

ROADIDEA

D5.2 Results of the First Innovation Seminar

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Executive Summary

Innovation processes of the ROADIDEA project are mainly based on futures research methodologies Futures Workshop and Charrette as explained by the WFUNA (World Federation of the United Nations Associations) Millennium Project. The processes will be continuous based on digital communication methods, with two major innovation seminars, which both include at least two-day sessions. The first innovation seminar was held on 12-13 May 2008 in Prague. There were altogether 36 participants in the seminar including 3 members of the Steering Committee and the Coordinator of another INFISO project.

Preparations for the first innovation seminar included a participant survey on their present knowledge of innovation activities in January 2008. Since the results of the survey indicated that prior knowledge on brainstorming is mainly on a rather modest level suitable study material was needed in advance. The Technical Committee was used as the platform to clarify the codes of conduct for creating innovations for piloting. In addition, the innovation areas, approaches and challenges were prepared at the TCC meeting in April 2008. Here the Three Preliminary Ideas described in the DoW were also taken under consideration. All material was sent to participants to study in April 2008.

The Coordinator, the Technical Coordinator and the Innovation Manager worked as the pre-Charrette team planning the preparatory actions. Working method, group work and different tasks for participants were prepared. There were two major grouping methods namely Simple Random Sampling and Self-Organised Selection. To promote the innovative thinking a special slide show was running all through the workdays.

The best ideas were sought for during the seminars using first individual brainstorming, grouping of ideas, evaluating the ideas and lastly "basketing" the ideas according to their characteristics. The short-listed ideas were also screened against questions concerning weak signals, actors, collaborators, structures, values, obstacles and drivers, called WACSVOD analysis. To ensure the full exploitation during the project life cycle of the ideas created, a 1-3 person team (IDEA Team) was appointed to take care of each idea.

Summarising, the results include 34 fully studied ideas, of which 19 were short-listed after the evaluation. From these, 12 ideas were chosen for further work with dedicated idea teams, consisting of 6 piloting ideas, 3 modelling ideas and 3 general development ideas. Many more additional ideas were presented that either complemented the short-listed ideas or did not get enough evaluation points. However, all ideas were basketed and stored to the ROADIDEA web site for further use.

The seminar survey results (50 % responded from 36 participants) indicate that the seminar was well received. The majority of participants were of the opinion that no truly radical ideas were created, however, they could name the most radical ideas from their point of view. The overall problem was that the concept "radical" was varyingly understood and no consensus prevailed. Also, what was radical to one person was not so to another. However, the main target of ROADIDEA is to study the overall innovation potential of European transport services, and especially analyse the barriers for their further exploitation. In this respect the seminar provided ample material for studies and for the first pilot product development phase.

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1. PURPOSE AND BACKGROUND

The objectives of the WP5 are to create powerful processes for innovation activities in the project, and to create innovations on knowledge-intensive products and services for transport users on complex issues such as mobile and user-oriented information products and services, telecommunications services, user-interfaces, logistic solutions, software development and networking options.

Innovation processes are mainly based on futures research methodologies Futures Workshop and Charrette as explained by the WFUNA (World Federation of the United Nations Associations) Millennium Project. The main goal of ROADIDEA is to produce radical ideas to develop safer, more secure, efficient and environment-friendly ICT-based transport solutions and services.

The first innovation seminar was held on 12-13 May 2008 in Prague. Innovation seminar plan and advance reading material were delivered to the participants before the seminar. There were altogether 36 participants in the seminar including 3 members of the Steering Committee and the Coordinator of another INFSO project (Telefot).

1.1 Prior Information

To clarify the state-of-the-art of participants' present knowledge of innovation activities a survey was conducted in January 2008. The email survey consisted of 5 questions concerning the experience of the partners on brainstorming. Two thirds of the participants replied to the survey questions (67%).

Summarising the most important findings (explained in more detail in D5.1), it was found that:

- About half of the people have attended some form of brainstorming, session, most of them for half a day or one day, but the other half had very little or not at all experience on such sessions.
- Majority of the people find such sessions interesting and valuable.
- Majority of the people find their knowledge on brainstorming methods modest or even negligible and the overwhelming majority regarded that they need more information on brainstorming.

The survey gave good indication that there is a need for more knowledge on innovation and brainstorming methods, and that the innovation sessions shall be well planned and conducted to achieve good results. Thus, it was necessary to prepare reading material for the participants to study in advance. The reading material was sent to the participants in April 2008. The material consisted of the following documents:

1. D5.1 Plan for Innovation Procedures in ROADIDEA including additional reading material in the annex 4.
2. Apel, Heino (2004) *Future Workshop*, http://www.die-bonn.de/espid/dokumente/doc-2004/apel04_02.pdf
3. INNOVATION (2007) *Innovation Process: Diversion and Conversion of Ideas. The Jazz of Innovation. 29 Obstacles To Innovation*.
http://www.1000ventures.com/business_guide/im_knowledge_idea.html#IP

4. Hiltunen, Elina (2007) *Where Do Future-oriented People Find Weak Signals?* FFRC eBook 2/2007. Finland Futures Research Centre, Turku School of Economics. 40 s. http://www.tukkk.fi/tutu/julkaisut/e_julkaisut/Sources%20for%20weak%20signals-%20Hiltunen_2007-2_3.pdf
5. List of innovation areas and guidance to work prepared by the Technical Committee.
6. Programme of the seminar and the list of tasks.

In the April 2008 meeting of the Technical Committee, the members discussed the list of innovation areas and guidance to work. The areas and challenges were studied and the Three Preliminary Ideas were jointly evaluated by the TCC by using the same method as was to be used in the seminar: giving “hearts” to preferred ideas. The results came out as four preliminary grouping on ideas as the starting point for the seminar innovation groups as indicated in the Innovation Seminar Groups Titles (details in the annex 1). Examples of heart stickers are shown in the picture 1:



Picture 1: Example of heart stickers

Innovation Seminar Groups Titles

The work on innovation areas and challenges resulted to the four innovation group description. It was pointed out to the participants that both readily applicable ideas (to be run as pilots) and radical ideas are needed. The titles of the groups are only suggestive and used as the starting point – any diversions thereof are welcomed! For example, the Three Preliminary Ideas of DoW can be used as extra guidelines.

Group 1: WARNINGS

Weather and traffic warning systems on route and in route planning

Weather and traffic accidents forecasting needs free or low-cost data thus forming the most important business challenge. Safety-related warnings must be developed by connecting in new, innovative ways the technological state-of-the-art. These may be V to V, I to V and roadside. Also P-to-P (peer to peer) messaging should be considered. For example: Localised warnings for dangerous road stretches due to adverse weather conditions

The dissemination channels for new types of warnings will be designed to reach most effectively the appropriate road users. The dissemination system may be a combination of variable signs, push services for various mobile devices or radio. For pre-trip planning, travel time and route planning, Internet is useful.

Group 2: TECHNOLOGIES

Emergent technologies and visionary services

New technologies are needed to improve efficient moves between transport modes – also consider pre-trip planning using Internet etc. For example, public transport planning and passenger information service

It is important to make foresight study on emergent technologies that will give quite new solutions. 5 points: visionary products and services should be created (radical innovations).

Group 3: DATA

Actors and user groups collaboration solutions in data acquisition

Data and information should be used to eco-efficient use of roads in weather and traffic forecasting. Role of service providers in data collection and interchange has to be defined

Different user groups (research, administrations, police, safety organization) should collaborate when planning new products and services in weather and traffic forecasting. Consider legislative obstacles. Role of service providers in data processing methodologies should be considered.

Group 4: SERVICES

Data collection and fusion solutions for user-friendly interface for services

In data collection, aggregation and interchange the most important issues are interoperability and interconnectivity needs. It is critically important for end-users to get user-friendly services and products. Consider specific needs of elderly, immigrants, handicapped, etc.

Different data fusion methods are to be developed. The innovation will include combining several types of data: second-by-second up-to-date floating car data, most recent available point-based data (inductive loops etc.), link-based data measured with fixed stations (camera detectors etc.), point-based road weather data, area-based weather forecasts, incident data etc. together with history data from all the sources.

1.2 Seminar Programme

The programme of the 1st Innovation Seminar, Hotel Maria, Prague, 12-13 May, 2008 was defined as follows.

NOTE! Tasks are defined as guidelines and may shift from session to session if work so requires. Time schedule can thus be subject to change. The moderators consider the changes in the timetable. - Coffee is served during sessions - other refreshments are also available.

PROGRAMME Monday 12 May 2008

7.30-8.30	Breakfast	at the hotel
8.30-9.00	Registration	List of expertise
9.00-12.00	1 st Session	Introduction (general, materials, baskets, posters, slideshow)
	Tasks 1-4	Presentation of moderators and their tasks
		SRS Grouping, selection of group rapporteurs
12.00-13.00	Lunch	
13.00-14.00	Walking Seminar	Sub-grouping
	Task 8	
14.00-17.00	2 nd Session	SOS Grouping, selection of group rapporteurs
	Tasks 5-7	
17.00-19.00	Pub Seminar	Sub-grouping
	Task 11	
20.00	Seminar Dinner	

In the programme, SRS and SOS indicate the methods of grouping of participants. SRS means that the selection was done by Simple Random Sampling and SOS means that the groups were formed through Self-Organised Selection.

PROGRAMME Tuesday 13 May 2008

7.30-8.30	Breakfast	at the hotel
9.00-12.00	3 rd Session	Introduction, illusions
	Tasks 9-10	SOS Grouping, selection of group rapporteurs
12.00-13.00	Lunch	
13.00-14.00	Walking Seminar	Sub-grouping
	Task 8	
14.00-15.00	Preparation for the 4 th Session	Moderators work - Free time for other participants
	Task 12	
15.00-18.00	4 th Session	Plenary
	Task 13	
19.00	Dinner (optional)	

However, the second day had to be redesigned somewhat differently because of the pending tasks and it was executed as follows:

7.30-8.30	Breakfast	at the hotel
9.00-12.00	3 rd Session	Illusions – wake up your brain! Encouragement to new radical ideas Results of yesterday – TOP 5 lists, new ideas
	Tasks 9-10	SOS Grouping, selection of group rapporteurs <ul style="list-style-type: none"> - regrouping of ideas - new ideas - WACSVOD discussion - basketing proposals for all ideas
12.00-13.00	Lunch	
13.00-13.30		PMB meeting - decisions
13.30-14.30	Results Seminar	Results of the groups - rapporteurs
14.30-15.30	Preparation for the 4 th Session	Moderators work - free time for other participants Final basketing, selection of pilots
	Task 12	
15.30-17.80	4 th Session	Presenting ideas to go forward, appointing IDEA Teams PMB meeting – discussions on dissemination
	Task 13	
19.00	Dinner (optional)	

1.3 Seminar Tasks in Detail

The seminar started with an introduction to the tasks and participants' roles. The moderators had organised the premises and working materials the day before the seminar. Thus the work could immediately start after the division to four innovation groups that were working in the four corners of a big seminar room. The task lists were handed out (although they had been sent to the participants well in advance) and large copies of most important material were attached on the wall nearby the group corners at the flip paper settings. Marker pens and post-its were at hand all the time. A continuous power point slide show was rolling on the screen for encouragement of new thinking. All power point material used in the seminar as well as all guidelines can be seen on the ROADIDEA web site.

The tasks indicated in the programme were well defined in advance and sent to the participants to study. The 13 tasks were as presented in the table 1:

Table 1: Detailed Tasks and Methods in Innovation Seminars – Four Groups in Every Session

Task	Method
Select the rapporteur for each of the 4 groups for each session	Group work
1. Write an idea on a yellow/green post-it – one or more – create 1-3 ideas - individually (some of these may be ideas that you have brought with you)	Individual
2. Attach post-its to a flip paper on the wall randomly	Individual
3. Study the ideas together in the group and group them on the wall – idea's inventor may explain what is meant – rapporteur documents these explanations if needed to additional post-its (sketchbook post-its), add totally new ideas along the way through group discussion (go through tasks 1 and 2 then group again)	Group work Process 1-3 is based on fractal geometry and creation of Mandelbrot set: (http://xaos.sourceforge.net/black/movies/chapter1-mset.mpg)
4. When all ideas (for the moment) are presented, discussed and argued attach heart stickers to ideas to post-its according to your preferences – each person individually	Deliberative poll meaning: - study the issue! - argue your point with others! - cast your vote independently!
5. Select the best ideas to go ahead - moderators will take a photo of the flip papers	Group work
6. Give the best ideas nice names and suggest a basket for all ideas (also those left out)	Group work + individual
7. All groups go around to study other groups' results, listen to rapporteurs' explanations and suggest improvements or facts to be added or new ideas based on those already chosen (study round)	Plenary + rapporteurs
8. Select 3 ideas to walking seminar one for each subgroup of 2-3 persons within each group – rapporteurs collect the results	Rapporteurs
9. Check the tasks for new groupings. Add more info to the chosen best ideas by discussing the actors, structures, values, collaborators, obstacles and drivers	Group work + individual + plenary
10. Discuss/confirm basketing of ideas	Group work
11. Select 3 most interesting ideas for pub seminar – one for each subgroup of 2-3 persons within each group for the pub seminar	Group work
12. Place the ideas with all additional material to baskets, suggest shortlist of ideas, build the idea-map/tree	Rapporteurs + moderators
13. Select 2-3 members IDEA Teams for each shortlisted idea. Task allocation for work in WPs (Focus groups of Charrette), ontology	Rapporteurs + moderators + plenary

1st Session: Randomly chosen members in groups - SRS

2nd Session: Groups continue as such but also self-organised - SOS

Walking Seminar: Groups of 2nd session continue (subgrouping)

3rd Session: Groups are self-organised - SOS

Pub Session: Groups of 3rd session continue (subgrouping)

4th Session: Free grouping if necessary

Explanation of the Tasks

1. Write an idea on a yellow/green/pink post-it – one or more – create 1-3 ideas - individually (some of these may be ideas that you have brought with you)	Individual
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Write an idea on a **yellow** post-it. This idea is the first one created by an individual. The idea may have been created on the spot or it may be a half-ready one that a person has already discussed with colleagues or users. The yellow colour will now mark an idea from the first session.

The **green** post-its are used for ideas that have been created by either the group discussion or from an existing idea by improving it or changing it or "riding" on it and associating perhaps quite a new one (but has the origin in the yellow idea...). The **pink** post-its are used for quite new ideas that have been created by the group discussions or through walking and pub seminars.

When an ideas becomes more mature through the discussion, the same colour post-its are used as they originally were used when adding more substance to that particular idea.

2. Attach post-its to a flip paper on the wall randomly	Individual
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The post-its are attached to the flip paper randomly by the group members. The randomness gives persons more time to focus on the idea only. It also helps in creating new innovative associations between the ideas. After this process there should be about 15-20 ideas on the wall.

During breaks people should go around and see other groups' work results and comment on them – these can be attached to the idea by the rapporteur or by the idea creator. It is also possible to interfere if anybody has some relevant information on the idea – a certain fact-finding and interaction between the groups is encouraged.

3. Study the ideas together in the group and group them on the wall – idea's inventor may explain what is meant – rapporteur documents these explanations if needed to additional post-its (sketchbook post-its), add totally new ideas along the way through group discussion (go through 1 and 2 then group again)	Group work Process 1-3 is based on fractal geometry and creation of Mandelbrot set
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The rapporteur leads the discussion of grouping. The explanations that are needed in order to all members to understand what it means are written by the idea creator on additional post-its, that is, on the so called sketchbook post-its, and attached to the original post-it. At the same time, the rapporteur attaches the post-its in groups by grouping similar or associated ideas together. The grouping is done by group work (i.e. the ideas are discussed by the members) and may result to combining ideas when the total number of ideas diminishes to perhaps 5-10.

Through this discussion it often happens that totally new ideas will be created. These will then be written on the green post-its as well... and the grouping process continues including these new ideas.

Green post-its and pink post-its should now be used when totally new ideas emerge.

<p>4. When all ideas (for the moment) are presented, discussed and argued attach heart stickers to ideas to post-its according to your preferences – each person individually</p>	<p>Deliberative poll meaning: - study the issue! - argue your point with others! - cast your vote independently!</p>
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When all ideas have been grouped – some may stand alone of course – they are evaluated by giving "hearts". Ten hearts are allocated to each person and they can indicate with them how the "like" the idea, that is, if a person thinks that a particular idea is good, he/she can give one heart or several to that idea, if she/he thinks that one idea only is superior and others are not he/she may give all ten hearts to that idea, and all other versions in between are possible.

Example of brainstorming area is shown in the picture 2:



Picture 2:
 Example of brainstorming area

<p>5. Select the best ideas to go ahead - moderators will take a photo of the flip papers</p>	<p>Group work</p>
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Best ideas are selected. Corrections are possible, the main thing is that the members are happy with the preference order. New ideas are possible, too.

<p>6. Give the best ideas nice names and suggest a basket for all ideas (also those left out)</p>	<p>Group work + individual</p>
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The ideas should be given short names so that all can recognise which ideas is which. Baskets for each idea is suggested. The basket name is written on the yellow post-it.

<p>7. All groups go around to study other groups' results, listen to rapporteurs' explanations and suggest improvements or facts to be added or new ideas based on those already chosen (study round)</p>	<p>Plenary + rapporteurs</p>
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The ideas are now presented to all one by one through groups 1 to 4. During the study round new ideas may again emerge. All participants gather together in the plenary form (moving their chairs to the central table), one of the moderators will chair this study round and rapporteurs will shortly present each idea. If more information is gathered by the participants – who should interfere if they have relevant information concerning a particular idea - they will be written down on the sketchbook post-its by the idea creator her/himself. Now we should have about 30 ideas.

8. Select 3 ideas to walking seminar one for each subgroup of 2-3 persons within each group – rapporteurs collect the results	Rapporteurs
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The groups are divided to 2-3 persons subgroups and each is given 3 ideas to study more deeply. If new ideas emerge they will be written on pink post-its by the subgroups. The rapporteur will collect the results and see to it that all is written down and attached to the idea in concern.

9. Check the tasks for new groupings. Add more info to the chosen best ideas by discussing the actors, structures, values, collaborators, obstacles and drivers	Group work + individual + plenary
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Now the best ideas are recalled and listed. Now there should be about 25 ideas. These are then discussed more deeply by addressing the following questions:

WACSVOD Analysis - issues to be discussed about each idea

- W=Weak Signals - what are those happenings that might disrupt or change the development path of the idea in the future?
- A= Actors - Who are the main actors of realising the idea?
- C= Collaborators - Who are the main collaborators in realising the idea?
- S= Structures - What are the main (infra)structures needed for the idea?
- V= Values - What is the value (monetary/operational/etc.)or added-value for beneficiaries of the idea?
- O=Obstacles - What are the main obstacles hindering the realisation of the idea?
- D= Drivers - What are the main drivers promoting the realisation of the idea?

Answers to these questions are written down to the sketchbook post-its. New ideas may again arise, but some ideas may also be either discarded or moved to another basket if necessary. If there are no answers to be given to all of these items, the questions will nevertheless continue to be answered after fact-finding missions by the IDEA teams (appointed in the end), because it often turns out the answers to these are not straightforward and may need more studying by the WPs and the IDEA teams.

It is however important that in the end these questions are answered.

10. Discuss/confirm basketing of ideas	Group work
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Final basketing is done, and the post-its are placed in the baskets. A list of ideas – using their given short names – is prepared for each basket by the moderators.

11. Select 3 most interesting ideas for pub seminar – one for each subgroup of 2-3 persons for the pub seminar	Group work
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The purpose of the pub seminar is to brainstorm freely around some interesting ideas that have been judged to be intriguing or unclear or strange but deserve nevertheless more pondering and innovating... If new information is created these should be documented on the sketchbook post-its.

12. Place the ideas with all additional material to baskets, suggest shortlist of ideas, build the idea-map/tree	Rapporteurs + moderators + plenary
13. Select 2-3 members IDEA Teams for each shortlisted idea. Task allocation for work in WPs (Focus groups of Charrette), ontology	Rapporteurs + moderators, plenary

Finally the ideas are confirmed in their proper baskets (about 10-15 ideas), and a shortlist of all ideas is prepared by the moderators and rapporteurs. In addition, an idea-mind-map or idea-tree will be considered and presented to plenary. Meanwhile other participants can attend to their emails and SMS, or search for relevant additional information. IDEA teams are suggested by the moderators and selected in the plenary. Ontology scheme is presented and decided.

The processes in seminars

The processes in seminars are explained in the table 2.

Table 2: Processes in Seminars

Brainstorming	Ideas are created by individuals and groups. First individual ideas are presented (some of these may be pre-planned) then ideas are discussed and new ideas will arise from "riding" on existing ones.
Grouping	Ideas are grouped - if ideas are close to each others then these are combined. Grouping generally adds new ideas to be born.
Evaluation and Basketing	Evaluating ideas means giving them "hearts" according to individual preferences. Best ideas are selected and basketed according to their characters.
Development of ideas	Every idea is enriched by adding data on its added-value, actors, structures, obstacles, drivers and services and products. Also weak signals are studied. (WACSVOD analysis)

In the following picture 3, the baskets are described. The original idea was that the ideas could physically be put in the baskets, but it turned out that the post-it and sketchbook material was too big. However, the concrete and practical possibility of classifying ideas this way was well understood and acted as a helpful metaphor.

All the ideas were organised in baskets -- the basketing process -- according to their characteristics using the classification as shown in the picture 3. (see annex 4). All the flip papers were photographed and documented, and can be found in ROADIDEA website www.roadidea.eu.

Picture 3: Basketing of the ideas, i.e ideas are put into baskets according to their character



In the next table 3 the roles of participants and their tasks are explained. This information, too, was sent to the participants in advance.

Table 3: Roles of participants and their tasks

Groups	Members	Number	Tasks of various groups
Moderators	Coordinator, WP4 leader (technical coordinator), WP5 leader (innovation manager) and financial manager	4	WP5 leader will lead the seminar. Financial manager will cover the practical actions and watch over time during the seminar. Moderators guide the group work by circulating among the groups and helping rapporteurs. They collect ideas, guide the idea development, evaluation and basketing. They document conflicts and disputes. They decide the grouping and timing, and solve any arising questions during the seminar. They ensure the successful outcome of the seminar during the work. (Note! They will also participate in actual brainstorming).
Rapporteurs	Each group selects a rapporteur within the group	1 per session per group, changing	Rapporteurs make notes of the ideas, and report the work of the group to the plenary and to the moderators. They guide the walking seminar and the pub seminar and document the subgroup members. They collaborate closely with the moderators.
Participants	All participants in the innovation	ca. 30	Participants are divided in 4 groups in every session. They do the brainstorming, evaluation, naming and basketing. Each is asked to create 1-3 ideas to start

	seminar		with.
Innovation groups	Either randomly or self-organisingly selected participants	4 per session, changing	Brainstorming, evaluating, naming, basketing and reassessing of the ideas. Divided into subgroups for walking and pub seminars.

2. RESULTS OF THE SEMINAR

Before the first innovation seminar, participants were expected to orientate themselves to the methodology and towards a positive, creative stance to the tasks at hand. The results of the first seminar – the pool of different ideas (ranging between realistic ready-to-be-used and most radical) – are further developed in Charrette focus groups as decided. In between the innovation seminars the ideas are also freely commented and further developed through the web site. Actually, following the innovation method Charrette the second innovation seminar will collect the feedback from the focus groups and further develop the ideas as well as throwing in new ones. In ROADIDEA, focus groups are primarily WPs but may be enhanced if seen feasible.

2.1 Pilots, Modellings and General Ideas

There were 19 short-listed ideas from which 6 pilots, 3 modelling tasks and 3 general development tasks were selected. The list of TOP ideas is as follows (also the basket is mentioned here):

1. Friction model: combined with RWIS and weather and maintenance activities – **"PULP FRICTION"** – [Pub](#)
2. In-vehicle information: about speed, road conditions and traffic situation combined information from maintenance activities with road weather information – [Waste](#)
3. Free all weather data: free geospatial data, free data platforms **"FREEDATA"**– [Ready](#)
4. Personal filtering: Collect information about users: age, state of health, car type, status, and create intelligent algorithm that will find the interesting data for him/her (e.g. pollution, allergies), compare: eCall, **MyRoute** – [Pub](#)
5. Animals on road: fasten device that can be shot on moose, showing their location (GPS-GALILEO) + central data analysis and delivery – [Waste](#)
6. Automatic traffic management information system - [Wild](#)
7. Smart location finder for personal services – new issues e.g. nearest toilet **"ToiletTOMTOM"**- [Pub](#)
8. Social mobility information and contact system - [Pub](#)
9. Multimodal routing system adaptive /learning personal traffic, mobile route selection – [Pub](#) – see group 1
10. Eye from above: traffic information from satellites, unmanned planes, helicopters, balloons, aircrafts; meteoinfo from satellites – [Wild](#)

11. Urban data fusion for a better traffic information, Traffic forecast models – Pub,
12. Mobile sensor data acquisition: Mobile phones as sensors – Ready
13. Cross border weather alerts – Ready – Weather and traffic information through mobile phones
14. Mapping of risky road stretches - Waste
15. European databases – Pub – see group 4
16. Weather wikipedia – weatherwiki for roadweather; road weather data - Waste
17. **EUROADMAP** – Northern Europe Module (NEM) for mapping road weather conditions online – Wild (NEM Pub) – (Conceptual)– see group 3
18. Mobile Pocketguide with position services – all traffic modes – Ready, see group 2
19. **EYEAR**: Road Eye: friction data collection and transmission (acoustic, optical, invehicle etc.) – Ready

In annex 3 the top ideas are completed with other listed ideas and results of the WACSVOD analysis are also documented.

Ideas for piloting, modelling, and general development

Of the 19 short-listed ideas 6 pilots, 3 modelling tasks and 3 general tasks were chosen as follows (see annex 2):

P1: Pilot 1. CROSS BORDER WEATHER ALERTS

Cross border weather alerts, location-based systems

P2: Pilot 2. MOBILE PHONES AS SENSORS

Mobile sensor data acquisition

P3: Pilot 3. MyROUTE, MOBILE POCKET GUIDE

Personalised combination of routing and route selection driving conditions information from various sources (weather, traffic, ecological and economic and multimodal transport choices, including location info) delivered through mobile phone and internet, “green routing”, “info while planning”

P4: Pilot 4. MyTRAVEL, TOILET-TOMTOM

Personalised updating information while driving on selected route from various sources (weather, traffic, gasoline stations, shopping centres, etc. including location info) delivered through mobile phones, road signs, audio, text and images, “green driving”, “info while driving”

P5: Pilot 5. IN-VEHICLE INFORMATION

Invehicle information about speed, road condition and traffic situation

P6: Pilot 6. EUROADMAP

European road weather databases using sponsor-based business model

M1: Modelling 1. PULP FRICTION

- Friction model: combined with RWIS and weather and maintenance activities
- EYEAR - Road Eye: friction data collection and transmission (acoustic, optical, invehicle etc.)

M2: Modelling 2. TRAFFIC FORECAST MODELS

Traffic forecast models

M3: Modelling 3. PORT Port-related traffic modelling

G1: General 1. FREEDATA Free geospatial and weather data

G2: General 2. RTFM

Better and tailored user-interfaces of text, image, audio, considering personal characteristics of users: language, disabilities, age, health, and other personal needs

G3: General 3. STAYHOME

What are the effects of choosing staying home instead of choosing to travel a certain route?

In addition, all presented ideas were documented and basketed. The results of this process are described in the annex 4.

To ensure the full exploitation of the ideas created, a 1-3 person team (IDEA Team) was appointed to each idea whose task is to “cherish” the idea, i.e. to take care of the idea's proper execution in the piloting processes and WPs during the project life cycle. The team members represent the corresponding WPs that work with the ideas. The team will act self-organisingly but will periodically discuss development with consortium members through the dedicated ROADIDEA web site. The participants, their expertise areas, survey response activity and the IDEA team members are listed in the annex 6.

2.2 Documenting and Communicating Results

The innovation seminar results described in this deliverable are public and published on the www.roadidea.eu website, as is all material produced in the seminar. The documents of the innovation seminar include description of the ideas produced, list of the participants, their main WP and IDEA team membership, i.e. the “home” of a particular idea, and the division of expertise (see annex 6). In addition, all Power Point presentations, posters and photos are published. Each idea is discussed through chats, blogs or wikis in intranet and further discussions are also encouraged through extranet.

On the web – www.roadidea.eu

The following material is stored in the innovation seminar site of the roadidea.eu web site:

1. List of seminar participants together with list of expertise and IDEA team members.
2. List of TOP ideas of the innovation groups with WACSVOD including WACSVOD analysis for best ideas - wiki
3. Summary of the main innovations for pilots, modelling tasks and general development issues - Wikis
4. All ideas basketwise – Basket Wikis
5. Results of the survey of experience on brainstorming
6. Prior study material and guidelines
7. Results of the seminar survey
8. Photo collections of innovation seminar – people and flip-papers

9. All power point presentations in the seminar

There are wiki sites established for each pilot, modelling task and general issue. These will be updated frequently by the respective IDEA team members. For each basket there is also a wiki site, where there are all ideas present. All material is public.

For facilitating outside world to join innovation work a site for presenting new ideas is added to the extranet which will complement all the innovation seminar material made public.

There are also several international conferences where the ROADIDEA project is presented. One was right after the seminar in Prague, namely SIRWEC (Standing International Road Weather Commission), where the innovation areas and challenges were also discussed through an interactive poster presentation. Two major conferences will be the 13TH PIARC Winter Road Congress and the next SIRWEC in 2010, but several others are expected to be attended by the ROADIDEA partners in 2008 and 2009. Also scientific and popular articles are planned.

3. QUALITY ASSESSMENT

To study the success of the seminar concerning both the methods and the resulted ideas an email seminar survey was conducted in June 2008. Of the 36 participants 18 answered (50 %) the questions. The detailed answers are in the annex 5.

The overall success of the seminar was rated 3.3 by the respondents (on the scale of 1 to 5). Actually, to determine the success of the innovation work the success factors are identified and studied in more detail. These questions were first discussed by the Technical Committee. The seminar survey questions and monitoring methods were planned by the WP5 leader with the help of Coordinator and Technical Coordinator. The results are reported in the seminar deliverables D5.2 and D5.3.

The main target of ROADIDEA is to study the overall innovation potential of European transport services, and especially analyse the barriers for their further exploitation. In this respect the seminar provided ample material for studies and for the first pilot product development phase.

3.1 Results of the Seminar Survey

The seminar survey was conducted by email in early June. The main results were as follows (for details, see annex 6):

From the 18 respondents 6 thought that the method could have been more simple, but 12 thought it was good. Comments indicated that even more introductory guidance and moderating could have been useful.

The main tasks were also rated on the scale 1 bad, 5 excellent. The brainstorming got grade 3.8, grouping of ideas 3.6, basketing 3.3, walking seminar 3.2 and pub seminar 2.8. The comments indicated mainly problems with timing and guidance.

All participants were satisfied that their own ideas were appreciated. 12 of the 18 said that they saw new ideas coming up, but 14 of 18 thought that the ideas were not especially radical. 12 people saw that the overall results were as they had expected. The comments focused on the difficulty of grouping of the various ideas that were on the same issue but from a different angle.

The most realisable ideas were: PULP FRICTION 3 votes, ToiletTOMTOM 3 votes, Mobile sensor data acquisition 2 votes, and EUROADMAP 2 votes.

The most radical ideas were: Eye from above 3 votes, Personal filtering, My Route 2 votes, Everything that moves gives location information, 2 votes and EYE FROM ABOVE 2 votes and The social mobility system 2 votes.

All the respondents had studied the seminar material in advance. (Since only less than half of the participants answered, it remains unknown if the rest had studied the material or not).

There were 6 additional questions posed to the 8 rapporteurs. The rapporteurs conducted the work in four innovation groups. Three rapporteurs answered.

The rapporteurs thought that their sessions succeeded rather well in their task (rate 3.7 on the scale 1 poor, 5 excellent). They gave 3 to the tasks and work processes being feasible and proper, and thought that the results came up to their expectations (3). The rapporteurs thought the work to be rather easy (2.7) on scale 1 easy, 5 difficult.

The rapporteurs thought that brainstorming and basketing were the best tasks in the innovation process. However, they thought that the group size was somewhat too big (8 or 9 persons). They also thought that rapporteurs, moderators and guides are needed for every group.

Some improvements were suggested consisting of having more simple procedure, more guidance on the spot and more brainstorming time.

According to one rapporteur, "there would appear to be two choices: a) have it the way it was - rapporteurs "chairing" and the moderators hovering around and applying control occasionally when needed or b) have a "professional" moderator and a rapporteur = secretary at each table. To me the latter is prone to being more structured but potentially also less innovative."

Other comments included e.g.:

"I think the seminar well arranged. The idea with the grouping of ideas was appropriate and the seminar made people creative, though...."

"We should have smaller separate rooms for the sub groups for discussions. Sometimes it was hard to hear each other."

"We should have had more time for the last exercise (WACSVOD-analysis) where we sorted the groups of ideas into the baskets."

"This seminar should have been in the beginning of ROADIDEA project. Before the participants had decided what to work with and before the work in the WP's was distributed."

"It was good that the groups were defined in advance. Some people seemed to have problems to write briefly and clearly to the post-its and it was difficult sometimes to understand what was meant."

Success Factors and Risks

Half of the participants answered the seminar survey. The majority of these indicated that there were no particularly radical ideas coming up in the seminar. However, if this is the opinion of the one half, what might be the opinion of the other half? The results are not statistically strongly representative since this was not a random sampling. The reasons for non-response rate of 50% would nevertheless need a deeper study.

In spite of giving the verdict that there were no genuinely radical innovation all respondents could point out the most radical idea. It is evident that there are varying perceptions of the concept "radical innovation". There are several reasons for this, e.g. when there are experts from various fields working together some innovations that others see radical can be interpreted non-radical by others who have deeper expertise in the field being ordinary, and vice versa. One of the challenges of multidisciplinary collaboration is the importance of creating common language and common concepts. Defining the concept radical idea of ROADIDEA will be under study during the entire project.

Summary of the Success Factors and Risks

To summarise the results concerning the success factors and risk factors the following table 4 is presented (From table 9 and 10 in the D5.1 deliverable)

Table 4: Success factors and outcomes

Overall success of the seminar	Overall success was 3,3 (in the scale from 1 to 5: 1 poor, 5 excellent)
Success indicators: Number of ideas Quality of ideas Degree of frustration	There were enough ideas created. Their quality was defined in the seminar survey to be good. There was some frustration with the limited time, however, a third seminar day is impossible to arrange.
Success indicators: Number of intelligent cluster of ideas Quality of idea clusters	Clustering – or grouping as it was called – was successful. There were problems with having produced too many contradictory ideas and only few radical (or semi-radical) ideas.
Number of hearts given to ideas	The evaluation by attaching heart stickers to preferred ideas was successful.
Number of ideas in baskets Quality of baskets	Basketing idea was well received, and baskets are adequate in content.
Coverage of expertise among the participants	The list of expertise (annex 6) shows that there was good coverage of all sectors.
Number of participants Number of other contacted and informed stakeholders.	Number of participants was larger than expected. Three steering committee members and an INFSO Project coordinator attended.
User satisfaction level on first service pilots Number of contacts to service operators with exploitation capability	The pilots were unanimously selected. The next task after the seminar is to contact the service operators.
Risk: Futures seminars do not provide new, potential transport	The risk was averted, although the participants thought that no genuinely radical ideas were

service ideas.	presented. However, 6 pilots and 6 other research themes were recognised.
Risk: New ideas are too futuristic to implement and evaluate.	The seminar provided ample material for studies and for the pilot product development phase, thus the risk was averted.

3.2 Lessons Learned

Lessons learned are taken into account when planning the 2nd innovation seminar. These can be briefly stated as follows:

Many participants did not write post-its with capital letters and with marker pens in spite of the guidance thus making the group discussions difficult and delaying the process and the development. The reason most likely was that this aspect was not forcefully enough emphasised when giving the guidelines to the participants.

There was not enough time to discuss deeply the WACSVOD issues. Normally, the two day seminar is well time enough to do brainstorming work using the futures research methodology. WACSVOD analysis was however an extra attempt to test the process of acquiring more information around the ideas. Three groups of four could make a preliminary analysis. More work would be needed to get well-organised aggregation of data and information. However, prior experience shows that such discussions are nevertheless valuable to the participants when further developing the ideas and their substance. The psychological effect of incoming information flow from varying sources will create new ways of approaching knowledge creation by individuals and groups. The analysis can further be conducted by each responsible WP after the seminar.

Some participants were not familiar with the weak signals concept despite of having access to specially prepared study material well in advance before the seminar. Some were even “shy” to ask for more information on the spot. It seems that the knowledge on futures research and its concepts are not very well known.

It seemed evident that different cultural backgrounds did not hinder mutual understanding, however, the common concepts need yet more work which is markedly time-consuming.

It is important to focus on equal opportunities when giving floor to speakers.

The time schedule of seminar was adequate. However, minor adjustments were necessary during the latter half of the programme when it was necessary to increase work for producing results of the seminar and the guidance of researchers and developers (appoint WPs and IDEA teams). Readiness to modify the programme as the process is under way is a necessary skill.

There must be enough attention put to assure reliable technology, big enough screen and working space.

The walking and pub seminars were well received, thus emphasising the need for ample time for unofficial discussions and free involvement to self-organised debates.

Moderators and guides for each group are necessary.

Achieving results takes always longer than expected. But since there is never enough time, discipline must be exercised in pursuing to follow the time schedule. In many cases three days is suggested to be enough time. This may however, be impossible to realise in practice.

Division into groups need careful consideration - not too many groups - not too many members in a group.

Grouping of ideas is necessary since there will always be a lot of suggestions of the same idea from slightly different points of view.

It is difficult to pinpoint exactly what innovations are truly radical, because of mainly three reasons: 1) definition of what is radical varies, 2) interdisciplinary collaboration challenges mutual concepts to emerge, 3) radicalism may sometimes be ensured after some period of extra research in the field.

4. CONCLUSIONS

The participants of the innovation seminar consisted of members in the ROADIDEA consortium partners, three voluntary members of the Advisory Committee and the Coordinator of another INFISO project Telefot (see annex 6). These formed the necessary actor groups for the innovation work: group and subgroup members, rapporteurs, IDEA team members and moderators.

Results of the first innovation seminar include user input and output, results from innovation procedures and a selection of the best ideas for most potential pilot services to be developed and implemented. These 12 ideas were:

P1: Pilot 1. CROSS BORDER WEATHER ALERTS - Cross border weather alerts, location-based systems

P2: Pilot 2. MOBILE PHONES AS SENSORS - Mobile sensor data acquisition

P3: Pilot 3. MyRoute, Mobile Pocket Guide - Personalised combination of routing and route selection driving conditions information from various sources

P4: Pilot 4. MyTravel, TOILET-TOMTOM - Personalised updating information while driving on selected route from various sources

P5: Pilot 5. IN-VEHICLE INFORMATION – In-vehicle information about speed, road condition and traffic situation

P6: Pilot 6. EUROADMAP European road weather databases using sponsor-based business model

M1: Modelling 1. PULP FRICTION - Friction model: combined with RWIS and weather and maintenance activities - EYEAR - Road Eye: friction data collection and transmission

M2: Modelling 2. TRAFFIC FORECAST MODELS

M3: Modelling 3. PORT - Port-related traffic modelling

G1: General 1. FREEDATA – Free geospatial and weather data

G2: General 2. RTFM - Better and tailored user-interfaces

G3: General 3. STAYHOME – Effects of staying home instead of driving

Summary of the Seminar

The outcomes of the 1st innovation seminar can be summarised as follows (Leviäkangas et al 2008):

- The common ground, framework and set of concepts were discussed and agreed upon among the 36 participants of the seminar. Many of the attendees were strangers to each other.
- The ad-hoc type walking and pub seminars contributed to the interaction and getting people acquainted with each others' line of thinking and expertise. An

- expertise matrix was established to help the interaction in the coming innovation phases.
- Brainstorming for new ideas was conducted in three major sessions. The ideas were grouped and complemented through several cycles and ideas were categorised according to their maturity and level of innovation (see Figure 5); the most promising ideas in terms of innovativeness and maturity were selected for piloting:
 - One model-related pilot was initiated (combining friction, weather, road and vehicle data) to enhance the existing road weather models.
 - One international service pilot was decided to be experimented, but later it became known that this idea was already being implemented (EU-wide road weather information for long distance travelers).
 - One small-scale service idea for nomadic device enabled positioned local traveler services was decided to be studied and evaluated further.
 - About a dozen of other ideas were to be studied further by idea teams.

What became apparent from the first innovation round was that very radical innovations were not derived or at least selected for further analysis or piloting. A breathtaking list of wide spectrum of service and model ideas were derived, though, and this list might still contain some “killers”.

When afterwards analysing the feedback from attendees (the seminar survey) it was concluded that whilst the innovation process was working impeccable, the role-thinking and remaining “in the box” was still too much dominating the process. The seminar survey (response rate 50%) rated the seminar success good (3.3 on the scale of 1 to 5) and thus, the ROADIDEA’s efforts were considered to be quite innovative as well as the process of finding new ideas.

Further Actions

The main target of ROADIDEA is to study the overall innovation potential of European transport services, and especially analyse the barriers for their further exploitation. In this respect the seminar provided ample material for studies and for the first pilot product development phase.

The ROADIDEA innovation methodology of Charrette and Futures Workshop will be followed as was indicated in deliverable D5.1. This means that the next phase is to forward the work to the respective WPs where the IDEA teams named in the seminar will continue to develop the pilots, modelling issues and general development themes as decided in the work plan.

Until the next phase of Charrette, namely the plenary phase in the form of the second innovation seminar there is about 10 months working time for piloting and other development studies.

All seminar material will be available to consortium partners and made public on ROADIDEA web site www.roadidea.eu. The pilots, modelling issues and development themes have their own wiki sites for the selected respective IDEA teams to conduct further discussions and innovations. The WACSVOD analysis of the selected ideas can also further be conducted by each responsible WP after the seminar, using the preliminary analysis reports in the TOP innovations web site.

All ideas that were presented in the seminar are also stored in so called Basket Wikis where they can be further discussed by the project members as well as the outside world. To facilitate outside world to join innovation work a site for presenting new ideas is added to the extranet which will complement all the innovation seminar material made public in extranet.

The lessons learned from the first seminar and the results of piloting are further brought to discussion in the second seminar. The results of the second innovation seminar will include a summary and the selection of final ideas for new user services are presented. Both seminars' results as documented in respective deliverables will include all presentations, posters and other seminar material.

Reference

Leviäkangas, Pekka & Saarikivi, Pirkko & Keskinen, Auli: *Stimulating Radical Innovations for Road User Services – The ROADIDEA Approach*, in ITS America 15th World Congress on ITS (Intelligent Transport Systems), 16-20 Oct 2008, NY

Annex 1 List of Innovation Areas and Groups

The list of innovation areas and guidance to work were discussed by the Technical Committee members in April 2008 meeting. The areas and challenges were studied (see table below - described in D5.1) and the Three Preliminary Ideas were jointly evaluated by the TCC by using the same method as was meant to be used in the seminar: giving "hearts" to preferred ideas (here referred to as points). The results came out as four preliminary grouping on ideas as the starting point for the seminar innovation groups as follows.

Results of the Survey on Innovation Areas in the TCC meeting in Rovaniemi 18.4.2008

Innovation areas, challenges and approaches were discussed and surveyed in the TCC meeting (Deliberative Poll Method) using the Table 7 of D5.1. Evaluation of suggested areas given in D5.1 resulted in the following: (This grouping was used in the seminar on 12-13 May, 2008)

14 points

Weather and traffic accidents forecasting needs free or low-cost data thus forming the most important business challenge. 5 points: Safety-related warnings must be developed by connecting the technological state-of-the-art in new ways. These may be V to V, I to V and roadside. Also P to P (peer to peer) messaging should be considered.

12 points

New technologies are needed to improve efficient moves between transport modes – also consider pre-trip planning using Internet etc.

10 points

In data collection, aggregation and interchange the most important issues are interoperability and interconnectivity needs. 7 points: It is critically important for end-users to get user-friendly services and products. Consider specific needs of elderly, immigrants, handicapped, etc.

7 points

Data and information should be used to eco-efficient use of roads in weather and traffic forecasting. 5 points: Role of service providers in data collection and interchange has to be defined

Different user groups (research, admins, police, safety organization) should collaborate when planning new products and services in weather and traffic forecasting. Consider legislative obstacles. 5 points: Role of service providers in data processing methodologies should be considered.

It is important to make foresight study on emergent technologies that will give quite new solutions. 5 points: visionary products and services should be created (radical innovations).

Apparently climate change will accelerate which in turn will make warning functions increasingly important.

6 points

The dissemination channels for new types of warnings will be designed to reach most effectively the appropriate road users. The dissemination system may be a combination of variable signs, push services for various mobile devices or radio. For pre-trip planning, Internet is useful.

5 points

Different data fusion methods are to be developed. The innovation will include combining several types of data: second-by-second up-to-date floating car data, most recent available point-based data (inductive loops etc.), link-based data measured with fixed stations (camera detectors etc.), point-based road weather data, area-based weather forecasts, incident data etc. together with history data from all the sources.

Group 1 with 25 points Weather and traffic warning systems on route and in route planning

14 points

Weather and traffic accidents forecasting needs free or low-cost data thus forming the most important business challenge. 5 points: Safety-related warnings must be developed by connecting the technological state-of-the-art in new ways. These may be V to V, I to V and roadside. Also P to P (peer to peer) messaging should be considered. For example: Localised warnings for dangerous road stretches due to adverse weather conditions

6 points

The dissemination channels for new types of warnings will be designed to reach most effectively the appropriate road users. The dissemination system may be a combination of variable signs, push services for various mobile devices or radio. For pre-trip planning, travel time and route planning, Internet is useful.

Group 2 with 24 points Emergent technologies and visionary services

12 points

New technologies are needed to improve efficient moves between transport modes – also consider pre-trip planning using Internet etc. For example, public transport planning and passenger information service

7 points

It is important to make foresight study on emergent technologies that will give quite new solutions. 5 points: visionary products and services should be created (radical innovations).

Group 3 with 24 points Actors and user groups collaboration solutions in data acquisition

7 points

Data and information should be used to eco-efficient use of roads in weather and traffic forecasting. 5 points: Role of service providers in data collection and interchange has to be defined

Different user groups (research, administrations, police, safety organization) should collaborate when planning new products and services in weather and traffic forecasting.

Consider legislative obstacles. 5 points: Role of service providers in data processing methodologies should be considered.

Group 4 with 22 points Data collection and fusion solutions for user-friendly interface for services

10 points

In data collection, aggregation and interchange the most important issues are interoperability and interconnectivity needs. 7 points: It is critically important for end-users to get user-friendly services and products. Consider specific needs of elderly, immigrants, handicapped, etc.

5 points

Different data fusion methods are to be developed. The innovation will include combining several types of data: second-by-second up-to-date floating car data, most recent available point-based data (inductive loops etc.), link-based data measured with fixed stations (camera detectors etc.), point-based road weather data, area-based weather forecasts, incident data etc. together with history data from all the sources.

Three Preliminary Ideas in DoW and in D5.1

1. Localised warning system for dangerous road stretches due to weather conditions

The present weather warning services for road users are quite general, often national and too coarse in time and space considering the extent of the weather problem. From the user point of view, this leads to many unnecessary warnings, which may lower the motivation of the road users to follow the advice and change their behaviour accordingly. More localised warnings are needed with new, targeted dissemination channels.

The hazardousness of the road network is first analysed using auxiliary information from sources such as accident, environmental and road structure registers and climatological archives. For the most hazardous points, very high-resolution weather and road condition forecasts are produced, tuning the present models with auxiliary information. The weather hazards in question may vary from the dangerous slipperiness caused by the freezing of the road surface in the north to thick fog formation in Northern Italy and gale winds in Adriatic coast. In fog warning case, the developed new visibility product as well as tendencies of fog development will be crosschecked with the main end users, i.e. the highway management companies.

The dissemination channels for these new types of warnings will be designed to reach most effectively the appropriate road users. The dissemination system may be a combination of many present means such as variable signs, push services for various mobile devices or radio. For pre-trip planning, Internet is useful.

2. Travel time and route planning

Different data fusion methods have been used widely in different kind of transportation applications. For example different neural networks have been used successfully in data fusion for forecasting traffic situation. Previously, the number of data sources that have been fused has been limited (inductive loop data with travel time data or road maintenance data with weather and road condition data) and the applications have

concentrated on either traffic data or road weather data, seldom both. However, the development of the traffic situation is dependent both on prevailing and near-future traffic situation and on weather and road conditions. The effect of the weather is strongest in snowy, icy, foggy or stormy conditions.

The innovation of ROADIDEA is to combine several types of data: second-by-second up-to-date floating car data, most recent available point-based data (inductive loops etc.), link-based data measured with fixed stations (camera detectors etc.), point-based road weather data, area-based weather forecasts, incident data etc. together with history data from all the sources. This data is diverse by the update frequency (from one second to hours), by the age or the freshness of the latest available measurements (from few seconds up to 30 minutes or even more), by the geographic coverage (the penetration etc.), and by the area for which the information is measured or estimated (point-based data, road-link-based data, area-based data). Most of the data will be numerical but for example incident data may be verbal. A data fusion model will be developed.

There will be several user groups for the information produced by the data fusion model created in ROADIDEA. Two probably most important users will be private and public organisations that provide services to road users and road authorities. These services can provide either up-to-date online information or forecasts of the traffic and driving conditions (travel time etc.) that are based on latest measurements or the service can be based on historic data (i.e. routing services etc.) that predict the driving conditions based on past experience. Both private persons and truck companies can be clients for these services. Road authorities need full picture of both traffic situation and weather and driving conditions for both traffic management and road maintenance.

3. Public transport planning and passenger information service

Public transport vehicles, especially busses can generate data second by second about driving events. Electronic ticketing systems will be introduced widely in Europe in the future and these systems are able to store driving and passenger information. Busses and electronic ticketing systems are very useful data sources while analysing public transport system. This pilot will focus on information service development for the passengers and public transport system planning. Web based route guidance systems are already available in several European countries and these systems can be used as data sources mobile information services. Neural network methods are already used for analysing detailed driving data from busses.

In ROADIDEA, project data from many other sources like web, public transport registers, and real time information services for travellers will be merged for use of passenger information system development, public transport planning purposes and infrastructure developing procedures. Data will be gathered from vehicles, electronic ticketing systems, traffic signals, traffic count systems and even from video processing systems. All this versatile data will be merged using data fusion methods and the generated information will be made available for the public and private service providers. Weather information and forecasts are also valuable information for travellers while they consider the transport mode alternatives.

Table: Innovation Areas, Approaches and Challenges

Innovation Areas	Challenges & Approaches					
	New technologies	Interoperability	Products and Services	Business Challenge	Equality Challenge	Sustainability Challenge
Data collection, aggregation and interchange	Are there new technologies to be applied?	Ensuring data acquisition & inter-connectivity	Availability, anticipated uses	What new niches might arise?	Observe young and old, handicapped, men and women	No products and services shall add to climate change! Recycling?
Data processing methodologies	Who, where and when; timing	Collaboration of service providers	Role of service providers	What new niches might arise?	Language problems must be considered	Will there be ICT experts in the future to maintain the services?
Safety: Warnings: c to c c to i roadside	Who, where and when; timing	Critical issue – if does not exist should be innovated	Are safety issues taken into account sufficiently already? Collaboration with safety organisations	Observe the state-of-the-art, connect technology products in new ways	If visual or audio displays used, observe equality needs, personal position data problematic	Use of visual and audio alarms dependent on electricity – use of renewable energies important
Forecasting weather, traffic, accidents	Do pursue automation!	Important prerequisite; notice personal data security issues in personal position data processing	Different user groups: research, administrations, police, safety organisations	Service providers need free or low-cost data	Driving cultures vary even inside EU	Data and information could be used for efficient use of roads
Logistics	Controlling mobile goods and people	Collaboration of service providers and users	Available technologies might be used differently	New logistics services may arise	Not relevant	It's necessary to streamline actions!
Transport modes and cross-overs	How to improve moves between transport modes in real-time?	Collaboration of service providers is critical	Totally new insights needed here!	Totally new insights needed here!	Take into account different needs of elderly and other groups	Try to support land transport by rail
Legislation issues	Will there be obstacles on the way when applying new technologies?	Is it possible to ensure interoperability without new laws?	EU legislation may have the answer, or then again not!	Is it possible to do business within the existing legislative framework?	Take into account different needs of elderly and others	National legislation should be in line with EU legislation already
Immateralisation i.e. pursue knowledge-intensive services	Monitor information technology advancements!	Services should interoperate fully automatically	"Products must abhor paper" – i.e. move bits not paper or disposables!	New approaches are desperately needed here	ICT is still new to many immigrants – do they get necessary services?	Recycling is a must! Rather move bits not goods or people!
End-users: person cars & transport	Human and social restrictions should be appreciated	Critical for end-users: user-friendly interfaces	User-friendly interfaces, personal data security critical	Pursue low-cost, eco-efficiency	Special needs of the elderly ever increasing	Eco-efficiency wanted!
Foresight visions	Emergent technologies will give new unforeseeable tools	Will remain constantly on the drawing board	Emergent and visionary products and services	Globalisation tilts over to CHINDIA? China+India	Multinational immigration will challenge the visual and audio services	Accelerating climate change – warning functions increasingly important

Annex 2 Summary of Pilots, Modellings and General Issues

Summary of main innovations for pilots, modelling and general

- P1: Pilot 1. CROSS BORDER WEATHER ALERTS - WP6, Jussi Kiuru Destia, Markku Luoto Logica**
- Cross border weather alerts, location-based systems
- P2: Pilot 2. MOBILE PHONES AS SENSORS - WP6, Markku Luoto Logica, Jussi Kiuru Destia**
- Mobile sensor data acquisition
- P3: Pilot 3. MyRoute, Mobile Pocket Guide – WP6, Đurđica Marković Meteo-Info, Antje Parnitzke DLR**
- Personalised combination of routing and route selection driving conditions information from various sources (weather, traffic, ecological and economic and multimodal transport choices, including location info) delivered through mobile phone and internet, “green routing”, “info while planning”
- P4: Pilot 4. MyTravel, TOILET-TOMTOM – WP6, Antje Parnitzke DLR, Đurđica Marković Meteo-Info,**
- Personalised updating information while driving on selected route from various sources (weather, traffic, gasoline stations, shopping centres, etc. including location info) delivered through mobile phones, road signs, audio, text and images, “green driving”, “info while driving”
- P5: Pilot 5. IN-VEHICLE INFORMATION - WP6, Pär Ekström Caran, Jussi Kiuru Destia**
- Invehicle information about speed, road condition and traffic situation
- P6: Pilot 6. EUROADMAP - WP2, WP3, WP4, WP6, Rene Kelpin DLR, Pekka Leviäkangas VTT, Jörg Dubbert Pöyry**
- European road weather databases using sponsor-based business model
- M1: Modelling 1. PULP FRICTION – WP3, WP2, Marjo Hippi FMI, Torbjörn Gustavsson Klimator**
- Friction model: combined with RWIS and weather and maintenance activities

- **EYEAR - Road Eye: friction data collection and transmission (acoustic, optical, invehicle etc.), - WP3, WP2, Jörg Dubbert Pöyry, Marjo Hippi FMI, Torbjörn Gustavsson Klimator**

- M2: Modelling 2. TRAFFIC FORECAST MODELS - WP3, Igor Grabec Amanova, Pär Ekström, Caran**
 - **Traffic forecast models**

- M3: Modelling 3. PORT – WP3, Jörg Dubbert Pöyry**
 - **Port-related traffic modelling**

- G1: General 1. FREEDATA – WP1, Pirkko Saarikivi, Lulu Hyvätti Foreca**
 - **Free geospatial and weather data**

- G2: General 2. RTFM – WP1, Pirkko Saarikivi, Lulu Hyvätti Foreca**
 - **Better and tailored user-interfaces of text, image, audio, considering personal characteristics of users: language, disabilities, age, health, and other personal needs**

- G3: General 3. STAYHOME – WP1, Pirkko Saarikivi, Lulu Hyvätti Foreca**
 - **What are the effects of choosing staying home instead of choosing to travel a certain route?**

WP – main work package

Names: IDEA team members

Annex 3 Top Ideas Of Innovations Groups

List of TOP Ideas of Innovation Groups and WACSVOD

GROUP 1 TOP 5

1. Friction model: combined with RWIS and weather and maintenance activities – **"PULP FRICTION"** – [Pub](#)
2. In-vehicle information: about speed, road conditions and traffic situation combined information from maintenance activities with road weather information – [Waste](#)
3. Free all weather data: free geospatial data, free data platforms **"FREEDATA"**– [Ready](#)
4. Personal filtering: Collect information about users: age, state of health, car type, status, and create intelligent algorithm that will find the interesting data for him/her (e.g. pollution, allergies), compare: eCall, **MyRoute** – [Pub](#)
5. Animals on road: fasten device that can be shot on moose, showing their location (GPS-GALILEO) + central data analysis and delivery – [Waste](#)

WACSVOD ANALYSIS OF THE 4(5) TOP IDEAS (see annex)

	FRICTION MODEL – MONITORING, MODELLING, FORECASTING	IN-VEHICLE INFORMATION	FREE WEATHER DATA	PERSONAL FILTERING	ANIMALS ON ROAD
W Weak Signals	it is complicated subject or object: how to define it simply. We need more definition on friction	handled in group 2	money – somebody wants to have money not to pay	user interfaces should be safe and usable, not cause more accidents	difficult to monitor
A Actors	authorities, researchers, manufacturers, funding sector all together, need of new co-operative activity		data owners and data producers	car manufacturers	device developers
C Col-laborators	data owners		governments	data producers, researchers, car manufacturers	road authorities
S Structures	development of data bases, joint project of the friction model		data bases, data stores	data bases, data communication, co-operative transport sector	monitoring system
V Values	new good information for different purposes, safe and smooth transport services		could be very high	safer driving, especially older people	safer driving
O Obstacles	money and complicated problem		money	too much information inside the car, too much technology in car	difficult to monitor
D Drivers	optimal maintenance operations, safety on the road		free data for different users and value-added service producers	increasing number of aging people, safe driving	eager device developers

GROUP 2 TOP 4

1. Automatic traffic management information system - Wild
2. Smart location finder for personal services – new issues e.g. nearest toilet **"ToiletTOMTOM"**- Pub
3. Social mobility information and contact system - Pub
4. Multimodal routing system adaptive /learning personal traffic, mobile route selection – Pub – see group 1

Others

1. Fellow driver service - Wild
2. Car-to-infrastructure communication - Wild
3. MyMobile travel manager - Wild
4. USA 511 for Europe - Ready
5. Information on eco-efficiency – while planning – while driving - Pub
6. Social equality issues: age, gender, language – Pub

WACSVOD ANALYSIS OF THE FOUR TOP IDEAS

	AUTOMATIC TRAFFIC MANAGEMENT INFO SYSTEM	SMART LOCATION FINDER	SOCIAL MOBILITY INFO CONTACT SYSTEM	MULTIMODAL ROUTING SYSTEM FOR NON-MOTORISED MODES
W Weak Signals	lack of cooperations, size of monolithic databases	competition, technology	technology, climate	safety, vulnerability
A Actors	drivers/customers	drivers/customers, service providers	government, individual drivers, companies	cyclists, pedestrians, government, safety institution, operators, insurance
C Col-laborators	government	users/consumers, map providers, government	community organisation, government, individual drivers, companies (travel plans)	bicycle organisations, educational organisations, government, volunteers
S Structures	sensors, datawarehouse, realtime needs, standards	open database, interface	legislation, taxation	dynamic information , collaboration, communication, micro-climate info database
V Values	realtime targeted information, road safety, accurate prognosis, less energy consumption	less time waste, location visibility, quality of data	lower cost lower environmental costs, social impact	encouragement to non-motorised transport
O Obstacles	lack of sensor / actual for data standards	cooperation from DB owners	privacy /cultural, safety, legal liability	good network data is missing
D Drivers	Drivers/consumers, entrepreneurs	Open data (collaboration, user-driven)	Climate costs idealism	Encouragement of motorcyclists, insurance

GROUP 3 TOP 6

1. Eye from above: traffic information from satellites, unmanned planes, helicopters, balloons, aircrafts; meteoinfo from satellites – Wild
2. Urban data fusion for a better traffic information, Traffic forecast models – Pub,
3. Mobile sensor data acquisition: Mobile phones as sensors – Ready
4. Cross border weather alerts – Ready – Weather and traffic information through mobile phones
5. Mapping of risky road stretches - Waste
6. European databases – Pub – see group 4

Others: eCall and airport weather observations – Waste

WACSVOD – General problems

Ready-to-go ideas are for sure, no weak signals, but work is needed with information providers

Scattered data problematic -> in future traffic information is independent on administrations

Value: legal obstacles

Datawars?

Drivers: demands are growing, more satellites in the future?

Obstacles: creating models becomes unfeasible

GROUP 4 TOP 4

1. Weather wikipedia – weatherwiki for roadweather; road weather data - Waste
2. **EUROADMAP** – Northern Europe Module (NEM) for mapping road weather conditions online – Wild (NEM Pub) – (Conceptual)– see group 3
3. Mobile Pocketguide with position services, all traffic modes – Ready, see group 2
4. **EYEAR**: Road Eye: friction data collection and transmission (acoustic, optical, invehicle etc.) – Ready

Others

5. Everything that moves gives location information – passive transmission of data – Wild
6. Satellite data and traffic structures – Pub
7. Port-related traffic modelling – Ready
8. Dynamic driving trip services – Waste
9. Multipurpose use of GPS-based road tolling – Ready
10. Data collection from electronic ticketing system – Ready
11. Satellitedata; airport weather observations – see group 3 – Ready, Pub
12. User interface development – consider social issues: age, language, ecology, equality **"RTFM"** – Pub, Wild

WACSVOD ANALYSIS OF THE 4 TOP IDEAS

	EYEAR	MOBILE POCKET GUIDE	EUROADMAP	WEATHER WIKI
W Weak Signals	variety of data, different methods	lack of some data, variety of sources	availability of data, access to data cost?	variability in data quality? Stakeholders?
A Actors	manufacturers of equipments, road authorities, transport operators	meteorological institutes, authorities, operators (transport, tele) service providers, pedestrians, cyclists, passengers, event makers	people and companies and road authorities and meteorologists with interest, national weather services, private weather companies	we don't know the actors: end-users, manufacturers, authorities, ?
C Collabo- rators	sensors in vehicles, vehicle info	same without users	as above plus various others	meteorological institute
S Struc- tures	safety for road users	observation network, internet, mobiles, telenetwork	internet based road weather map (e.g. Google map), computer networking, weather service – road authorities	www
V Values	lack of validation	optimize travelling time etc. pre-planning of trips, increase safety (slippery), healthy savings, environment (traffic mode)	safety, environment, cost for traveller, traveller information, info for freight transport	social wellbeing, efficient use of existing information
O Obs- tacles	government	lack of data, willingness to pay? price, business model	competition between actors, open interfaces	false reality?
D Drivers	variety of data, different methods	city councils, ageing population, climate change, environment issues		peoples willingness to help: cheap dynamic development. NB: data to be delivered in graphical form only! i.e. not digital - > quality issue

Meaning of the WACSVOD Analysis - issues to be discussed about each idea

- W=Weak Signals - what are those happenings that might disrupt or change the development path of the idea in the future?
- A= Actors - Who are the main actors of realising the idea?
- C= Collaborators - Who are the main collaborators in realising the idea?
- S= Structures - What are the main (infra)structures needed for the idea?
- V= Values - What is the value (monetary/operational/etc.)or added-value for beneficiaries of the idea?
- O=Obstacles - What are the main obstacles hindering the realisation of the idea?
- D= Drivers - What are the main drivers promoting the realisation of the idea?

Annex 4 All Ideas Basketwise

BASKET - Ready-to-go

Ready-to-go basket – ideas that are judged to be ready for implementation, or at least mature enough to be further developed by WPs, clear and realisable ideas

1. Free all weather data: free geospatial data, free data platforms **"FREEDATA"**–
2. USA 511 for Europe
3. Mobile sensor data acquisition: Mobile phones as sensors
4. Mobile Pocketguide with position services – all traffic modes
5. **EYEAR**: Road Eye: friction data collection and transmission (acoustic, optical, invehicle etc.)
6. Port-related traffic modelling
7. Multipurpose use of GPS-based road tolling
8. Data collection from electronic ticketing system
9. Cross border weather alerts – Weather and traffic information through mobile phones

Ideas Presented

- Road climatology – thermal mapping
- Friction measurements compared to prevailing weather situations
- Free all weather data – free geospatial data
- Product: box to collate data in vehicle weather measurement, crash diagnosis as a source of transmitted real time data
- Dense network of roadside changing signs, showing current problems nearby (weather, accidents) like develop an intelligent traffic sign – operating quasiautomatically
- With weather data, traffic data, warnings –display as a sign
- Pedestrian, cyclist, m-cyclist all have strong weather dependent choices to make – often pre-trip advice – on route adjustments, advice all based on microweather data
- In-vehicle information about speed, road conditions, and traffic situation
- Inclusion of traffic load & weather data into route planning
- Free our geo-data:
 - Good
 - Trend is right: work done in EU directives, many open services e.g. penstreetmap.com, Galileo, some signal free (perhaps from 2010 on), more

data coming from new sources; more competition-> prices go down or disappear

o Problems

Personal data security sometimes a barrier to get data

Private companies do not have to give their data

No integrated data sources, e.g. road weather data

Most problems in map and weather data

Pricing rules may differ per country

o Solutions

Data providers and business and service providers must be separated -> no conflict of interests

If everything is for free, only way to have costs covered are: a) taxmoney (not much), b) advertisements (only big and attractive services survive), c) other? New business models!

- Mobile sensors for data acquisition in efficient use – weather and traffic: mobile phones as sensors – peer to peer to infrastructure data acquisition: efficient use of cell probe (mobile networks) in traffic flow; public sector is buying data, not investing in infrastructure
- Weather observations from airport combine with satellite info; lots of important parameters are manually measured 48 times a day. Same standard over the world and it's free! Visibility, fog, etc. weather condition, temperature, dew point
- Mobile Pocket Guide: utilisation of existing data for positional services of pedestrians and cyclists (mobile) - > positioned extra services for mobile information guide
- Weather: slippery, strong wind, heavy rain etc. environment fine particles, road works, incidents, warnings, commercial services, restaurants, shops, events, public transport: stops, lines, arrivals
- EYEAR: friction data collection and transmission: use of optical friction sensors in route buses and trucks to get information of the slipperiness on highways. Also information from brakes
- Mapping of acoustic emission data to estimate friction and slipperiness
- Permafrost road network – data fusion, models, prediction of bearing capacity -> paper industry mining
- Friction data collection and transmission: many methods to be tested simultaneously – acoustic, optical, in-vehicle data, wheel, Pilot: vehicles with a lot of sensors some test have already been done, varying road conditions required.
- Port-related traffic modelling: modelling the intermodal traffic situation for ports - > depicting the interrelationship between the road traffic situation and ship arrivals online and for planning purposes
- Multipurpose use of GPS-based road tolling: use of truck-tolling systems for other purposes like FCD collection, road weather detection, emergency calls

- Weather observations with satellite: use weather observation from airports, lot of important parameters that can be used for road use. The observations are made manually two times every hour. Same standard all over the world, combine with satellite info.

BASKET - Pub

Pub basket – ideas that need further free brainstorming by various combinations of expertise, i.e. self-organising teams in a pub, radical ideas.

1. Friction model: combined with RWIS and weather and maintenance activities – **“PULP FRICTION”**
2. Personal filtering: Collect information about users: age, state of health, car type, status, and create intelligent algorithm that will find the interesting data for him/her (e.g. pollution, allergies), compare: eCall, **MyRoute**
3. Social equality issues: age, gender, language
4. Information on eco-efficiency – while planning – while driving
5. Smart location finder for personal services – new issues e.g. nearest toilet **“ToiletTOMTOM”**
6. Social mobility information and contact system
7. Multimodal routing system adaptive /learning personal traffic, mobile route selection
8. Urban data fusion for a better traffic information, Traffic forecast models
9. European databases
10. Satellite data and traffic structures
11. Satellitedata; airport weather observations – see group 3 – Ready, Pub

Ideas Presented

- PULP FRICTION
- **Friction Model;** prevailing situation, and forecast, is friction and slippery same thing?
Factors leading to the slippery condition: weather, surface and the structure below it, traffic, maintenance activities;

Local points or all road stretches

Friction measurements: optical, mechanical (brakes, sliding), acoustic, remote sensing

What is best way to measure friction, how to get observations?

The goal: less traffic accidents, localised maintenance activities, warnings, prevailing friction and friction forecasts, a lot of work to be done

Poor friction is dangerous for cars in winter, in summer potholes and other stuff can be dangerous for motorcyclists

Problems: monitoring of the value of friction, taking into account maintenance activities

- Estimation of friction and slipperiness from sounds emitted tires – acoustic emission analysis; Combine with RWIS and weather and maintenance activities
- Automatic friction detection using can-bus informations of heavy duty vehicles; Combine info from maintenance activities with road weather info
- Cars observing friction and road weather when moving
- Automatic speed adjustment from road weather – friction and conditions
- On-line mobile measurements from vehicle will be integrated to a nationwide service -> analysis available also on-line
- Customisation and adaptation of general info: there is value in a specific vehicle collecting data which allows modification of more widely available data that may be broadcast on radio: this is for example to adjust vehicle warnings etc. to the preferences of the driver -> routing etc.
- Current warnings on my daily route will be shown on my refrigerator's door
- Personal filtering: we have too much data: collect more about users: age, state of health, car type, status. Create intelligent algorithm that will find the interesting data for him/her (pollutions, allergies)
- eCall: information to be used in route planning
- Product interfaces to Galileo Centres
- Weather data needs consolidation and local disaggregation – services to offer
- Current warnings on my daily route will be shown on my refrigerator's door
- Personal filtering: we have too much data: collect more about users: age, state of health, car type, status. Create intelligent algorithm that will find the interesting data for him/her (pollutions, allergies)
- eCall: information to be used in route planning
- Product interfaces to Galileo Centres
- Weather data needs consolidation and local disaggregation – services to offer
- **Smart location finder** (personal services)
Facility /service/location finder

Multifunctional service with several service options. Etc. toilet, restaurant, weather, road conditions, traffic jams, operation funded by advertisers with maybe governments

Smart petrol station finder system: GPS

Enablers: positive taxation treatments, positive legislation (liability, etc), NGOs; lobby groups, community: idealism

Smart toilette finder

Parking-lot information system for truck drivers (along highways especially): process: limited parking lots for trucks, truck drivers are obliged to rest regularly, if no parking lot is available they are forced to drive longer than allowed -> penalties may apply -> safety risk .Idea: information system with pre-booking opportunity

Supporting automatic driving and guidance on public roads: PT-vehicles (busses) could be guided through traffic. So far the problems are mainly of legal nature, automatic driving is already possible, however, automatic driving on public roads in running traffic requires innovative solutions that fulfil legal requirements.

Driving condition monitoring system & warning; driving style monitor

Dissolving the need for traffic management centre by co-operative systems (C2C, C2I): the emergence of C2C and C2I technologies may lead to a decentralization and automation of traffic management. Maybe in future there will be no need any more for having people and technology in one control room. Traffic managers will be mobile! This is based on: more powerful computer and communications links, ubiquitous information, self-regulating C2C traffic

- **Social mobility info/contact system / Social mobility**

Fellow driver service – intelligent assistance & support; history of the area; he or she is singing with you; tell stories

Communication means versus driver's attention; traffic systems inform users about its state; infrastructure to car communication – engine starts

Person-to-person travel info system; need transport from metro to centre, etc. linked to GPS; transportation face book – social driving

Carpool planning service, route pooling

Website for giving info about oncoming trips -> maybe to be combined; to be organised by organisation or similar, driven by incentives

Known vs. unknown people: has to be easy to use for driver (equipped car/driver necessary); user view: as a public transport info system; connected to public transportation (user view); problems: involving drivers providing free cap -> incentives (taxes, petrol price share)

- **My Mobile travel manager**

Multimodal approach to public transit; Journey assistant (planning route, tracking & guiding, monitoring changes, alerts). Where I am (already knows), where do I go (arriving place), recommend the best possible rout! When chosen: current weather conditions, expected weather conditions, current road conditions, expected road conditions, other info. Red hot – flashing – something significant happened, recommendation

Adaptive /learning /personal traffic /travel information: traffic information automatically to a mobile utilizing behaviour learning: Automatic traffic information mobile application for commuters utilizing behaviour learning: application in a mobile device track users every-day-life (home-work-shopping-hobbies): personal behaviour (place, times, dates) tracking is input to a machine learning software: learning software can forecast information needs (for daily trip) and fetch/push e.g. traffic information alerts/warnings to the personal mobile device: user does not need to input or search information: can also utilize calendar information from mobile device.

Real time traffic and weather information on board (satellite navigator), interactive approach: problem: if we make private car use too easy we may discourage use of public transport!

Automatic road condition reporter: automatic information to road operators of problems on the road.

- **Multimodal routing system**

Multimodal info system for pedestrians, cyclists, public transit (non-motorised modes)

Sophisticated routing and route information system for cyclists: Problem: no perfect info system for cycling routes available -> cycle lanes are no part of route network (missing attributes), IDEA: detection and attributing lanes; mobile too: including info on current weather conditions; safety issues; multimodal. Game: participate and get tax reductions etc. -> ecodriving

Traffic nodes: have there been studies on road nodes?: map of Europe, services applications

Cycling routing system: Appropriate data base is required: road network, cycling network, pedestrians network, database mode has to be developed (facilitating adequate attributing) ; info to be included: availability/position, surface quality, maintenance status (snow removal etc.) gradients, linkages to public transport

Infrastructure & telematics: multimodal journey planner with comparison of costs, time, emissions

Multimodal on-line GIS: see openstreetmap.org -> personal level

Trip weather forecast (web), for bicyclists, motorcyclists, skiers, walkers for pre-trip planning (W pre-trip planning will be better with TWF; A weather company, route planner company; C DEMIS bicycle route planner, KNMI rainfall radar forecast; S web server; V better trip decision; O time is not used in planning; D just do it, easy to implement)

Weather and traffic: get the info to the driver always in time through his cell phone/GPS; How? Cell phones enable to locate you very precisely, voice messages (SMS messages when the driver starts a car: he has to define the final

destination and along the road he is informed about the next half an hour of driving conditions - Done locally?

- We need to have better weather and slipperiness information inside the car. Today we have good info of the traffic situation but this is not in line with the weather info. By increasing the quality of the weather info the total info will help in preventing queues and traffic jams.
- Traffic forecast: technology company and mobile industry interest. Needs real time traffic data flow with coverage; historical model with time series GRP
- Predict car flow, don't observe car flow, know it before it happens, e.g. if using navigator also send the route to a central and other cars, use information for active car control
- Cars report: the intelligent sensors built in to the cars report the average speed and the traffic conditions; data are sent to a database and sent to other cars so driver/computer can plan properly
- Urban data fusion for a better traffic database: collection of traffic data from different sources, especially in an urban context, especially online traffic data, for example: taxi-FCD, motorway traffic control database, traffic-adaptive signal control, traffic information centre. Possibly merging with weather data: mobile weather FCD, stationary traffic
- Use the car flow prediction for trajectory planning
- Cross border weather alerts (road section)
- Building a special floating rescue system on the basis of an accident forecasting model: using traffic and weather data for the flexible command of the ambulance vehicles, a) forecasting of the spots of accidents over the road network, b) forecasting of the probable time interval of accidents, c) method to command the ambulance cars in advance on the basis of forecast accident information.
- Traffic data form airborne and space sources
- Combination of the automatic rescue system (eSafety project) with the traffic regulation and information centres; interaction of the automatic rescue call. System proposed in the eSafety project into the system of traffic regulation and information centres.
- RTFM: Better and tailored user-interfaces of text, image, audio, considering personal characteristics of users: language, disabilities, age, health, and other personal needs
- Satellite time series: using single pixel information to combine with ground observation to learn fog characteristics. This could later be distributed over the landscape -> which info? More specific!
- Traffic structure: using congestion characteristics to evaluate road conditions

- Environmental and traffic data -> plenty of items but no services?
- Proximity warning services; GPS plus microwave enables warnings

BASKET - Wild

Wild basket – ideas that cannot be seen as to be applied straight on or need more research: technology is not ready or facts are missing, debate is on, etc.

1. Fellow driver service
2. Car-to-infrastructure communication
3. MyMobile travel manager
4. Automatic traffic management information system
5. Eye from above: traffic information from satellites, unmanned planes, helicopters, balloons, aircrafts; meteoinfo from satellites
6. **EUROADMAP** – Northern Europe Module (NEM) for mapping road weather conditions online – Wild (NEM Pub) – (Conceptual)
7. Everything that moves gives location information – passive transmission of data
8. User interface development – consider social issues: age, language, ecology, equality “**RTFM**” – Pub, Wild

Ideas Presented

- Satellite photos for traffic measurement. Not enough details to count the number of the cars but we can see car clouds: size, movement
- Use road study sensors to both collect and transmit information
- Detection of collapsed road structures
- Location blind corner approach warning – weather & location dependent (2-way)
- Animals on road: easy device developed that can be shot on moose, showing their location (GPS/Galileo) + central data analysis and delivery
- No more friction! New vehicles “flying” without ground contact!
- Free data platforms! Remove data pricing constraints
- We must give valuable information to the driver -> how human brains works?
- Intelligent car can and must collect information about driver and environment, and give forecast. There are objective and subjective variables.
- Too many data, we must compress -> patterns
- Based upon patterns we could proceed to an optimal control of driver actions and to increased safety

- **Automatic traffic management information system**

Traffic transport management & forecast (weather /events)

Adjust traffic capacity in real time – automatically based on traffic

Variable message signs

Abolishment of physical road signs – replacement by electronic means:

Road signs of physical nature will gradually be replaced by electronic means; the road user receives information via radio and all kinds of electronic gadgets

“CAR BUS” – cars are auto-guided in traffic jams to increase throughput; cars will be “forced” together; infrastructure will adjust.

- Weather-dependent urban traffic situation
- Modelling the behaviour of road users on public transport under adverse weather conditions & prognosis -> forecasting the changes in the traffic situation (in rain, in snowfall etc.)
- Traffic demand forecast patterns including weather & events
- Intelligent traffic data warehouse
- Theoretical base: data mining, historical data
- Plan repair activities based on projected data
- Road infrastructure capacity planning: identify possible bottlenecks ahead of time; simulate impact of road works
- Fellow driver service
- Car-infrastructure communication
- Eye from above: 1) satellite, GS bad resolution, CP low frequency over same point, 2) aircrafts, no permanent actions, in future unmanned or UL aircraft, 3) cameras on road infrastructure, not dependent on weather or day/night, only local info. All aircrafts are equipped with camera under them -> obligatory to send pictures to central processing unit; Legal obstacles, costs and expenses: airplanes investment to high, remote controlled aircrafts 500e/h pilot not roadidea; Satellite – not feasible
- Systematic assessment of the local traffic situation using aerial photos taken by small pilot less exploratory aircraft: a) collecting data from accident scene by photogrammetric methods on the basis of aerial photos, b) survey of the extent of disturbance caused by local weather condition, c) survey of the extent of disturbance caused by an accident, d) need to develop a special method to evaluate the traffic and microclimatic situation from the aerial photos, e) developing mathematical methods to calculate the necessary exact traffic

parameters from the aerial photos similar to the parameters came from point-based and link-based data. (density of traffic, speed of different vehicles, volume of traffic, level of service etc.). Other data: gasoline stations/maintenance, restaurants, toilets, rest parkings

- Locate all kind of traffic and environmental changes: put transmitters on everything, pedestrians, bicyclists, cars etc. then it is possible to warn car drivers for pedestrians, cycles etc. then use car to car communication to forward it. Everything that moves gives location info passive transmission of data
- EUROADMAP: Universal Europe-wide road weather service: north-European road weather service as part of it.: mapping road weather conditions for northern Europe online; road section-based online display
- Weather monitoring on European road map, radars, observations, combined weather radar and synoptic weather observations on European road map, covering the whole Europe, the driver can zoom in the area where he is location – application of the lhs

BASKET - Waste

Waste basket – ideas that have been discarded during the sessions for whatever reason (possibly to be studied later), i.e. left- overs, controversial ones.

1. In-vehicle information: about speed, road conditions and traffic situation combined information from maintenance activities with road weather information
2. Animals on road: fasten device that can be shot on moose, showing their location (GPS-GALILEO) + central data analysis and delivery
3. Mapping of risky road stretches
4. Weather wikipedia – weatherwiki for roadweather; road weather data
5. Dynamic driving trip services
6. eCall and airport weather observations

Ideas Presented

- Cars will be equipped with warning light (e.g. in the rear window) if car observers or receives a message of dangerous condition or accident
- Use Bayesian method to dynamically update location specific data, and to dynamically update location specific data fusion on a route service
- Multiple services info to public transport cars
- Why contact friction data? A key issue is the human factor to use this information
- Friction plus weather data is valuable for pre-planning, especially for heavy vehicles, pedestrians, cycles and motorcycles.
- Dynamic on-route information is equally valuable

- In-vehicle data collection can be improved by between vehicle information exchanges plus external info
- Using external information to directly control vehicle has attractions but major human factor issues are to be addressed
- Mapping of risky road stretches: position and velocity of vehicles are recorded; the data could be used to detect parts of the road network or situation, where the driver has braked hard. At these locations, the road might have to be rebuilt to increase safety.
- ECall
- Airport weather observations
- Meteo information, satellite data & images: (primary images of high resolution? EUMETSAT), price & will to sell
- Weather data – actual get the local authorities involved, e.g. police, fire dept, town halls, why: they are there in every moment, it is in their best interest, it will not cost too much, no extra labour costs. How? They will create a schedule of regular info on weather sent every 30 minutes to a central database, severe weather: immediate info to the database
- Develop a non-parametric model of traffic & weather phenomenon based upon self-organised optimal information storage
- Residual road salt detection? Development of reliable measuring system, data collection, optimization of salt spreading
- Data collection from electronic ticketing system (time, place, passengers)
- Route searches to transport planning: collect data from searchers done with route planner (PT) and use the data to describe public transport flows. This could be used for route and the table planning, e.g. to find out the connection where the service level is lower than targeted in terms of travelling time, number of transports
- Weather wikipedia: good coverage and real-time, whoever wants to connect his weather data to the service could do so, what kind of platform? Who is hosting the service, technological issues? Dynamic during trip services (meteoalarm, Baltic roads)

Ideas in All Baskets

- Adaptive learning personal traffic (mobile route selection)
- Immigration effect!
- Car running on compressed air or solar energy: etc, renewable energy sources for traffic.
- Assessing environmental impact of all traffic participants -> privacy issue -> tracking might be necessary
- Stay home! What are the effects of choosing staying home instead of choosing to travel a certain route?
- Note: ecological and equality questions: gender and age
- Climate change: information (real-time) on eco-footprint as you drive, as you plan
- Environmental data should influence traffic management decisions
- Collect the emission information from vehicles and use it to improve environmental efficiency of traffic
- Sponsored services -> viable business model. Data platforms European wide data platform for all insurance companies
- European data library for SPs, create European-wide data library where service providers can get basic data free of charge
- European road & rail database: infrastructure, characteristics, signage, etc.
- Public data pricing issues cleared

Annex 5 Results of the Seminar Survey

From 36 participants 18 (50%) answered to the questionnaire before 13 June 2008. The results are presented in numbers and averages, qualifications, votes and text.

First 6 questions are for all participants. Additional questions 7 to 13 are for the 8 rapporteurs:

1. What is your opinion of the overall seminar method? (division of votes)

- (-) **Method was difficult**
- (6) **Method could have been more simple**
- (12) **Method was good**
- () other, what?

Question 1 Comments:

- Some presentation sections were lengthy.
- Perhaps it was not clear to everyone what tasks should have been carried out during the different sessions and what were the final results expected from each session, also because there were some changes in respect to the scheduled program. There was a little bit of confusion on the use of the post-its (many comments or explanations were written on the same post-its of the idea, instead of the sketchbook post-its, the ideas were so many and so there it was non easy to understand the main issues - especially for the ideas of the other groups). Perhaps some further explanation/summary of what to do and how to do it could be useful, at the beginning of the different session in each subgroup (1-2-3-4).

2. Rate with 1 to 5 (1 bad, 5 excellent) each of the separate work processes:

(averages)

- (3.8) **Brainstorming**
- (3.6) **Grouping of ideas**
- (3.3) **Basketing**
- (3.2) **Walking seminar**
- (2.8) **Pub seminar**

Question 2 Comments:

- All in all method was ok, but with respect to the processes "grouping" and "basketing" more time would have been useful - if not necessary - to discuss the brainstorming outcomes more adequately.
- Wandering around to study other group results was difficult due to time restrictions (was still busy with tasks related to own group).
- The definition of "weak signal" was ambiguous, as it could be interpreted either in a positive or a negative way. Positive: there is already a first subtle indication that an idea might come up in the near future. Negative: happening that might disrupt the development of the idea.
- The intention of the pub seminar was fairly vague.
- First session on day 2 (introductory presentation on illusions) was too long, objective was not clear.
- I give pub seminar = 1, people were too tired by then.

3. Results - answer yes or no to the following claims:

- **My own ideas were appreciated:** - 18 * yes
- **I think new ideas came up:** - 12* yes, 6* no
- **I think there were radical ideas:** - 2*(not so many), 2*yes/no, 14*no
- **The results came to my expectations:** - 12*yes, 5*no, yes/no

Question 3 Comments:

- I've seen my ideas but not basketed in the basket as I've expected
- Some of my ideas were appreciated. I think it was hard to know how my ideas were received by the readers, because the texts were short and I was not always there to explain them.
- There were many similar ideas in different groups and it was difficult to group them in a main idea with different aspects to deal with. Time was too short to discuss some aspects in more detail.
- I think the results came to my expectations in the sense that we did find in my opinion some new ideas but we did not find the radical ideas I was hoping for. This is always the dilemma, when you apply structured process to achieve innovation, which is not at all what usually come out of structured processes!
- Most ideas that were discussed during the seminar tended to be rather "realistic" instead of being "futuristic". However, thinking radically might need more time to evolve.
- I expected more well-defined selections of developed pilots / service concepts because of the efficient follow-on working of WP6 (Creation of pilot services) and WP 8 (Validation and evaluation).

4. Ideas (consult the list of TOP ideas attached)

- The most realisable idea was:

PULP FRICTION 3 votes

Mobile sensor data acquisition 2 votes

ToiletTOMTOM, almost there already, 2 votes

EUROADMAP 2 votes

My Travel – green routing, Multimodal en-route routing and related services

Position Services. I think that many people are willing to contribute to this common map. The hardware and most of the software is already there. It is just a question about additional programming and to make people aware of that the system exists. I think we will see more services of the 'Wikipedia'-kind in the future. This will only be one of them. Maybe we could cooperate with Wikipedia or Google earth...

Cross-border weather alerts

Personal filtering: Collect information about users: age, state of health, car type, status, and create intelligent algorithm that will find the interesting data for him/her (e.g. pollution, allergies), compare: eCall, MyRoute

Eye from above: traffic information from satellites, unmanned planes, helicopters, balloons, aircrafts; meteoinfo from satellites

EYEAR

Mobile Pocket Guide with position services

""""""none""""""

- The most radical idea was:

Eye from above 3 votes: traffic information from satellites, unmanned planes, helicopters, balloons, aircrafts; meteoinfo from satellites

Personal filtering, My Route 2 votes

Everything that moves gives location information (people or animals), 2 votes

EYE FROM ABOVE 2 votes

The social mobility system 2 votes. Personally I think this system has the most potential of all the ideas. Of course it will depend on social behaviour of the drivers. I really think this kind of system could change the way people travel to the better, and reduce the pollution of cities.

personal filtering

EYEAR

STAY HOME

Eco-efficiency: Eco-efficiency was not the most radical in terms of technology but in terms of potential impacts and raising awareness.

My Travel, TOILET-TOMTOM

EUROADMAP

PULP FRICTION

Automatic Traffic Management System

Question 4 Comments:

- There were no radical ideas.
- As a whole there were quite few really radical ideas.

5. Did you study the seminar material sent to you in advance?

- 18*yes
-

Question 5 Comments:

- I would have needed more explanation on weak signals and grouping.

6. Overall success of the seminar - rate with 1 to 5 (1 bad, 5 good)

3,3

Additional questions 7 to 13 for the 8 rapporteurs, rate with 1 to 5:

7. Success in work

(3.7) **How did your session succeed in its tasks?**

(3) **Were the tasks and work processes feasible and proper?**

(3) **As a rapporteur, did the results come to your expectations?**

(2.7) **Was the work of rapporteur easy?** (1 easy, 5 difficult)

8. What was the best part of the innovation process?

1) brainstorming/second round, 2) brainstorming, 3) basketing

Question 8 Comments:

- I think the chain of tasks was excellent – first brainstorming then evaluating and then further development and basketing

9. What is your opinion on the group size?

1) too big, 2) adequate for brainstorming, although grouping would have been easier with 2 or 3 persons only, 3) big

Question 9 Comments:

- Group sizes were ok. Perhaps 3 person groups could also be considered.

10. Do you think that rapporteurs are necessary to have in such a work?

- Rapporteurs are necessary. Smaller groups did not have rapporteurs and their comments were not necessarily rightly reported by the main group rapporteur.
- Yes (absolutely necessary).
- Rapporteurs are necessary.

11. Do you think that moderators/guides are needed for every group?

- There could have been guides in every group, at least in the beginning.
- To my perception it appeared so that in practice the rapporteur automatically ended up sort of operating as the sub-moderator of a sub-group. I mean that he/she was not just a bystander & observer & recorder of the minutes but also partly felt obligation of being responsible for keeping things moving to some direction - and hopefully to the right one. So in that sense there would appear to be two choices: a) have it the way it was - rapporteurs "chairing" and the moderators hovering around and applying control occasionally when needed or b) have a "professional" moderator and a rapporteur=secretary at each table. To me the latter is prone to being more structured but potentially also less innovative
- There should be a rapporteur and a guide – at least every time the tasks changes.

12. What improvements would you suggest for the next innovation seminar in 2009?

- Somewhat more simple procedures, more brainstorming, more guidance on the spot
- Extension of seminar over three days (1/2 day, full day, 1/2 day) might give some more time to "think about" or even "sleep on it"; additionally, as the number of participants is rather big- two joint evenings might help to become acquainted to each other; of course, the following structure is only a rough proposal:

First day:

- start in the afternoon (maybe 1 p.m.) with brainstorming seminar (tasks 1 to 4), 4 hours with coffee break in between, followed by walking seminar (task 8) before dinner

Second day:

- summary of outcomes within each group to resume the discussion, followed by selection (tasks 5 and 6) (1,5 h)
- individual study of other group results (1,5 h)
- lunch break
- in-depth discussion of selected ideas (task 9) (2 h)
- basketing (task 10) (1 h)

- short break
- pub seminar (clear instructions necessary), followed or in conjunction with dinner (open end)
- Third day:
 - task 12 (moderators only) (1h)
 - plenary: summary of outcome (1,5 h)
 - task 13 (1,5 h)

- I guess the initial approach then will be from a rather different angle anyway, i.e. we are not starting from scratch again - hopefully not even exactly from where we left off in Prague. But on a more general level: Firstly I want to say that I appreciate the work you are doing - it is certainly not the easiest and simplest of tasks to try to make (or facilitate) engineers to innovate right there and then, on the spot. Secondly, a compact use of time would always be appreciated by most - but, again, that might limit the space for real innovation.

- There would appear to be two choices: a) have it the way it was - rapporteurs "chairing" and the moderators hovering around and applying control occasionally when needed or b) have a "professional" moderator and a rapporteur=secretary at each table. To me the latter is prone to being more structured but potentially also less innovative.

13. Other comments

- I think the seminar well arranged. The idea with the grouping of ideas was appropriate and the seminar made people creative, though....
- We should have smaller separate rooms for the sub groups for discussions. Sometimes it was hard to hear each others.
- We should have had more time for the last exercise (WACSVOD-analysis) where we sorted the groups of ideas into the baskets.
- This seminar should have been in the beginning of RoadIdea project. Before the participants had decided what to work with and before the work in the WP's was distributed.
- It was good that the groups were defined in advance. Some people seemed to have problems to write briefly and clearly to the post-its and it was difficult sometimes to understand what was meant.
- Honest constructive reporting on one small detail, for your information: Some (not all) participants that I talked to afterwards did not totally enjoy the presentation on the morning of the 2nd day (the one with the eye-deceptions and all), they said they felt it was slightly patronising and also thought it even to some extent underestimated the intelligence of the audience. On the other hand, for all I know, they might have seen most of that material or something very similar elsewhere and therefore it maybe did not have the desired effect on them in stimulating them for innovation - but instead they felt it being a waste of their time. So that presentation could maybe be a little more concise and to-the-point. At least for some groups, and certainly for engineers, that many members of that particular group were. :)
- For me the success of the seminar is tied to two goals:
 1. finding the pilots which are radical enough so that we can claim that they are innovative, useful and feasible during the runtime of the project.
 2. being future-related and identifying new radical and wild road-related applications for the future in the sense of a visionary timeline and thus a roadmap.

Comment to 1:

Under this topic we struggle with the following challenges: We need to know the state-of-the-art of road-related ITS applications and the status of ongoing top-level research in research institutes and in the industry. We also need to know who our users are who might require improvements. Don't we need a kind of problem analysis which identifies problems to be resolved, and not necessarily the technologies? I believe this must be prepared and considered for the next seminar.

I fear if we do not consider these issues we run the risk that we identify at a certain stage that our ideas are for example not so innovative as we believed or that they are technology-driven and not needed or with minor impact. Other developments within research institutions may also be subject of research for a couple of years (like for example C2C / C2I technologies). I hesitate a little bit if we basket them as "wild". They are in research and they will be in place in a couple of years. This is a fact!

The toilet tomtom is a funny idea, and there may be a market for this. But tell it to TomTom, and it will be available in a matter of months before ROADIDEA ends. It is certainly useful, is this really the kind of applications ROADIDEA should produce? I believe our pilots need to be a significant improvement to a relevant road-related problem which is not being resolved elsewhere so far. All ideas should be checked again related to this.

Comment to 2:

My general impression is that our ideas were not wild enough. Even the Eye from Above and C2C / C2I are ongoing research topics. There may be a lot of problems to be resolved until they finally become available. But the idea is not really new. What we perhaps need are External Experts from further research institutions from the industry or from patent offices with which we could really establish the status of ongoing road-related research. Maybe, we also should review the road-related existing ideas for the fairer future.

Another element is challenges of the future. What kind of challenge will we have to face in the next decades: growing motorisation, growing fuel prices, less natural resources, growing global mobility in freight and passenger, environmental and climate problems, lack of space, aging population, polarisation between rich and poor people...

What kind of chance will we have: proceeding computerisation, global interconnection... We should consider what kind of implications this will have on road traffic.

Annex 6 List of Seminar Participants, Expertise Areas

List of seminar participants, their expertise areas and members of IDEA teams are listed below. The Board members are marked as B in the main WP column. Those who answered to the seminar survey are written in cursive.

Name	Main WP	Participation		Expertise										
		1 st innov. sem 2008	2 nd innov. sem 2009	road traffic	road safety	rail road traffic	ICT & technology	public admin	strategy planning	futures & foresight	Meteorology, road weather	commerce & SME	IDEA team member	
Jörgen Bogren	3	X	X		X							X		
Alexander Bollaert	B	X					X							
Jörg Dubbert	8	X	X	X	X		X		X		(X)			P6,M1;3
Pär Ekström	3	X	X	X	X						X	X		P5,M2
Igor Grabec	3	X	X	X	X									M2
Poul Grashoff	9	X	X	X			X		X					
Torbjörn Gustavsson	3	X	X		X						X			M1
Raine Hautala	8	X	X	X	X		X							
Marjo Hippí	3	X	X		X									M1
Péter Holló	3,2	X			X						X			
Lulu Hyvätti	1	X	X						X			X		G1;2;3
Ilkka Juga	3	X	X		X						X			
Heikki Kanner	4	X		X	X		X		X	X				
Rene Kelpin	2	X		X	X									P6
Auli Keskinen	5	X	X				X	X		X	X			
Jussi Kiuru	6	X		X	X		X		X	X	(X)			P1;2;5
Pekka Leviäkangas	4	X		X	X	X	X	X	X	X			X	P6
Markku Luoto	6	X					X		X	X			X	P2;1
Đurđica Marković	4	X	X				X				X			P3;4
Petri Mononen (Telefot)	7	X	X	X	X		X							
Pertti Nurmi	3	X	X					X			X			
Antje Parnitzke	2	X	X	(X)										P3;4
Yrjö Pilli-Sihvola	B	X	X	X	X			X	X		X			
Hanne Rantala	6	X	X	X	X		X		X	X				
Marja Rosenberg	4	X				X	X	X	X	X				
Pirkko Saarikivi	1	X	X	X	X		X	X	X	X	X	X	X	G1;2;3
Angelika Schulz	2	X	(X)	X										
Nebojša Subanović	4	X	X				X				X			
Franc Švegl	4	X	X	X	X		X							
Sándor Szénási	4	X	X		X					X	X			
Mikko Tarkiainen	2	X	X	X	X		X			X				
Olle Wedin	3	X		X	X						X			
Marcus Wigan	9	X	(X)	X	X	X	X	X	X	X			X	
Franco Zardini	2,3	X	(X)								X			
Michal Najman	B	X	(X)											
Gustaf Axelsson	3	X	X	X	X							X		