communication System) were mentioned. These existing standards and rules are easy applicable.

- With respect to communication different working groups and standards were identified. For example the effort of the Car2car consortium, the ISO working group CALM, the IEEE 802.11p Wireless Access in Vehicular Environments (WAVE) standard, work performed by the US Department of Transportation (US-DOT), the VICS of Japan. These existing standards and rules are easy applicable.

- Regarding quality issues no standards were known. Instead one could create a certification body at governmental/European level. For example, airlines and railways have certification body to assure quality.

c. Feedback of user

The third group considered issues related to the feedback of users. The SAFESPOT system will be tested and evaluated during the project, e.g., by fields tests and simulator studies. Nevertheless, in the early stage of deployment the users will learn and gain insight in the systems. The participants acknowledged that feedback is feasible by means of regular questionnaires by phone or by e-mail (active feedback), helpdesk, internet site with feedback form, or an internet site with a user forum. A helpdesk is useful also to provide feedback to the user. The important point is to raise the interest in order to collect answers from a larger audience. A user forum is a way to collect unexpected feedback. In general the feedback of all involved parties should be collected and directed by a consortium rather than a single industrial or non industrial partner.

An update of the in-vehicle system can be done in different ways. A safety-related updating strategy is possible by the use of a maintenance point. Another way is automatic update for mandatory functions. Finally, semi- or non-automatic (as via web) updates were proposed for added value functions.

2.2.4. Conclusions

Conclusions are drawn from the outcome of the three sub-groups in this session #1.

Conclusions on User interface

- Drivers (users and user groups) have different needs and preferences regarding the user interface;
- Some user groups are willing to pay for extra functionality.

These conclusions correspond with our findings: not one Human Machine Interface (HMI) for all (integrated and adaptive interfaces are important for a
safe and efficient interaction between driver and in-car systems). Therefore, we recommend that during the HMI design of the SAFESPOT system, one has to consider the explicit and sound choice of the target group(s).

Conclusions on system standards

In conclusion, the car industry, road authorities and public authorities are together responsible whether or not deploy a SAFESPOT application. Many standards exist for HMI and communication. For quality assurance, a certification strategy is proposed. It is recommended to explicitly take care of deployment criteria during the SAFESPOT project e.g. does ‘this’ application contribute to traffic safety. Furthermore it is recommended to assign a SAFESPOT responsible or task force to find and apply existing standards.

Conclusions on feedback of user

In conclusion one should make use of feedback from users during the initial deployment phase where feedback could be collected actively and passively. Inhere a consortium (and not only single industrial or non industrial partner) should have the ownership for feedback collection. Furthermore, it is recommended to anticipate at an early stage on feedback mechanisms for improvement and how to update (and do maintenance of) the SAFESPOT System.

2.3. Session #2: Full scale deployment of SAFESPOT

2.3.1. Session description

This session was concerned with a discussion on how to reach the full-scale deployment of SAFESPOT. There were a large number of participants from the various stakeholder groups which all participated actively in the discussion. The session was set up with an introduction of the SAFESPOT system, including all its functionalities. Afterwards 6 different propositions were put on the screen and a discussion was initiated by the session leader. For a description of the propositions please see section 2.3.3.

2.3.2. Goals of the session

The objective of this session was to identify possible barriers for full scale deployment scenarios, the focus was on the costs and benefits of the system, and also the relation to the different actors involved in full scale deployment. Part of this is the identification process, which is currently undertaken in work package 6.6.7 Deployment Programme, and the identification of the business drivers for the different actors in work package 6.6.2 Preliminary ranking of business models.

The actors have already been identified in a preliminary organizational architecture of the SAFESPOT system, but which role is performed by which actor depends on the business case of SAFESPOT. The way to reach full deployment is important, especially concerning the relation between V2I and V2V scenarios and the different pre conditions both scenarios have.
Furthermore the goal of the session was to identify a potential scenario which sketches in what way deployment will take place, once agreement has been reached on a European standard for vehicle-to-vehicle and vehicle-to-infrastructure communication, and commitment from the stakeholders is ensured by means of contracts.

2.3.3. Session outcome

The points of discussion were:

a. Costs & Benefits related issues (who bares which costs and who bares which benefits?). Which are the business drivers for these actors? Business case safety systems.

b. Vehicle - vehicle communication versus vehicle - infrastructure communication. Is it possible to introduce vehicle - vehicle without having vehicle – infrastructure first? What kind of functionalities should be introduced first?

c. How to guarantee commitment (short term and long term) to the SAFESPOT-system, in other words how do we arm ourselves against political or market changes?

d. Time lag in deployment with the system becoming obsolete: modularity of the system as a solution, potentially addition with some kind of nomadic devices?

e. Pan-European Standards to allow swift and equal deployment of the SAFESPOT system, e.g. by means of a functional description.

f. The way the overall deployment will take place. (An example can be an implementation per city, followed by e.g. a region if more cities in that region are using the SAFESPOT system)

The assumption for SAFESPOT is that it is a system that works, based on the two scenarios (in other words a mixed system).

a. Costs and benefit related issues

In the discussion about V2V and V2I, it was concurred that V2V needs to reach a critical mass, how to reach this critical mass is difficult. Basically SAFESPOT should be something that is easily deployable. Information from earlier projects also indicates that costs for the customer are a very relevant factor, especially when the system is implemented in many cars, the costs should be low.

If SAFESPOT is oriented on the traffic efficiency market, SAFESPOT will be competing with RDS TMC messages which are for free. The problem for TMC is that it focuses on a large area and is not driver specific. This is an opportunity for the SAFESPOT-system.

For the user the operational costs are important as well, a user will switch off the system if he gets a huge bill by the end of the month. Therefore, first time for free use is a good option to get started, afterwards paying might be a
solution, but there is no clear conclusion from other projects. The important notion is that the SAFESPOT system needs to be distinctive, but this distinction is not only regarding the safety related functionalities, because traffic efficiency was the main issue during the discussion. A good example is the information about the speed controls, which more or less contributes to safety, but is this interesting to improve SAFESPOT deployment?

The main issue that needs to be solved is that the possible effects of Safespot are not yet clear. Travel time reliability is very interesting for users and that is something they are willing-to-pay for. Just paying for safety remains a point of discussion, where inside the group no agreement could be reached on. It was mentioned though that it strongly depends on the number of warnings in a period of time. eCall, a system that automatically alerts emergency services when the equipped car is involved in an accident, is used as an example, where it is not very probable that anybody needs it, but when having an accident people are willing to pay for the service. Working for the lifetime of the car, also for safety, the manner of paying is included in the car price.

Also SAFESPOT with limited functionality is questioned, because people only are willing-to-pay for the complete device, they don’t feel like other added services that need to be paid for. People will only pay when buying the system. On the costs side it needs to be considered that everybody wants to make money, therefore the delivery chain shouldn’t be too long otherwise costs will rise.

The number of systems is also important, if there are for example two safety systems with two different human machine interfaces, a driver is not going to buy two systems. Therefore the integration of different systems is important and needs to be a goal as well. Integration of two or more systems will also lead to more information for floating car data, up link with infrastructure solutions is necessary, floating car data needs a lot of uplink.

b. V2V, V2I and penetration rates

It is stated that the introduction of V2I at first is impossible, because the government doesn’t have the money to invest in the infrastructure. On the other hand it is stated that V2V introduction solely is not possible without V2I, because of the penetration rate that is needed. V2V can be used for added functionalities, e.g. assisting the car manufacturers and to increase the group of drivers that experience the benefits. The main conclusion is that it swings between the two scenarios. If a V2V scenario only is used it means that with 50% of the new cars equipped in 3 years approximately a 10% penetration level can be reached. This creates problems because the introduction period is too long for full-scale implementation. Penetration rate of applications is an issue in connection with number of warnings (this number can’t be too high, but also not too low!).

For deployment a decentralized approach for the SAFESPOT system is foreseen, starting in a smaller region with only few roadside units. These roadside units help as repeater or storage of information for the system. The deployment can be derived from the name SAFESPOT, to create safe spots
in the road where there are a lot of dangerous situations. To equip a complete country, as a whole at once, is too expensive, this is very problematic.

c. Commitment

It is not necessary to defend ourselves by means of contract or other binding matters; this is bad for technological development. Technological standard cannot be fixed; it needs to be established by a functional description. For commitment regarding SAFESPOT the following preconditions have to be met: in order to create commitment SAFESPOT needs to be well tested (prove of concept) and the costs of the system need to be clear. For deployment it also depends on what is mandatory on our cars at that point in the future. If SAFESPOT will be mandatory this will create extra costs for the drivers, therefore a quantification of the benefits needs to be clearly made as well.

SAFESPOT needs to be a flexible system, which is not very expensive, quickly adaptable to market changes (and technological changes).

In the USA a Memorandum of Understanding commitment paper has been signed with respect to the VII system, however the amount of money is decreasing and currently the progress of deployment has stopped. Some kind of commitment needs to be established one way or the other. The contract can be providing stability and liability and financing of the service is important, the different public interest can be guaranteed by law or private ad-hoc arrangements.

Communication technology needs to be set. The infrastructure side needs to ensure a certain penetration rate, this is very important. Furthermore we need to take a close look at other very good architectures, e.g. the Internet networks or telecom networks. In SAFESPOT the focus needs to be on more stable architecture components, different functionalities in a given context over a given architecture needs to be the basis. Focus on architecture towards abstract layers not on specific components, in other words there should not be a strong link between the sensors and the application. Changes to the architecture are possible, but Road side Units (RSU) still exist in the end. RSU have an important role when technologies are updated.

d. Factory fitted vs. aftermarket

Aftermarket is necessary to raise penetration rates, add small functionality to already available communication devices. From a technical point of view, higher accuracy can only be reached with inertial systems. The accuracy of navigation systems is not good enough for safety functions (yet). However they are needed to reach a proper penetration rate, because they can be equipped with communication functionality.

V2I will serve as the local memory, which is always available and not depending on traffic flow. In the vehicle only a receiver is needed to get information from V2I. The costs are only paid in one place; important with this
however, is the availability of probe vehicles to get information. With nomadic
deVICES it should be possible as well.

e. Overall deployment, roll-out scenario’s

Champion functionalities need to be identified, in other words start with
functionalities that are matured, standardization needs to be open enough to
be able to add functions during the life time of a car, and this is very
challenging. However waiting for maturing of all the SAFESPOT-applications
will take too much time. A lot of information needs to be exchanged when all
applications are used; this exchange is part of SAFESPOT and needs to be
taken into account within the architecture. New technologies are needed for
proper implementation of all functionalities.

The main conclusion is that SAFESPOT needs to look for the “killer
application”. This killer application has to be found looking at the overall effect
on: fatalities, CO2, etc. This needs to be done from the user perspective as
well.

The killer application

The user needs to be approached with projects that are closer to the user by
means of small-scale deployment. The goal of these projects is to find out
what they find important and what they are willing to pay for.

Individuals are interested in subjective findings; our task is to identify the key
functions that are in the users mind. The safety related functions need to be
distilled for SAFESPOT. A good example is to look in history, customers
started asking for ABS, ESC, air bags etc. at a certain point, how did this
happen and why did customers ask for these features. Safety is a motivation
to pay for such functionality, but important as well is to have something to
show to the neighbours, kids, wives etc. In other words a nice gadget to play
with, this is difficult to establish due to different stated preferences. Currently
the main focus of users is comfort.

To identify these interests the users needs to get the possibility to test what
they want and what they like. This is however difficult for designers, because
users behave irrational. The looks of the system can have a lot of influence on
the system. Day-to-day use is important, so e.g. for home-work travel, which
is a regular trip. Systems need to be experienced, not every day, but every
hour, drivers need to practice with the system, however false alarms are a big
issue and the threshold for turning it off needs to be identified in order to take
care that users keep on using the system.

Warnings were posed to not focus on over-engineering applications, some
sort of function that helps the user. Watch out for “paralysis by analysis”. Don’t
start with complex applications like right of way and left-turn assistant. But a
right timing to approach for a traffic light can be experienced as most helpful
with current technologies. Drivers are very different; let everybody configure
their own system towards their preferences (in other words make the system
flexible with functions the user wants and functions not wanted).
In the end people need cars for serving their mobility needs, safety is a pre-condition for that. The basic need is to arrive faster at the office, this however doesn’t necessary involve a car.

Last but not least it could be interesting to investigate if it is possible to pay people for sharing information, in other words being paid for generating information. This is part of the community approach, for safety there is a limited market.

2.3.4. Conclusions

This was a lively and interactive session in which many participants actively participated. On some issues the group as a whole could not reach consensus but this indicates that the issue is important enough to address in the near future. The following observations and recommendations were made:

1. In order to reach a critical mass of SAFESPOT systems it is not wise to rely solely on a factory fitted approach. Nomadic devices and after market systems could play an important role.

2. For cooperative systems it seems a good approach to focus on both V-V and V-I scenario’s instead of only one. Both have their specific advantages and the combination could provide synergy.

3. With this in mind it seems a good idea to start implementing the SAFESPOT system in area’s that can provide quick wins instead of a nationwide roll-out. For instance at so-called black spots that pose a threat to traffic safety.

4. It is important to find a “killer application” for the SAFESPOT system in order to generate sufficient consumer demand. This “killer application” does not necessarily have to be a safety related function.

5. It is not necessary to introduce the SAFESPOT system with all it’s intended functionalities. It’s better to start with a limited set of functionalities and provide the possibility to upgrade the system gradually. Therefore a modular approach with the freedom to choose for different (sets of) applications is recommended.

2.4. Session # 3: Actor Responsibilities in the SAFESPOT Service Chain

2.4.1. Session description

The brief for Parallel Session 3 that was distributed to the stakeholders attending the workshop focused on some of the major areas of concern for Actors involved in delivering the SAFESPOT system to market. These issues were originally identified in Deliverable 6.4.1 Constraint analysis – Identification of risks as being their own legal liability exposure; legal liability for ownership, storage, use and transmission of data through the SAFESPOT system; and the legal liability for restoring the system, in the event of failure.
These issues posed significant potential risks or barriers to deployment and mitigation strategies to reduce their impact on the successful deployment of SAFESPOT were suggested in Deliverable 6.4.3 – Mitigation of risks.

The workshop created an ideal opportunity for stakeholders to provide a reality check on our findings; to let us know whether they agreed with our conclusions; or whether they felt, for example, that the solutions would not succeed commercially. All feedback, positive or negative, would provide useful pointers as to whether and how to adapt our ongoing work enabling us to mould our research to provide a firm basis for the successful deployment of SAFESPOT.

From our perspective, the issues to be discussed at this session should have been of interest to stakeholders and it was disappointing that only six stakeholders agreed to participate. Nevertheless, there was lively debate which included some interesting input from OEMs as to the commercial processes that new products ready for market launch have to undergo.

2.4.2. Goals of the session

The session focused on liability issues and how insurance might be used to reduce liability for the Actors involved. Because of the constraint of time (the session lasted only one hour), we did not promote in-depth discussion on issues of data privacy which is governed by a number of specific privacy laws. Our objectives were to:

- discuss the legal liabilities Actors would attract in delivering the SAFESPOT system to market;
- consider ways in which insurance might reduce the legal liability exposure of Actors; and
- look at how third parties damaged by the system might be compensated.

We decided to spend approximately fifteen minutes on each topic, leaving the last fifteen minutes for summing up.

2.4.3. Session outcome

To promote discussion, the opening questions put to participants were:

“Who would be held responsible if the system malfunctioned and

(i) caused an accident;
(ii) provided the driver with incorrect information; or
(iii) caused major damage to the system itself?
(iv) What could Actors do to safeguard themselves in this compensation-orientated society in which we live?”
a. Liability Issues
The session moderator provided a brief overview of how the project had approached the issues raised by these questions and how it had mapped the legal liability exposure of Actors, under Dutch and English law, in a number of incident scenarios using the Speed Alert application (V2I and V2V) both as to each other and as to potential accident victims.

Our findings had led us to the conclusion that Actors should ideally only be responsible for what they could control and that a technically-modular approach should be adopted so as to identify liability more easily. A contractual matrix had been developed, including types of contract and characteristics of the contracts which can be found in Deliverable 6.4.2 - Legal aspects. The contractual matrix showed how Actor liabilities could be legally underpinned.

Whilst session participants were interested in discussing liability exposure, their input was not always directly related to the questions originally posed. One of the participants explained that when a product was ready for market launch, an analysis would be conducted using a matrix containing the different parties and elements involved in bringing the product to market. The types of errors that might occur in a commercial product were then discussed and a determination made as to whether such errors could be remedied and by whom. The legal advisers of the company would then decide whether the risks were acceptable and whether and under what circumstances the product might be launched.

In this context, another participant identified the growing tendency of car manufacturers to outsource the production of components, particularly in the field of advanced electronic systems. This trend towards outsourcing also shifted the risk towards Actors further up the chain of production which resulted, in some instances, in smaller component manufacturers being required to bear risks which were too onerous for them. In mapping out the legal liability exposure of the Actors involved in delivering the SAFESPOT system, the project would have to guard against an imbalanced allocation of liability which might be detrimental to those parties who might not be able to cope with it.

It was also pointed out that the introduction of SAFESPOT systems, through which safety-enhancing technology would be available, may lead to a requirement for public authorities to adopt SAFESPOT; otherwise they may be deemed to be in breach of their duty to provide safe roads.

One of the session participants provided some anecdotal information which reflected how seriously liability exposure is taken by radio stations, for example. When drivers are asked to report on details of traffic conditions or accidents whilst on air, it is not obvious that behind the scenes at the radio station a great deal of work is hurriedly being undertaken to verify that the facts being transmitted are true.

b. A Code of Practice
Discussion then turned to whether the Code of Practice for the Design and Evaluation of ADAS, created by the RESPONSE 3 project, could also be used...
for co-operative systems. The Code of Practice included a checklist which posed questions related to controllability of the vehicle which had always to remain with the driver. The general consensus of the participants was that industry felt comfortable with the Code of Practice and that its applicability to co-operative systems should be explored and the necessary modifications made so that it might be used for SAFESPOT and systems like it.

c. Evaluation of Technology
Providing a legal evaluation of technologies when they are still in the course of development was also discussed. It was felt that there were inherent difficulties in doing this because, in technological projects, the desire to prove the concept was generally overriding and the need to determine market applicability and deployment, whilst crucial for commercial success, was still a secondary consideration. It was felt that deployment and technology development should aim to follow a more parallel track, so that when the project is completed, barriers to deployment will already have been addressed, providing a smoother transition from project research to commercial reality.

d. The Role of Insurers
Having discussed liability exposure, participants then discussed the potential role of insurers and the provision of insurance to cover Actor liabilities. Insurers would be keen to see that the allocation of liabilities as between the various Actors involved was clear and that there was technical transparency in the development of the system itself.

There was also discussion as to whether insurers should be more proactive in supporting the implementation of safety-enhancing technology such as SAFESPOT. In the E-Call project, insurers actually provide the hardware for free in combination with a pay-as-you-drive policy. In this way, insurers are able to access information as to how the vehicle is being driven and the circumstances surrounding an accident. Such information would, of course, be useful in deciding the outcome of a claim. E-Call could be regarded as an ideal business case for an insurance company – enabling it to take an active role in endorsing a system, whilst at the same time deriving benefit for itself by being able to access driving data.

It was clear that insurance could play a pivotal role in SAFESPOT and the moderator made the suggestion that an insurer or a reinsurer should be asked to become a stakeholder in the project. Whilst the project had maintained an ongoing dialogue with a global insurance broker in London who had acted as a very useful reference point in discussions about the availability of insurance, both for the system and for the Actors involved, it was felt that the time was now right to try and encourage an insurer or reinsurer to participate in some project meetings. The reason for suggesting that a reinsurer should become involved is that direct insurers will need reinsurance for their own liabilities, if they were to provide cover for the Actors and the system. Reinsurers also have a reputation for undertaking in-depth research into the insurance market.
and monitoring trends in the industries or sectors for which they provide reinsurance.

e. How to compensate third parties damaged by the system

Deliverable 6.4.2 - Legal aspects looks at the possibility of establishing a "Without Prejudice" Restoration Fund which could be contributed to by the Actors involved. Such a fund would be available to compensate parties who had been damaged by the system; make the necessary repairs to the system, in the event of failure, irrespective of whose fault it was; and ensure that lessons were learned from the failure to ensure that the system was made more robust as a result. Such a fund could be provided by insurance but the structure of that insurance would depend on whether Actors would be prepared to share risk. If they were, a mutual insurance company could be established but, if not, then an alternative solution could be provided, perhaps in the form of a protected cell company or segregated accounts company where the individual liabilities of the Actors could be ring-fenced.

We did not have much time to discuss this issue but the consensus was that it would be crucial for SAFESPOT to be established so as to provide access to the public when a claim had to be made.

2.4.4. Conclusions

This was an interesting session and each participant played an active role. The following recommendations were made:

1. It is recommended that the ADAS Code of Practice be adapted to accommodate co-operative systems.
2. It is recommended that an insurer/reinsurer be invited to become a stakeholder in the SAFESPOT project.
3. It is recommended that the project builds upon insurers’ interest in telematics, as seen in the e-call system, by working with them to create a business case for their involvement in co-operative systems.
4. It is recommended that OEMs review and comment on the contractual matrix created in the SAFESPOT project to enhance its commercial relevance.
5. It is recommended that the project takes note of the transmission of "so-called" useful information given out by drivers on radio stations and is aware that, behind the scenes, to avoid liability on the part of the radio stations, in-depth checks are made to ensure that the information can be relied upon.

Overall, we felt we had achieved our objectives and had gained further useful insight into how stakeholders viewed liability exposure and the role of insurance.
3. CEDR workshop - Road Authority point of view

To validate our assumptions on the position of the road administrations and road authorities on cooperative safety systems, a workshop was organised with the project group Capacity and Users of CEDR (Conference of the European Directors of Roads). See appendix V for a report of this workshop.

3.1. Methodology

In order to validate the road authority point of view on both business modelling and deployment of cooperative safety system, the road authorities were asked to respond to statements in a group discussion. A group discussion allows for differences between road authorities from different regions of countries to be expressed. The agenda of the session consisted of a short introduction of the SAFESPOT project, a presentation of the business modelling approach and results, followed by a discussion on the role of the road authorities in relation to cooperative safety system business models. The second part of the workshop agenda consisted of a presentation of the deployment scenario approach and results, and a discussion on the role of the road authorities on deployment.

3.2. Results

The workshop session resulted in two kinds of statements. The first kind of statement is about the position of the road authorities towards cooperative systems. And, since road operators are still determining their position, the second kind of statement is about the approach to analyse the deployment of cooperative systems and to determine their position on deployment of cooperative systems.

The main result about the position of road authorities is that currently in CEDR the road authorities are getting a better understanding in the use and applicability of different models as presented by SAFESPOT-BLADE. Efficiency is a main argument for the participants to get involved in cooperative system. The effects of cooperative systems are however not yet clear.

The participants (national road authorities) do have a responsibility in road safety, which means they have a responsibility in cooperative safety applications. It is however a shared responsibility. They do agree that they should have a role in the deployment of systems for road safety.

CEDR is developing policies and strategies for various (cooperative) services using business models. The current emphasis is at the eSafety priority services RTTI (Real-time Travel and Traffic Information) and Speed Alert. Proof of the effectiveness of these systems contributes to this development of policies. Currently the attitude of the NRAs (National Road Authorities) to invest in a Safespot system is reluctant because of the unclear (safety) effects, and whether the cost benefit ratio is positive. In the discussions on the implementation and deployment of ITS a joint NRA approach and strategy with a European momentum is required to be a counterpart for European industries/commercial stakeholders.

The main result about the approach is that the approach developed by SAFESPOT-BLADE is in-line with the approach developed by CEDR.
CEDR approach is more generic and suitable for strategic/policy discussions while the BLADE approach has at various aspects more depth. The CEDR business modelling approach is partly based on the SAFESPOT approach and business modelling examples. Business models are also used for the development of an Implementation framework. This CEDR Implementation Framework is a joint NRA agreement on strategy and procedures for the implementation of pan-European eSafety services and the consistent interaction with other stakeholders. CEDR needs a framework to guide the development of services relevant for NRAs to continue to act as Network Operators and safeguard their mandate and objectives with respect to other stakeholders.

### 3.3. Conclusions

Based on the result that road authorities are still determining their position towards cooperative in-car systems, and the uncertainty about the expected functionality and the effects, it can be concluded that more clarity about these issues is essential for getting the road authorities involved in the deployment process. The work currently performed in BLADE, e.g. the impact analyses performed in SAFESPOT WP 6.5 Assessment and Evaluation provides these effects and definition of functionality, and thus contributes to the involvement of the road authorities.

Based on the result that a similar business modelling approach is used in CEDR and in BLADE, and that it is considered a useful instrument for CEDR to determine their position on cooperative safety systems, BLADE is supported in the applied methodology.

CEDR is developing policies and strategies for various (cooperative) services. They need a framework to guide the development of services relevant for NRAs to continue to act as Network Operators and safeguard their mandate and objectives with respect to other stakeholders. SAFESPOT-BLADE will follow their activities and validate the framework developed in BLADE against the CEDR group. This might provide them with the framework they need.

### 4. Conclusions

Conclusions are drawn based on the Stakeholder consultation workshop in Stuttgart and the CEDR workshop in Stockholm. Conclusions are drawn on two levels:

- on the level of the SAFESPOT project
- beyond the SAFESPOT project level

The main result of the Stakeholder consultation Workshop (SAFESPOT-WATCH OVER user forum) is the fact that stakeholders are interested in the deployment aspects of cooperative safety systems. Some representatives from large metropolitan areas (POLIS members, regions) see possibilities for early deployment within 5 years, especially in the field of commercial vehicles (Public Transport and Logistics).

The main result from the CEDR workshop is the insight in the position of road operators towards cooperative safety systems. Road authorities are still in the
process of determining their position towards cooperative safety systems. The current emphasis at CEDR is at the eSafety priority services RTTI and Speed Alert. An important issue for the national road authorities in determining their position is that the functionality is not yet clearly specified and the effects are still unclear. Another important conclusion based on the workshop results is that a similar business modelling approach is used in CEDR and in BLADE, and that it is considered a useful instrument for CEDR to determine their position on cooperative safety systems. BLADE feels supported by CEDR in the use of the applied methodology.

Deployment of cooperative safety systems requires interaction between many stakeholders since there is still a large number of uncertainties and many choices need to be made. The involvement of all stakeholders in a decision making process may lead to better quality of the decisions and faster deployment because the interaction creates a better understanding of the needs of the users, or the systems and a better adaptation to these needs. Therefore it was concluded that a decision making process should be created by the stakeholders who are interested in the deployment. The process can be created define rules for decision making and by determining which stakeholders need to be involved in which steps of the deployment of Safespot systems.

For the SAFESPOT community the interaction during the workshop resulted in a better understanding of the different issues that are important in the next stages of SAFESPOT-BLADE, being: validation, business modelling, and assessment and evaluation of the financial aspects (cost, benefits and market).

One of the discussions evolved around the issue of safety being a public or a private good. No clear answer has been found yet, but further stakeholder analysis will create a better understanding the interests of the public and private stakeholders related to this issue. The national road authorities expressed that they consider cooperative safety system partly their responsibility.

Secondly the proposed process to deal with deployment was shown and received with enthusiasm among stakeholders. The establishment of a community of interest with the main stakeholders will contribute to building up the momentum needed for the coordination between stakeholders, and insight in the Business Case. During the workshop with CEDR, the national road authorities indicated that road safety by means of cooperative safety systems is partly their responsibility and therefore they want to be somehow involved. The road authorities indicated that better insight in the functionality and effects of cooperative safety systems is very important for getting commitment.

During the sessions of the stakeholder consultation workshop, the participants made recommendations regarding deployment. The need to maintain activities after the end of the first round of cooperative projects in FP6 was emphasized, together with the need for further research in areas of basic technologies (impact on safety, environment), harmonization and standardization, HMI, cooperative FOT, but also non-tech issues as a Code of
Practice, a restoration fund (liability). These aspects contribute to a new framework for future research needed to complement the existing developments.

References

[1] SAFESPOT - SP2-INFRASENS,
[3] SAFESPOT Deliverable 6.4.3 Mitigation of Risks
[4] SAFESPOT Deliverable 6.4.5 Preliminary recommendations dealing with risks and legal aspects
Annex I Interview Protocol

Objective:
Objectives of the interviews are:
- validate findings of 6.4.1, 6.4.2, 6.4.3 with stakeholders
- explore possible views for our (SP6) uncertainties
- seek advice for recommendations and conclusions
- not to gain more data, risks issues etc

Interview method:
Open questions

Interviews with:
CSST: OEM, Roberto
Miller: insurer, lease co
TNO: driver association, safety association
TNO: Car manufacturer/Service provider, Road Operator
RWS: government, road authority

Reporting:
2 to 3 pages summarized

Set-up of the interview:
- Introduction to SF (if needed)
- introduction to BLADE deployment and non-technical issues (steps 6.2, 6.3, 6.4 and 6.5)
- introduction to the SF system
- goal for the interview

After the introduction you follow your own line; the questions are not in a specific order; below they are grouped (arbitrary) around the issues of the 3 proposed parallel sessions.

Questions:

Technical/User
1. An EU standard is crucial; we (think of) recommend a GSM-like approach where industry created the standards and countries decided on implementation (licenses, frequency allocation, roadside units, quality criteria, traffic safety); how to organize this standard (by law, industry or functional level?); how to maintain that standard in a EU-market, while facilitating local initiatives and value adding services?
2. Currently Safespot is envisaged as a single system, but there are distinctive functionalities for different user groups creating benefits differently (e.g. youngsters, elderly). Should there be 1 system or should the system be made adaptable to the needs of the user.
3 The SF system is designed in such a way that the data is stored in the vehicle and that providers do not store/keep data. *Is this acceptable to the user* because authorities could acquire access in case of accidents or (traffic) offences and users do not want to contribute to their own conviction; consider what insurers or lease companies might want to know about the system and about the Actors.

4 To create awareness and willingness to participate/buy the Safespot system needs to be positioned and communicated to the user/provider. *Who could be responsible for that; how to position the SF system to the public; Because of liability issues the functional limitations of the system should be emphasized? Who should organize a common approach?*

5 What is appropriate for a challenging system as SF is: *building up a learning curve and adapt swiftly (regular updates), or having a fool-proof system not possible to adapt; are there other possibilities.*

6 In the early stage of deployment all parties involved in the chain of service delivery will build up a learning curve. *How to deal with feedback on user issues (acceptance, settings, etc)*

**Business planning**

1. To what extent is traffic safety a merit (public) good or a scarce good (private, economical); how much room is there to create added value where the user is willing to pay for.

2. In a public private context, who should be responsible for the validation of the SF service (or functionality) *consider ways in which legal liability exposure might be reduced;*

3. *commitment among professional stakeholders is essential for the deployment of SF how to create an environment for early adaptors; how make the tables dealing with the mitigation strategies (D6.4.3) grow; where to start (highway-rural-urban authorities)*

4. How to ensure pan EU roll out, given the different national views and priorities on traffic safety. *What steps should be taken; where to start where to start (highway-rural-urban roads)*

5. Is there a role in the business case for other stakeholders; *How to involve other stakeholders like Lease companies and Insurers into the Business Case. What would they want in return (if anything) for promoting SAFESPOT implementation. For insurers, this may be access to the data held in the SMA which would facilitate swifter claims handling. If we look at car leasing companies, it would be necessary to know whether the SMA could be retrofitted into existing vehicle fleets.*

6. Liability between parties is a great challenge (risk) for organizing the chain of delivery for the service. *What are the views of stakeholders regarding the need for clarity on*
the issue of legal liabilities related to the SAFESPOT system and of the individual Actors involved in bringing it to market; how could insurance play a role in creating the clarity mentioned. how can third parties damaged by the system, might be compensated.

Deployment Full-scale

1. Costs & Benefits related issues
   Who bares which costs and who bares which benefits?
   Which are the business drivers for the actors involved?
   Is there a business case for safety systems?
   Is introduction of SF connected to the introduction of other systems e.g. Pay as you drive, navigation systems?

2. Vehicle - vehicle communication vs. vehicle - infrastructure communication.
   Is it possible to introduce v-v without having v-i first?
   What kind of functionalities should be introduced first?

3. How to guarantee commitment (short term and long term) to the SAFESPOT-system, in other words how do we arm ourselves against political or market changes?

4. Time lag in deployment with the system becoming obsolete; normal market introduction is high-end first, than cheaper models: modularity of the system as a solution; potentially addition with some kind of nomadic devices?

5. Pan-European Standards to allow swift and equal deployment of the SAFESPOT system, e.g. by means of a functional description. which parties could create incentives

6. The way the overall deployment will take place. (the example Marion R gave during the meeting in Cologne of an implementation per city, followed by e.g. a region if more cities in that region are using the SAFESPOT system); are there other possible roll out scenarios.

7. Safespot is designed for new cars only. How much room will there be for aftermarket ‘safespot-like’ services. The owner of a new car with an SMA will not get the same benefit as the owner of the same car ten years hence because the original owner will not be able to share data with many other vehicles and will not get full benefit from the system. On the other hand, the later owner, when market penetration has improved, will be in a better position to share data with many other vehicles and derive greater benefits from the system. This is perhaps why V2I is important in the early stages of deployment and V2V becomes more important as market penetration improves.
Annex II Stakeholder consultation presentations

The workshop’s presentation on the stakeholders consultation are found in separate pdf files. These can also be found to the on-line project’s website at the URL: [http://www.safespot-eu.org/pages/page.php?mm=3&sm=7](http://www.safespot-eu.org/pages/page.php?mm=3&sm=7)

The following table includes the presentation titles and the respective file names.

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<tr>
<th>Date</th>
<th>Session 1: Technical and user issues for SAFESPOT deployment</th>
<th>Session 2: Full scale deployment of SAFESPOT</th>
<th>Session 3: Responsibilities of actors in the chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 Jan</td>
<td>Moderator: Angelos Amditis (ICCS)</td>
<td>Moderator: Han Zwijnenberg (TNO)</td>
<td>Moderator: Marion Robery (Tomas Miller)</td>
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<tr>
<td></td>
<td>Introduction to the Workshop, Angelos Amditis (ICCS)</td>
<td>Introduction to SAFESPOT Sub-Project BLADE, Han Zwijnenberg (TNO)</td>
<td>Introduction to SAFESPOT Sub-Project BLADE, Han Zwijnenberg (TNO)</td>
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<tr>
<td>PART C</td>
<td>Interactive sessions on the deployment of cooperatives. Realising the SAFESPOT potential</td>
<td>A non technical view on the SAFESPOT system Arjan van Leijsen, (TNO)</td>
<td>Facing the challenge of reduction and allocation of deployment risks (Han Zwijnenberg, TNO)</td>
</tr>
<tr>
<td></td>
<td>Facing the challenge of sharing responsibilities and allocating risks (Kiliaan van Wees, Free University of Amsterdam)</td>
<td>Facing the challenge of reduction and allocation of deployment risks (Han Zwijnenberg, TNO)</td>
<td>Facing the challenge of sharing responsibilities and allocating risks (Kiliaan van Wees, Free University of Amsterdam)</td>
</tr>
<tr>
<td>Feedback and conclusions</td>
<td>Feedback and conclusions</td>
<td>Feedback and conclusions</td>
<td>Feedback and conclusions</td>
</tr>
</tbody>
</table>
In the following pages the presentation material is reported for the four interventions within part C of the SAFESPOT-WATCHOVER workshop:

**Introduction to SAFESPOT Sub - Project BLADE, Han Zwijnenberg (TNO)**

![SAFESPOT](image)

realising the Safespot potential
a discussion on intermediate research results

**Workshop Part C**
introducti on to BLADE
14:25 – 17:10 Part C Programme

introduction to Safespot Blade
realising the Safespot potential: a non-technical view on the safespot system (Adjan van Leijen, TNO)
face the challenge of reducing deployment risks (Han Zijlemborg, TNO)
face the challenge of sharing responsibilities and allocating risks (Klaas van Vrees, FVA)

goals for breakout sessions

#1: technical and user issues for Safespot deployment
Moderator: Philippus Feenstra
TNO

#2: full scale deployment of Safespot
Moderator: Tom Alkim
Rijkswaterstaat

#3: responsibilities of actors in the chain
Moderator: Marion Robery
Tomas Miller

Feedback and conclusions

BLADE project overview

deployment programme
evaluation and assessment
business models
organisational architecture
risk analysis and legal aspects

user forum

Jan06 Year 1 Year 2 Year 3 Year 4 Jan10
PART C BLADE plenary session

realising the Safespot potential:

#1 a non technical view on the safespot system
    Arjan van Leijsen, TNO
#2 facing the challenge of reduction and allocation
    of deployment risks,
    Han Zwijnenberg, TNO
#3 facing the challenge of sharing responsibilities
    and allocating risks,
    Kiliaan van Wees, FUA

goals for breakout sessions

PART C: goal for breakout session

- stakeholder validation of intermediate results from research activities dealing with non-technical aspects of deployment of Safespot system

- 3 interactive parallel sessions:
  - technical and user issues
  - full scale deployment of Safespot
  - responsibilities of actors in the delivery chain

- Start 16.50 Feedback to the plenary session
Feedback and Conclusions

First recommendations for User and technical related issues:

- during the HMI design of the SafeSpot system, one has to consider the explicit and sound choice of the target group(s);
- it is recommended to anticipate at an early stage:
  - on feedback mechanisms for improvement;
  - how to update the SafeSpot System;
- explicitly take care of deployment criteria during the SafeSpot project
  - e.g. does ‘this’ application contribute to traffic safety;
- to find and apply existing standards, a SafeSpot responsible or task force is recommended.

Feedback and Conclusions

#2 full scale deployment of Safespot

- #2 feedback session
Feedback and Conclusions (3/4)

#3 responsibilities of actors in the chain

- Ensure that the system and its components are standardised, validated and certificated.
- Explore the possibility of creating a Code of Practice
- Explore the attitude of national governments towards providing fiscal or other incentives to kick-start SAFESPOT’s market launch and further deployment
- Encourage insurers to become stakeholders in the project
- Explore what the capital markets can offer for the creation of a compensation scheme
- Continue to structure the technical development to make it transparent
- Ensure that the business model chosen for SAFESPOT takes account of potential claims from the public

Feedback and Conclusions (4/4)

Overall conclusions

- stakeholder interaction leads to better insight and better advice (input for report Preliminary Recommendations)
- reduction of complexity and better understanding
  - still lots of choices to be made → input required from:
    - Assessment & Evaluation, Business Models, Testing
    - is Traffic Safety a public issue or a private/market issue
    - technical, organisational, legal standardisation/ harmonisation
    - need to explore real cooperation between actors
    - Code of Practice, restoration fund (liability)
- Create Safespot community of interest, lead by a Mr Safespot or group of directors. This could overcome “after project dip” and speed up deployment process
  - need to build up momentum
  - need to coordinate actions between stakeholders
  - need to encourage other stakeholders in Business Case
A non technical view on the SAFESPOT system
Arjan van Leijsen, (TNO)

 safespot watch-over Workshop
Stuttgart, Jan 21-22, 2008

Key components of the system

High dynamic Datasharing
between vehicles and infrastructure

Intelligent management of Messaging
Appropriate HMI, limited-reliable-on time warnings

Examples
Hazard and incident warning
Lane change manoeuvres
Safe intersections

safespot watch-over Workshop
Stuttgart, Jan 21-22, 2008
Benefit of this system - public view

More data sources lead to improved monitoring of traffic flows

- Improved personal safety
- Less casualties / injuries
- Less accidents
- Improved throughput

Benefits of this system - private view

Individual drivers:
- Reliable aid in safe and fast journey

Private companies:
- Way to sell (extra) services and systems
  - Extra: internet access, weather forecast,…
Public versus Private

Safety systems

Examples:
- Crash barriers / Traffic lights / Traffic rules
- Regulations (seatbelts) / VMS / ...

Examples:
- Airbags / ABS / ESP / Lane Departure Warning / Brake Assist / ...

Still a lot of questions to answer:
- Will this system be enforced by governments?
- V2I for minimal level on high risk places?
- Will private companies come to standards?
- V2V for extra safety on lower risk places?
- Solution will probably require a common effort of public and private parties.

Deployment scenarios

1. Intelligent road (V2I)
   Sensors on road side, every equipped vehicle can receive information

Detection: Infrastructure owner
Processing: Infrastructure equipment provider
Send information: Infra service provider
Receive info: Equipment supplier
Alert if needed: Car manufacturer
Driver: Vehicle service provider

SAFESPOT WATCH-OVER Workshop
Stuttgart, Jan 21-22, 2008
Deployment scenarios

1. Intelligent road (V2I)

2. Mixed scenario
   Sensors on road side; sensors on some vehicles; other equipped vehicles receive

Detection
Infrastructure owner
Detection from vehicle

Processing
Infra service provider
Processing
Vehicle service provider

Send information
Infrastructure equipment supplier
Send info
Vehicle equipment supplier

Receive information
Equipment supplier
Car manufacturer
Receive info
Equipment supplier
Car manufacturer

Alert if needed
Vehicle service provider

Driver

1. Intelligent road (V2I)

2. Mixed scenario

3. Intelligent vehicle (V2V)
   Sensors on vehicles; communication through enabled vehicles; possibly some sensors on road side

Detection
Car manufacturer

Processing
Vehicle service provider

Send information
Equipment supplier
Equipment supplier
Car manufacturer

Receive information
Equipment supplier
Car manufacturer
Receive info
Equipment supplier
Car manufacturer

Alert if needed
Vehicle service provider

Driver
Stakeholders

Stakeholder involvement needed for:
- Deployment strategy
- Mitigation of risks

Main identified stakeholders:
- Public authority
- Road manager (public / private)
- Service provider
- Content provider
- System provider
- Probe vehicle driver
- Driver equipped
- Driver non equipped
- Vulnerable road users

Who becomes member of champion group
Facing the challenge of sharing responsibilities and allocating risks (Kiliaan van Wees, Free University of Amsterdam)
**SAFE SPOT: from concept to application**

**Open questions**

- **Functional characteristics**
  - Functional scope and inherent limitations of the system
  - Expected degree of trust vs. possibilities to correct the system

- **Architectural and organisational embedding**
  - V2V, V2I or mixed
  - Degree of intelligence in cars and/or the infrastructure
  - Number and type (public/private) of parties involved in the collection and processing of data

- **Implementation context**
  - Market driven
  - Public support (e.g. tax incentives)
  - Regulatory intervention (e.g. mandate)

---

**Legal framework/regulatory options**

<table>
<thead>
<tr>
<th>Private</th>
<th>Public/Private</th>
<th>Public</th>
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<tbody>
<tr>
<td><strong>acquisition and processing of data</strong>&lt;br&gt;(e.g. speed limits)</td>
<td>Contractual arrangements between public authorities, content providers, and service providers.</td>
<td>MoU, operational involvement of the public sector (e.g. safety center?)</td>
</tr>
<tr>
<td><strong>Harmonisation of data and exchange formats</strong>&lt;br&gt;(interoperability)</td>
<td>De facto standardisation</td>
<td>Formal standardisation (standardisation bodies)</td>
</tr>
<tr>
<td><strong>Data and service quality requirements</strong></td>
<td>Contractual arrangements between public authorities, content providers, and service providers.</td>
<td>Formal standardisation, certification</td>
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<tr>
<td><strong>System performance requirements</strong></td>
<td>Contractual arrangements</td>
<td>Formal standardisation, Code of Practice</td>
</tr>
<tr>
<td><strong>Storage and use of data</strong></td>
<td>Contractual arrangements</td>
<td>Self regulation (Code of Practice)</td>
</tr>
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<td><strong>Use and penetration</strong></td>
<td>Insurance incentives</td>
<td>Sectoral agreements</td>
</tr>
<tr>
<td><strong>Allocation of risks</strong></td>
<td>Contractual arrangements between parties in the chain of production and operation</td>
<td>Model contracts</td>
</tr>
</tbody>
</table>
Allocation of risks – liability playing field

- tort liability
- contractual liability

arrows are indicative not exclusive

Allocation of risks – liability

Why there are no clear and unconditional answers to questions about liability exposure of actors
- liability law characterized by open formulated liability standards
- Differences between national liability regimes
- Legal issues cannot be dealt with in a generic way, i.e. giving generic answers to generic questions

How big is the problem?
- Large number of road accidents
- No system will be perfect
- Injured parties will seek compensation, one way or another (Safespot might be a new avenue explored)
- Some parties will be in the frontline more than others (e.g. manufacturers, road managers)
- Place on the navigation aid - traffic light scale
- Past experience
- Plaintiff (in principle) still has to prove the facts to support his claim (safety shortcoming in product, service or infrastructure conditions)
- Distinction between liability risks and reputational/commercial risks
- Liability may also have a preventive effect
Options to reduce complexity/uncertainty (preliminary recommendations)

- Need to further explore roles and responsibilities of the public and private actors involved in ‘delivering’ the system
- Adequate testing (including human machine interaction)
- Applying available design guidelines and safety standards (e.g. CoP)
- Creating correct understanding about functional scope and inherent limitations (product/service presentation, accompanying instructions, communication campaign, etc.)
- Development of the system on a modular basis to provide a clearer definition of responsibilities
- Create an auditable trail (to reconstruct system performance and malfunctions)
- Setting up an (internationally harmonized?) legal framework for Safespot (including administrative structure, performance requirements for data and service quality, certification procedures) will also have its effect on the demarcation of liabilities
- Creating a compensation/restoration fund, allowing for swift compensation/restoration
Annex III Workshop’s hand-out

Watchover – Safespot User forum
Stuttgart, 21 -22 January 2008

Part C

BLADE
Stakeholder consultation

Introduction to the parallel sessions:
#1: technical and user issues for Safespot deployment
#2: full scale deployment of Safespot
#3: responsibilities of actors in the chain of delivery

For further information:
han.zwijnenberg@tno.nl, or
www.safespot-ip.org/blade
SAFESPOT Integrated Project

SAFESPOT is an integrated research project co-funded by the European Commission Information Society Technologies among the initiatives of the 6th Framework Program.

The objective is to understand how intelligent vehicles and intelligent roads can cooperate to produce a breakthrough for road safety.

The aim is to prevent road accidents developing a Safety Margin Assistant that detects in advance potentially dangerous situations and that extends in space and time drivers’ awareness of the surrounding environment.

The Safety Margin Assistant will be an Intelligent Cooperative System based on Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) communication.

BLADE - Business models, legal aspects, and deployment

The main objective of BLADE is to "pave the road" from the experiment and test made within the SAFESPOT IP to the real life. The cooperative approach is very complex in term of number of actors involved and factors to be considered. The main objective can be formulated differently by: Development of a deployment programme for the IP-results to reach the overall goal of the IP.

To reach this objective, this SP deals with the following areas of activity:

- defining an organisational architecture, including roles, responsibilities and interrelationships
- analysis of potential barriers, with special attentions on the analysis of legal aspects, which have to be considered for an efficient deployment programme;
- assessment of the IP-applications/systems/services in terms of identification of impact, market assessment and financial assessment;
- identification of business model suitable for system, applications and services addressed by the IP;
- identification of suitable steps to reach the goal of the IP
BLADE project approach

14:45 – 17:30 Programme Part C

**Introduction to Safespot Blade**

- Realising the Safespot potential: A non-technical view on the Safespot system (Arjan van Leijsen, TNO)
- Facing the challenge of deployment risks (Han Zwijnenberg, TNO)
- Facing the challenge of sharing responsibilities and allocating risks (Kiliaan van Wees, FUA)

**Goals for Breakout Sessions**

- #1: Technical and user issues for Safespot deployment
  - Moderator: Philippus Feenstra
  - TNO
- #2: Full scale deployment of Safespot
  - Moderator: Tom Alkim
  - Rijkswaterstaat
- #3: Responsibilities of actors in the chain
  - Moderator: Marion Robey
  - Tomas Milier

**Feedback and Conclusions**
Parallel Session No. 1: Safespot User and Technology Related Issues  
Moderator: Philippus Feenstra (TNO)

BLADE (Business Models, Legal Aspects and Deployment), a sub-project of SAFESPOT, has analysed the risks that could cause barriers to deployment of the SAFESPOT system and proposed mitigation strategies to reduce the impact of the most significant risks on the project. The acceptance of the SAFESPOT system by the end-user and the associated impact on safety affected by the end-user is a key element in deployment. Besides pure technology driven issues like the accuracy and timing of warnings also issues like responsibility in case of an incident are of high importance. Moreover, due to the innovative character of the SAFESPOT system there is a lack of clarity concerning the standardization, e.g., radiation energy, regulation of privacy and a standard to insure quality and reliability of a system. The early identification of the risks and measures to reduces or prevent the risks influences the take up of the system and the ultimate success of its deployment.

This session will address some of the user- and technology related issues that we have researched during the course of the project. Essentially, we are asking stakeholders to provide a reality check on our findings; to let us know whether they agree with our conclusions; or whether they feel, for example, that the solutions will not succeed commercially. All feedback, positive or negative, will provide useful pointers as to whether and how to adapt our ongoing work, enabling us to mould our research to provide a firm basis for the successful deployment of SAFESPOT.

Goals of the session
The objective of this session is to get a discussion on WHAT kind of SAFESPOT system needs to be deployed. The dimension we like to argue about is the line of functionality. Does the end-user prefer:
1. a simple box with limited functionality and with a minimal risk that the system is switched off due to a low acceptance (caused by false warnings)
2. a complete box with full functionality and thereby a lot of risks
3. a adaptive box for the individual user (or user group: elderly, disabled people, business etc)

Points of discussion will be:
- determine alternative views of the stakeholders regarding the communication to the end-user about the functional limitations of the SAFESPOT Applications;
- assessing by predefined standard to insure a qualitative and high reliable system
- the amount information that will directed to the driver

We invite all stakeholders and actors who are either already participating in the SAFESPOT project or are part of the generic group of Actors (for example, road operators, service providers, OEMs etc.) to join in this session and share their experience and thoughts during what we hope will be a lively and interesting debate.
Parallel session No. 2: Full scale deployment of SAFESPOT
Moderator - Tom Alkim (Rijkswaterstaat)

BLADE (Business Models, Legal Aspects and Deployment), a sub-project of SAFESPOT, has analysed the risks that could cause barriers to deployment of the SAFESPOT system and proposed mitigation strategies to reduce the impact of the most significant risks on the project.

The objective of this session is to identify possible barriers for full scale deployment scenarios, the focus is on the costs and benefits of the system, and also the relation to the different actors involved in full scale deployment. Part of this is the identification process, which is currently undertaken in a separate workpackage, is the identification of the business drivers for the different actors.

The actors have already been identified in a preliminary organization architecture of the SAFESPOT system, but this depends on the business case of SAFESPOT. The way to reach full deployment is important, especially concerning the relation between V2I and V2V scenarios and the different preconditions both scenarios have.

Goals of the session
We would like to identify a potential scenario which sketches in what way deployment will take place, once agreement has been reached on a European standard and commitment is ensured by means of contracts or declarations.

The points of discussion will be:
Costs & Benefits issues (Who bares which costs and who bares which benefits?) Which are the business drivers for these actors? Business case safety systems. Vehicle - vehicle communication versus vehicle-infrastructure communication. Is it possible to introduce vehicle - vehicle without having vehicle - infrastructure first? What kind of functionalities should be introduced first? How to guarantee commitment (short term and long term) to the SAFESPOT system, in other words how do we arm ourselves against political or market changes? Time lag in deployment with the system becoming obsolete: modularity of the system as a solution, potentially addition with some kind of nomadic devices? Pan-European Standards to allow swift and equal deployment of the SAFESPOT system, e.g. by means of a functional description. The way the overall deployment will take place. An example can be an implementation per city, followed by e.g. a region if more cities in that region are using the SAFESPOT system.

We invite stakeholders and Actors who are either already participating in the SAFESPOT project or are part of the generic group of Actors (for example, road operators, service providers, OEMs etc.) to join in this session and share their experience and thoughts during what we hope will be a lively and interesting debate.
Parallel Session No. 3: Actor Responsibilities in the SAFESPOT Service Chain
Moderator: Marion Robery (Tomas Miller)

BLADE (Business Models, Legal Aspects and Deployment), a sub-project of SAFESPOT, has analysed the risks that could cause barriers to deployment of the SAFESPOT system and proposed mitigation strategies to reduce the impact of the most significant risks on the project.

Major areas of concern for Actors involved in delivering the SAFESPOT system to market were identified as being their own legal liability exposure; legal liability for ownership, storage, use and transmission of data through the SAFESPOT system; and the legal liability for restoring the system, in the event of failure.

Liability and insurance issues, as they relate to ADAS (Advanced Driver Assistance Systems) were addressed in the RESPONSE 2 project. The liability exposure in respect of ADAS, which are autonomous systems, rests principally with the manufacturer. In contrast, co-operative systems involve even more legal complexities than ADAS because more parties are involved; there are growing technical interdependencies between vehicles and between vehicles and the infrastructure which may lead to system failure; and there are questions of financial compensation for losses suffered by road users or third parties governed by non-contractual law.

Lack of clarity concerning legal liabilities is also of concern to stakeholders – for example car leasing companies and insurers – entities which are not involved in actually delivering the system to market but which, in the case of insurers particularly, can influence the take up of the system and the ultimate success of its deployment.

Goals of the Session
This session will address some of the legal liability and insurance issues we have researched during the course of the project. Essentially, we are asking stakeholders to provide a reality check on our findings; to let us know whether they agree with our conclusions; or whether they feel, for example, that the solutions will not succeed commercially. All feedback, positive or negative, will provide useful pointers as to whether and how to adapt our ongoing work, enabling us to mould our research to provide a firm basis for the successful deployment of SAFESPOT.

This session will focus on liability issues and how insurance might be used to reduce liability for the Actors involved. Because of the constraint of time (the session lasts only one hour), we shall not delve too deeply into the issues of data privacy which is governed by a number of specific privacy laws. Points of discussion) will be to:

- discuss the legal liabilities Actors will attract in delivering the SAFESPOT system to market;
- consider ways in which insurance might reduce the legal liability exposure of Actors; and
- look at how third parties damaged by the system might be compensated.

Discussion with and feedback from stakeholders on the issues outlined above will help to underpin not only the legal work we are undertaking in BLADE but will also be very useful for the business planning aspects of the project.
## Annex IV Workshop’s participants

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Annex V Results workshop Business modelling and Deployment at CEDR

Context workshop
Representation of the CEDR (Conference for European Directors of Roads)
Project group Capacity and Users meeting (February 12, 2009, Stockholm)

Participants
Risto Kulmula (VTT)
Eva Schelin (Vägverket)
Christer Rydme (Vägverket)
Finn Krenk (Danish Road Directorate)
Frans op de Beek (TNO)
Paul van der Kroon (Rijkswaterstaat)
Karin Sluis (Witteveen en Bos)
Henk Jan de Haan (Rijkswaterstaat)
David Stones (Highway Agency U.K.)
Per Lillestal (Statens Vegvesen (Norway))

Conclusions
The participants (national road authorities) do have a responsibility in road safety, so also in cooperative safety applications. They agree that they should have a role in the deployment of systems for road safety.

- Efficiency is a main argument for the participants to get involved in cooperative system. The effects of cooperative systems are however not yet clear.
- Business models and cases become more important due to the complexity of future (cooperative) systems with many different stakeholders. Due to this complexity NRAs currently do not have a strategy/policy yet and are developing this. It is their impression that business models could help them in determining their role, tasks and responsibilities particularly for the development/implementation and deployment phases of these services and systems.
- Currently CEDR tries to get a better understanding in the use and applicability of different models as presented by Safespot Blade.
- The approach developed by Safespot-Blade is in-line with the approach developed by CEDR. The CEDR approach is more generic and suitable for strategic/policy discussions while the Blade approach has at various aspects more depth
- CEDR is developing policies and strategies for various (cooperative) services using business models. The current emphasis is at the eSafety priority services RTTI and Speed Alert. Proof of the effectiveness of the systems contributes to this development of policies.
- Business models are also used for the development of an Implementation framework. This CEDR Implementation Framework is a joint NRA agreement on strategy and procedures for the implementation of pan-European eSafety services and the consistent
interaction with other stakeholders. CEDR needs a framework to guide
the development of services relevant for NRAs to continue to act as
Network Operators and safeguard their mandate and objectives with
respect to other stakeholders. In the discussions on the implementation
and deployment of ITS a joint NRA approach and strategy with a
European momentum is required to be a counterpart for European
oriented industries/stakeholders.

Discussion results

Slide 8: Business model example

The presented example demonstrated the complexity of future ITS services
and that NRAs are one of the stakeholders in the value chain. The different
flows in one picture introduced additional complexity.
Participants recognize themselves in roles in this value web. The use of Road
Operator as stakeholder introduced some confusion. It might be a public
(NRA) or private (toll) road. The participating NRAs (national road authorities),
this means they have the responsibility to maintain and operate the road
network which includes the responsibility for safety and throughput. The term
road operator refers to a commercial road operator, which corresponds to the
role in this value web.
In the discussion the participants are addressed as road authorities, having a
responsibility to operate the network and develop a policy on cooperative
safety systems.
**Slide 11: Business models discussion**

1. Cooperative safety applications are not the responsibility of the road operators.

2. Safety has no priority for road operator in relation to throughput.

Ad 1: NRAs do have the responsibility for road safety. How this will be organised within the scope of cooperative systems where both roadside and in-car systems are involved is unclear yet. Business models should support these discussions. Cooperative safety systems are not considered a substitute for traditional expenditures/investments in road safety (infra investments at black spots, signs, lines). Investments in safety are rather standard maintenance works and infra investments. Depending on the country the responsibilities of the NRAs can differ. As example the Danish road authority has no responsibility on operating the network, so no responsibility on safety, they have only a road maintenance responsibility.

Ad 2: The participating NRAs feel that there is no trade-off between investing in safety and in throughput. Safer roads lead to better throughput, proper roads and incident management results in safe traffic and high throughput. Therefore the participants consider investment in safety as investment in throughput, and vice versa.

**Slide 12: Business models discussion**

1. Which business models are in the interest of the road operators?

2. What are the most important risks?

Ad 1: Vision of Rijkswaterstaat (Henk Jan de Haan) is that expensive infrastructure measures ultimately can be replaced by more efficient in-car applications. Does this mean that the NRAs will transfer investments from roadside systems towards cooperative systems? These decisions require more specific information on the effects of these systems. Crister Rydstal (Vägverket) and Per Lillestal (Statens Vegvesen) agree with this.
vision. Finn Krenk does not agree, the Danish road authority spends only 1 million euro per year on ITS. Business cases where the different scenarios can be compared should support the decision making process on roadside, in-car or cooperative systems/services.

Ad 2: Most important risk is that the car industry develops cooperative systems that do not improve safety but make it worse.

**Slide 13: Business models discussion**

Business models discussion

Which roles of road operators in our business models are actually considered by road operators?

- Sweet talk
- Public money
- Regulation
- Partner in value chain

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<td>Rules</td>
<td>Projects</td>
</tr>
<tr>
<td>Economic Instrument</td>
<td>Permits, quota, concessions</td>
<td>Fees, taxes or subsidizing</td>
<td>Bonds, rights, support</td>
</tr>
<tr>
<td>Governance Impact</td>
<td>Input</td>
<td>Throughput</td>
<td>Outcome</td>
</tr>
<tr>
<td>Innovation Scope</td>
<td>Simple</td>
<td>Easy</td>
<td>Quick</td>
</tr>
<tr>
<td>Government Driver</td>
<td>Frustration</td>
<td>Crisis</td>
<td>New prevention</td>
</tr>
</tbody>
</table>

The role depends on the stage of development/deployment and the type of application/service. NRAs will use all these roles depending on the service, their related responsibility and the added value the services offer in achieving their objectives. The deployment path starts with pilots. Currently road operators are investing money in pilots. Christer Rydmell (Vägverket) gives the example of ISA pilots in Sweden with R&D money. Others do pilots as well. Swedish and Norwegian road authorities maintain map data. They could have the role of map provider.

**Slide 21: Discussion deployment**

Discussion deployment

1. Are the scenario dimensions indeed the critical uncertainties?

2. Which other critical uncertainties are relevant/missing?
Ad 1 (Are the scenario dimensions indeed the critical uncertainties?)
- Extra functionality (infotainment services) is required to get a business case according to congress in New York. The EU is a bit schizophrenic about this topic. DG tren has a different view on this than DG info.
- Public means in this respect collective objectives while private means individual business objective approach
- Penetration is important. Business models/cases are important to determine the right/attractive combination of (platform based) services to achieve a well balanced package of public and private services with high penetration. A “killer application” is required or legislation for a specific service/application.
- (public private is not discussed as a critical issue.)

Ad 2 (which other critical uncertainties are relevant/missing?):
How are you going to ensure compatibility? (David Stones, Highway Agency U.K.)
- Privacy is an issue in Norway. A scenario name like BIG BROTHER IS GUARDING YOU makes politician stagger.
The question is raised what would be a killer application? E-call is mentioned.
Annex VI Slides workshop Business modelling and Deployment at CEDR

**SAFESPOT**

Business models in the BLADE:
- 6.6.1 Preliminary definition
- 6.6.2 Ranking
- 6.6.3 Selection

- 10 business models
- Example of a value web
- Roles of the road operators

**SAFESPOT**

The SAFESPOT CONCEPT: from the autonomous intelligent vehicle...

... to intelligent Cooperative Systems

**SAFESPOT**

Content
- SAFESPOT
- Business models
  - Presentation SAFESPOT approach
  - Discussion
- Deployment programme
  - Presentation deployment programme
  - Discussion

**SAFESPOT**

- Safety applications
  - Intersection safety application
  - Local hazard warning
  - Speed assistance
  - ...
- WP 9. BLADC (Business models, Legal Analysis and Deployment)
  - WP 9.1 Legal analysis
  - WP 9.4 Organisational architecture
  - WP 9.5 Assessment and evaluation
  - WP 9.6 Business modelling
  - WP 9.7 Deployment programme
10 business models

Government strategies

Four categories
1. Sweet talk
2. Public money
3. Regulation
4. Partner in value chain

Business models discussion

1. Cooperative safety applications are not the responsibility of the road operators.

2. Safety has no priority for road operator in relation to throughput

Business models example

- The goal of the discussion is to verify our view on the role of the road operator in cooperative safety systems
  - Determine which of the business models we will focus on
  - Determine which roles in the deployment road operators could filter

Business models discussion

1. Which business models are in the interest of the road operators?

2. What are the most important risks?
D6.4.4 Dissemination Level (PU)  
Copyright SAFESPOT  
Contract N. IST-4-026963-IP
Scenario dimensions

- The 5 most critical uncertainties (factors) are translated into scenario dimensions
- Government involvement → public vs. private
- Market demand, penetration, synergy with other in-car systems → big bang role out vs. safe spot role out
- Functionality → V2V vs. V2I

Deployment scenarios

Discussion deployment

1. Are the scenario dimensions indeed the critical uncertainties?
2. Which other critical uncertainties are relevant/missing?

Thank you!

- Next steps
  - Deployment scenario/s
  - helmet demonstration event in May

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Discussion deployment

- Which scenarios are likely to occur?
- Which scenarios are preferred?
- Put your comments on this online sheet:
  - Discuss which scenario matters more important:
  - NI questions for question 1, please answer for question 2

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
<th>Dimension 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big brother is paying you</td>
<td>SAFESPOT</td>
<td>big bang</td>
<td>public</td>
</tr>
<tr>
<td>You must pay</td>
<td>SAFESPOT</td>
<td>big bang</td>
<td>private</td>
</tr>
<tr>
<td>a safe spot (not yet)</td>
<td>SAFESPOT</td>
<td>safe spots</td>
<td>public</td>
</tr>
<tr>
<td>Safety for sale</td>
<td>SAFESPOT</td>
<td>safe spots</td>
<td>private</td>
</tr>
<tr>
<td>second party</td>
<td>in-car</td>
<td>big bang</td>
<td>public</td>
</tr>
<tr>
<td>ITS resolution</td>
<td>in-car</td>
<td>big bang</td>
<td>private</td>
</tr>
<tr>
<td>in-car added value as cities</td>
<td>in-car</td>
<td>safe spots</td>
<td>private</td>
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