USER NEEDS INTERVIEW

Project acronym: INTRO
Project full title: Intelligent Roads
Proposal / Contract N°: FP6-012344
WP1 – Sub Task 1.1.3: User Needs

Introduction



The objective of this interview is to collect the views of road managers and operators on:

- intelligent systems currently used to operate their road network
- solutions needed for the future.

Identity



Name of interviewee	F. Dauphinot		
Name of organisation	Departmental Directorate of Equipment - DDE 38 (ISERE)		
Type of organisation *(tick as appropriate)*	**Public road authority**	Toll road operator (public / private / semi-public)	
	Police	Other (please state : _____)	
Geographical Responsibility *(tick as appropriate)*	National	Local	
	Regional	Other (please state : _____)	
Responsibility for *(tick all that apply)*	**Motorways**	**Expressways**	**Major roads (national or trunk roads)**
	Secondary roads	Local roads and streets	**Other** (e.g. Tunnel, Bridge), please state: **1 Tunnel and 78 small bridges (<150m)**
Position of interviewee *(job title)*	Subdivision Chief The network is composed of 42 km of expressways and motorways, and of the national and departmental roads. The whole network is approximately 300 km. The interview focuses on the expressway and motorway part of the network.		
Roles of interviewee	Maintenance Manager		
Responsible for *(number of persons approx.)*	50 agents		

Open Questions

1 What are the main problems you currently face in managing your network (traffic and infrastructure)?
Give proposals and classify them by priority. For each problem: What measures are you taking, have taken in the past, are planning to take in the future?

Priority	Problem description	Measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
1a	Heavy Traffic Volume preventing road works	Night road works		X			
		VMS to inform		X			
		Marking out with specialised signs		X			
1b	Heavy Traffic volume	Counting with loops		X			
		VMS fixed and mobile (on a trailer)		X			
		Reducing speed limits allowing to reduce lanes size and increase the road capacity and thus fluidity ➔ Allowing specific vehicles to use the emergency lane, e.g. buses		X	X		
		Variable directional signs to redirect users when roads are congested	X	X	X		

* Be as precise as possible, e.g.: *"Measure started in 2002 and ongoing", "Measure definitely planed to start in 2006", "Aim to implement around 2008 but not definite"*, etc

Open Questions (continued)

1

Priority	Problem description	Measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
1c	Users speed	Automated enforcement		X			
		Manual variation of speed limits depending on weather or traffic situation		X			
		Automated Dynamic speed limitation			X		
1d	Inform users of incident, road works or bad weather	VMS		X			
		Convention with the local management of a national radio		X			
		Press releases relating to traffic conditions		X			
		Substitute itineraries provided		X			

* Be as precise as possible, e.g.: *"Measure started in 2002 and ongoing", "Measure definitely planed to start in 2006", "Aim to implement around 2008 but not definite"*, etc

Open Questions (continued)

2 How will planned measures be financed? (Direct financing from own funds / BOT (Build Operate and Transfer / PPP (Public Private Partnership), etc.

For the expressways and motorways:

- Financing from the transport ministry for specific operations (e.g. creation of a new traffic management centre)
- National credits for global functioning
- Works budget for specific operations (e.g. renewing safety barriers, renewing road surface)

3 What is the approximate split of spending between road building, road maintenance and installation of new equipment on existing roads? / How has this split evolved?

No building credits.

Approximately half maintenance and half investment for new equipment

e.g. 2003 budget:

€ 1.215 million for maintenance

€ 900 000 for new equipment

On one hand, the maintenance budget for 2004 is the same than in 2003, and on the other hand, the equipment budget is slowly decreasing. The decrease in the credits is due to the recent decentralisation of French financing.

4 If you could choose one ITS or traffic management solution to improve safety, what would it be?

Information to users about incidents and traffic conditions is the most important safety measure.

5 If you could choose one thing to improve predictability of journeys (reliability of journey time information), what would it be?

Not really informed about it.

Open Questions (continued)

6 What degree of traffic control could you accept? (concerning speed enforcement, use of electronic toll tags to gather data, etc)

7 What causes the most damage to the your road network today?

Vandalism

Age of the network

8 What system(s) or process(es) do you currently use to reduce this damage?

Video monitoring and cleaning

Maintenance

9 What do you understand by “Intelligent Roads”?

The future.

New roads have to be intelligent. It’s not conceivable nowadays to design and build roads that are not intelligent.

Intelligent Roads are providing users information and dynamic traffic management.

Targeted Questions

→ For each Item (which corresponds to a technical task in INTRO), please state what measures you are taking at the moment / have taken in the past / are planning to take in the future (tick appropriate box)

10 **Surface safety monitoring** *(INTRO WP2)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
A. Stopping distance and skid resistance	**1** Grading measurements done by a regional agency (CETE = Technical Studies Centre of Road Equipment) only to evaluate surface wearing, not applied to weather conditions (ice, snow, water…)		X			
	2 Automated monitoring solutions not planned but seem interesting				X	
	3					

The INTRO project aims to develop models to link stopping distance to dynamic micro-slip data and to static skid-resistance measurements. This is to better understand these relationships for two pilot phases (information to drivers and to road authorities). This information could for example be used in winter to recommend variable speeds according to the measured conditions.	**Comments (if any):**

Targeted Questions (continued)

10 **Surface safety monitoring** *(INTRO WP2)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
B. Real time information for maintenance data	**1** Decision support tools (for works): Road data base available from the CETE with: - Historic of the road incidents and maintenance interventions - Grading measurements done - Determination of areas where a new intervention is necessary		X			
	2 Decision support tool (for winter serviceability) - Patrol vehicles - 2 road side weather stations - Subscription to the national weather information agency		X			
	3 *Only decision support tools, no automated equipment, only human decisions.*					

The INTRO project aims to conduct a pilot demonstration of information on slippery roads to road maintenance authorities. This is to enable them to differentiate between ice/snow that needs clearing and bad surface conditions that need repaving. Data will be processed and displayed using a GIS (Geographical Information System) interface. The test will take place using probe cars near Vienna, Austria.	**Comments (if any):**

Targeted Questions (continued)

10 **Surface safety monitoring** *(INTRO WP2)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
C. Real time information to drivers regarding road surfaces	**1** - VMS : Use of fixed VMS for current information and mobile VMS for crisis situations - Patrol vehicles to alert for accidents or obstacles - Permanent signs to block out or not - Radio More VMS planned		X	X		
	2 "Gentiane" system planned: VMS and dynamic speed limitation			X		
	3					

The INTRO project aims to provide road surface-related information (mainly stopping distance) to drivers via an appropriate in-vehicle HMI (Human-Machine Interface). This will be based on data from floating cars with an on-board micro-slip measurement system (which provide this data to a central server), and also from static road surface data (for floating cars without micro-slip data).	**Comments (if any):**

Targeted Questions (continued)

11 **Pavement conditions and infrastructure production** *(INTRO WP3)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
A. Intelligent pavements (pavement management, lifecycle and deterioration sensors)	**1** not planned					
	2					
	3					

The INTRO project aims to improve the management of the maintenance of the network (pavements and bridges) through smart methods of predicting the deterioration process and actual condition. The aim is to measure pavements in unobtrusive ways and make the information accessible at low cost. This includes a demonstration of sensor methods including in-situ sensors (such as loops, cameras and weigh-in-motion).	**Comments (if any):**

Targeted Questions (continued)

11 **Pavement conditions and infrastructure production** *(INTRO WP3)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
B. Remote pavement sensing from vehicles	**1** Measurements with a sensor on a wheel saturated with water to get micro-slip measurements		X			
	2					
	3					

The INTRO project aims to demonstrate the use of data provided by sensors fitted to standard vehicles ("probe vehicles") for improving the monitoring of pavement condition, and hence maintenance. This will concentrate on monitoring comfort and safety of the ride, as well as road defects such as rutting.	**Comments (if any):**

Targeted Questions (continued)

12 **Traffic and safety monitoring** *(INTRO WP4)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
A. Data sensing for road, weather and traffic including Probe Vehicle / FCD (Floating Car Data) Technology	**1** 2 weather stations available: - Wind - Water - Temperature of the ground and of the air		X			
	2 Link loop stations and access lane loop stations for vehicle counting Mobile loop stations		X			
	3					

The INTRO project aims to establish key traffic indicators, and to develop methods to calculate or estimate them using existing data sources for sensor-based measurement of traffic parameters. This includes analysis of data quality from using conventional single data sources and how this influences derived data (traffic flow, density, speeds, travel time, etc)	**Comments (if any):**

Targeted Questions (continued)

12 **Traffic and safety monitoring** *(INTRO WP4)*

Problem description	Your measures	Finished	Ongoing	Planned *(definite)*	Planned *(not yet definite)*	Time scale*
B. Data fusion of data from different sources for providing a comprehensive picture of network conditions	**1** Geographical information system to centralise data from road side equipment		X	X		
	2					
	3					

The INTRO project aims to design and develop a data fusion module accepting and combining information and data from traffic detectors and other sources, for assessing the traffic conditions on the road network and detecting critical traffic situations. This task involves fusion of travel time data and traffic data, link travel time correction, etc.	**Comments (if any):**

Targeted Questions (continued)

12 **Traffic and safety monitoring** *(INTRO WP4)*

Problem description	**Your measures**	**Finished**	**Ongoing**	**Planned** *(definite)*	**Planned** *(not yet definite)*	**Time scale***
C. Safety indicators for monitoring traffic condition ***(inter-vehicle distance, speed variance, etc)***	**1** no automated statistic knowledge of counting data to help on investment decisions					
	2					
	3					

The INTRO project aims to develop methods allowing relevant safety indicators to be estimated using traffic parameters. This will help traffic managers and drivers have a real-time overview of the safety level on different parts of the road network. This will be done by analysing accidents (only accidents linked to traffic conditions or road surface) on 6 sections of road network across Europe and using this data to build and validate models of safety indicators.	**Comments (if any):**

Targeted Questions (continued)

13 **General**

A. Which out of the above are in your opinion the most important/most useful approaches?

Real-time information to users, operators and politicians

B. What risks do you see?

The more you give to user, the more they expect from you. The risk is to be blamed when you can't predict an event, a juridical risk.

GNSS use can be dangerous when dedicated to professionals. Patrol agents feel watched when equipped with such products.

14 **This is the end of the interview. Do you have any other comments?**

New products have to be introduced in detail to final users, communication is very important to help acceptance.

Sometimes innovations are rejected just because they are new, seem more difficult to use, or users don't really see the final usefulness of the product.

e.g. A GNSS product embedded in patrol cars was tried; agents used it for 2 months. The objective was to provide them a tool to alert operators in the monitoring room in case of any incident. The real time information was rapidly available for operators, but patrol agents were not sensitive to this issue. So they used it for a few times, but they only saw the faults of the products and finally stopped using it.