

# INFORMATION SOCIETY TECHNOLOGIES (IST) PROGRAMME



Information Society  
Technologies



## GOOD ROUTE IST-4-027873-STREP

**Title:** GOOD ROUTE Pan-European workshop; Stuttgart, 08/09/06.

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**Summary:** Minutes of the 1<sup>st</sup> Pan-European workshop, held on 08/09/06, at USTUTT, Stuttgart, Germany in the context of GOOD ROUTE STREP project.

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# 1. GOOD ROUTE Pan-European workshop agenda

Friday, 08/09/06		
Time	Topic	Presenter
9:30-10:00	Registration and Welcome	CERTH
10:00-10:15	Presentation by EC	EC officer
10:15-10:35	The Authorities perspective	Local Police or Fire Brigade National Representative
10:35-10:55	The Infrastructure point of view	GOOD ROUTE Pilot Sites
10:55-11:15	The point of view of the DG companies and hauliers	BP
<b>11:15-11:45</b>	<b>Coffee break</b>	
11:45-12:00	The GOOD ROUTE Concept	CERTH/ITI
12:00-12:20	GOOD ROUTE Use Cases	CERTH/HIT
<b>12:20-13:30</b>	<b>Lunch</b>	
13:30-13:45	GOOD ROUTE Decision Support System	CERTH/ITI
13:45-14:00	GOOD ROUTE Architecture	CRF
14:00-14:15	The CVIS approach	VOLVO
14:15-16:00	Round table	Moderator: CERTH
16:00-16:30	Conclusions	CERTH
<b>16:30-16:45</b>	<b>End of the meeting</b>	

## VENUE

Universität Stuttgart  
 Institut für Arbeitswissenschaft und Technologiemanagement (IAT),  
 Stuttgart, Germany  
 Meeting room: 101

## 2. List of participants

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### 3. Introduction

The GOOD ROUTE Pan-European workshop, titled “Taking the safest route; The GOOD ROUTE initiative” is the first workshop organized within the framework of GOOD ROUTE project. The workshop was organized by the Centre for Research and Technology Hellas (CERTH) and specifically its participating institutes, namely the Informatics and Telematics Institute (ITI), which is the project Coordinator and the Hellenic Institute of Transport (HIT), which is the Technical Manager of the project, the University of Stuttgart (USTUTT), which hosted the workshop and the Institute for Communication and Computer Systems (ICCS), which is the Dissemination manager of the project.

GOOD ROUTE is a 6th FW EU co-funded specific targeted research project on the development of a cooperative system for Dangerous Goods vehicles Transportation Routing, Monitoring and Enforcement.

The GOOD ROUTE Pan-European Workshop aimed to bring together all stakeholders in the area of the Dangerous Goods Road Transportation, to communicate its objectives and with all experts’ assistance, to refine and finalise its application scenarios.

The GOOD ROUTE project concept as well as the first outcomes of the GOOD ROUTE project were to be presented and discussed during the workshop. Plenary and keynote presentations and a round table discussion towards its end were foreseen.

A number of key actors, around 60, coming from local authorities, dangerous goods transportation sector (i.e. drivers, drivers’ associations representatives, safety advisors), infrastructure representatives (i.e. control centre representatives, etc.) had been invited to participate. An invitation and registration for the workshop, together with the agenda of the workshop and accommodation details were sent to all invited participants via e-mail, via post in specific cases, whereas the full details of the event had been also uploaded in the project web site “<http://www.goodroute-eu.org>.”, where the final minutes and the presentations of the workshops can also be found.

### 4. Registration and Welcome

The invited participants’ registrations took place within the expected time frame. 33 participants registered and participated in the workshop on 08/09/06. All participants were provided with booklets, which included the agenda of the workshop, short information on the GOOD ROUTE project (EC fact sheet) and the presentations of the speakers. A badge was also distributed to each participant, showing his/her name and company/organization.

Dr. D. Tzovaras (CERTH/ITI) and Dr. E. Bekiaris (CERTH/HIT) welcomed the participants. The EC project officer finally could not participate in the workshop.

Dr. E. Bekiaris (CERTH/HIT) explained the participants that this was planned to be an open discussion and the purpose of this workshop is exactly to collect everyone's opinion and comments. He also underlined that the GOOD ROUTE use cases and user needs were the focus of this workshop.

## 5. The Authorities perspective

Dr. Karsten Homrighausen from the Fire Brigade of Stuttgart presented the local condition in Germany from the fire brigade perspective (Annex 1).

He underlined that several differences in upper levels management and infrastructures that support the DG transportation are detected. In Germany, the Fire Brigade is the main responsible authorised body for the handling of DG accidents.

A lot of industries and universities (physics, chemistry departments, etc.) collaborated in a big project related to the construction of a railway under the earth. The fire brigade was responsible for the evacuation, in case of need.

The fire brigade includes both fire fighters and volunteers. 15000 alarms are received on an annual basis. 200 of them prove to be false alarms. The fire brigade operates 24 hours a day.

There are 5 fire stations in Stuttgart per division and 25 locations of the volunteer fire brigade in the city. Help and technical support is provided; however this is not feasible in each station, since the relevant know-how is not always available. Preventive fire protection is also envisaged.

With regard to the DG transportation, there are some restrictions concerning specific regions and roads, especially in densely populated areas.

The info that would be needed for the Fire Brigade concerns the specific position of the accident, the type and mainly the properties of the cargo, the detection of injuries and/or fatalities and the specific number of persons injured, the involvement of other vehicles, detection of leakage and/or fire, the direction and speed of the wind, other weather conditions, etc.

Dr. E. Bekiaris (CERTH/HIT) mentioned that it would be useful if the aforementioned parameters were added in the GOOD ROUTE ontology.

Dr. Karsten Homrighausen referred also to the cargo papers and emphasized on the language used. He mentioned that it would be preferable if these or, at least, the core information of them, were available in national language, since the Fire Brigade personnel is not always capable of translating them sufficiently enough.

Moreover, he underlined that the cargo papers do provide some reliable information regarding the actual cargo transferred in most cases; however not always. All info are collected by the TUIS (Traffic Accident Information System) and all involved actors (i.e. insurance companies; fire brigade, etc.) get the info they need from there.

The main problem in the current situation is that the provided info does not refer at all at the reaction of DG transported; mainly guidelines for rescue and handling of cargo, for technical support and medical assistance are provided. The guidelines are provided to the personnel electronically, in printed form or in both ways.

Thus, what is really needed from the Fire Brigade point of view is some qualitative info on DG transported, in national language if possible, tactics to be followed from the fire fighters in case of an incident, especially, with regard to their special properties and their chemical reactions, and, finally, early notification about the cargo(s) transferred.

Dr. G. Aifantopoulou (CERTH/HIT) asked if there is a real Control Centre and Dr. Karsten Homrighausen answered that there is actually a Control Centre, operating since April 2006, which collects all info concerning accidents, which may be received by phone, by fax, etc.

There are many actors, such as enforcement or rescue personnel or other experts (scientists) that collaborate with the Fire Brigade for the mitigation of an incident/accident. Outside Stuttgart, cooperation with police is first realized, before the decision for the incident mitigation is taken. For the incidents inside Stuttgart, there is a Control Centre responsible for incidents management, which has the same information centre (TUIS), but the fire brigade is the authorised body to make the decision upon the defined laws. A portal to get connected to the information centre in a direct way would be helpful.

Mr. Stratis Zacharis from BP commented that in incident management, the personnel has to know prior to the incident/accident what are the appropriate measures that should be taken (informed at the last moment is not effective), which implies that the specific personnel has to be respectively trained.

Dr. Karsten Homrighausen mentioned that there is no live tracking supported (question from Mr. Marco Hoadke from T-Systems). Moreover, that the reaction time in each capital differs and is dependent upon traffic density, etc. In all cases, rescue of life is provided before any technical support needed (question from Mr. Marco Dotta from GST).

Mr. Koschany from BGL underlined the significance of the early provision of all required info and described a recent accident with Dangerous Goods, where no cargo info was available and, whereas the driver was injured (and thus not able to give oral info) and a fire exploded.

Dr. Karsten Homrighausen described the way the incident management is conducted (relevant question from Mr. K. Theofanides from BP). First, the accidents info is collected in the relevant database (in the TUIS). Then, the police, in collaboration with the Fire Brigade, takes the final decision on the mitigation strategy to be followed. Further contacts (mainly phone contacts) are realized for the gathering of more info on the cargo, the vehicle company, etc., whereas, in parallel, experts are contacted to provide assistance with their expertise.

## 6. The Infrastructure point of view

Dr. E. Bekiaris (CERTH/HIT) presented the GOOD ROUTE Pilot sites (Annex 2) and described their existing facilities and equipment as well as the adaptations that will be made in the context of the GOOD ROUTE project.

## 7. The point of view of the DG companies and hauliers

Mr. S. Zacharis (BP) presented the DG companies and hauliers perspective (Annex 3).

He stated that “Modern life is not feasible without DG” and that there are definitely risks, but we cannot avoid them totally; we just need to identify which is the most efficient way to manage them.

In some cases, in Greece, DG vehicles are not allowed to use tunnels and some of the bridges, because there are great risks and costs related. Societal risk, as GOOD ROUTE emphasises, seems to be of great importance, also for the companies’ profile. Companies need to convince on security provision and social sensitization. Thus, are in general keen in avoiding sensitive areas and vulnerable populations.

DG trucks may be used also for other purposes, like terrorism; so the company needs to know exactly where they are during their whole travel and, of course, which is the route with the minimum cost.

There is also an emerging need for safety improvement and compliance with existing regulations (there is a big variety there). There are also language problems and other barriers, like special regulations of each area.

Technology needs to support driver monitoring, their compliance to traffic regulations, etc. From Pilot applications with new technological systems, there is a considerable drivers’ percentage, whose performance is enhanced with the introduction of new technology (less fuel consumption, etc.). Drivers, in general, would like to see pre-defined routes and get data that will improve customer care. However, most of the drivers, when trying VDR, are usually surprised or afraid due to the fact that they are monitored, but if they overcome this fear and accept it, they behave properly. In any case, the use of such equipment is a legal requirement and employees have no other choice. It is worth mentioning that truck drivers that are also truck owners do not usually choose this solution.

In general, there is a need for less vehicles, less mileage and low cost trips. Tolls for special infrastructure is an issue that should be addressed and could also imply less transportation time. GOOD ROUTE should care to offer also cost-efficient solutions.

One upcoming issue is security. Existing systems for security are elementary, whereas several hijacks have happened, targeting so far mainly the transported fuel.

Mr. M. Hoadke (T-Systems) mentioned that BP has already VDR measuring vehicle speed, torque, position, driver behaviour, fuel consumption, etc. and wondered what is the GOOD ROUTE added value. Dr. E. Bekiaris (CERTH/HIT) explained that route guidance and navigation exist as well, but the actual GOOD ROUTE added value is the most effective combination of them, from safety, cost-efficiency and minimisation of societal risk points of view.

Dr. G. Aifantopoulou (CERTH/HIT) underlined that infrastructure has to be accessible to all users. Moreover, that safety is a requirement for all. There are risk assessment tools from USA and EU, which measure individual risk index. Mr. Z. Stratis (BP) mentioned that in some countries, thresholds (different per country) for risk indices have been defined, to provide the allowed framework for such activities.

Dr. G. Aifantopoulou (CERTH/HIT) commented that for schedulers, pre-defined routes are preferable. 95% of the industries leave the routing decision upon the driver. Even the compartments filling depends on the drivers' decision. Thus, the effectiveness of the transportation depends on the driver's knowledge, skills and experience. So, there is a big relevant risk. There are very few companies (i.e. big oil companies) that pre-define the drivers' routes. However, this is a unique phenomenon. Even enforcement is not standardised; but still, if it would be so, it may be not be acceptable.

The GOOD ROUTE system may be accepted gradually by the industry, but the exact time frame cannot be known.

Commenting on this, Dr. E. Bekiaris (CERTH/HIT) concluded that the GOOD ROUTE system should be owned both by GOOD ROUTE owners and transporters, since some of the latest may want to buy it by themselves.

## **8. The GOOD ROUTE Concept**

Dr. D. Tzovaras (CERTH/ITI) presented the concept of the project in short (Annex 4).

## **9. The GOOD ROUTE Use Cases**

Dr. E. Bekiaris (CERTH/HIT) presented the preliminary Use Cases of the project (Annex 5). Moreover, he explained the ontological framework of GOOD ROUTE and informed the participants that the ontology will be published by mid of October 2006, in pdf, at the project web site. It will be an open ontology and comments from everyone are welcomed.

## **10. GOOD ROUTE Decision Support System**

Dr. D. Tzovaras presented the Decision Support System of GOOD ROUTE (Annex 6) and a first demo of the prototype. The prototype supports, in its current version, cost, risk and combined cost/risk routing of a vehicle as well as time windows in order to take into account the variation of the population density during a day, with time.

Mrs. Marie-Luise Queßeleit (USTUTT) asked if the risk indices that support the DSS are static or dynamic and Dr. D. Tzovaras answered that the risk index in a mandatory system could be static or locked.

It is still an open issue if we have to consider the time of day as an accident risk parameter. Moreover, at the moment, variations in population, events, etc. are preloaded, but it is an open issue if these are going to be automatically inserted in the system (question from Mr. K. Theofanides from BP).

Local restrictions, which address local regulations, working hours in each country, speed limits, etc. are related to the expert rules, upon which the DSS will be developed (question from Mr. M. Hoadtke from T-Systems). Dr. Tzovaras confirmed that the DSS will support them and mentioned that even the current version of the DSS prototype could support the rules that influence the time.

The collection of data is inserted to own source; the alternative to interface local relevant databases is more difficult. For the commercial product level, a local instantiated file will be created.

Guido Koschany (BGL) wondered if the GOOD ROUTE suggested routes will be mandatory for the drivers to follow or just recommended.

Dr. E. Bekiaris (CERTH/HIT) explained that this has to do with the Business Case that will be applied. In GOOD ROUTE, we have identified three Business Cases, as follows:

**BC 1: Voluntarily use for internal purposes.**

- Introduced by the transporter or the dispatcher as an enhanced safety measure, in order also to improve the efficiency and the cost of the operation.
- Communication to infrastructure partially replaced by communication to company centre.
- Potential limited application by some high risk infrastructures on voluntary basis.
- Limited market penetration (5-10%).

**BC 2: Voluntarily use with additional benefits.**

- Introduced by specific infrastructures in order to grant permission of access or give priority of access or guarantee fast access (without escorting) or reduced fees or....
- Implemented by selected transporters and dispatchers that handle high volumes.
- Need for CEA to match direct and indirect benefits with implementation costs. The more infrastructures adopted it, the more attractive it will become.

- Gradual market penetration (may reach up to 20% in a horizon of five years).

### **BC 3: Mandatory use.**

- Introduced by specific infrastructures or for whole areas/countries for all ADR vehicles or some classes of them.
- Fast market penetration (may reach from 50% to 100%, depending upon the type of restrictions; i.e. local vs. national).

Mr. K. Theofanides (BP) commented that the GOOD ROUTE system could be also used in a reverse way, for the establishment of a regulation for example. This would give added value in some countries, like Greece.

Mrs. G. Aifantopoulou (CERTH/HIT) claimed that this would require availability of statistical data and Dr. E. Bekiaris (CERTH/HIT) answered that it may be difficult at the beginning but, in a few years horizon, these data will be available anyway.

## **11. GOOD ROUTE Architecture**

Mrs. P. Bianconi (CRF) presented the GOOD ROUTE architecture (Annex 7). In addition, the SAFE TUNNEL and the SAFESPOT project architectures were presented. Discussion followed about the wireless/wired sensors that are to be used for the cargo monitoring and the potential of V2V communication. The V2V communication is not foreseen to be demonstrated in GOOD ROUTE, however it will be included in the system architecture and a demo could be also planned in cooperation with demonstrators from SAFE TUNNEL or SAFESPOT via CRF, who is a common Partner.

## **12. The CVIS approach**

Mr. Niclas Nygren (VOLVO) presented the CVIS approach (Annex 8). The CVIS architecture was presented and it was pointed out that in CVIS info from the vehicle to other vehicles and to several infrastructures are transmitted and, additionally to GOOD ROUTE, info from TMC to another TMC is communicated. However, for the Dangerous Goods application in specific, there is no V2V module foreseen; only communication between the vehicle and the Control Centre. The application will be demonstrated by VOLVO TRUCKS in Gothenburg.

The route is decided from the company, in an off-board navigation server, which collects real-time traffic information flow, traffic management info and suitability of routes for DG transportation, coming from the responsible local authorities. Route guidance is sent to the OBU, from where it can be accessed by the Traffic Management Centre.

A template has been prepared by CERTH/HIT depicting the commonalities and differences between GOOD ROUTE, CVIS and HEAVYROUTE (Annex 9), in the

context of an attempt to identify potential synergies between the projects. It was agreed, that CVIS and GOOD ROUTE would be in contact for future collaboration and exchange of info with regard to the architecture and the ontologies. This template was also provided to the representative of the TWT GmbH company, Mr. Victor Faessler, that represented the I-WAY project Consortium in the Workshop.

### 13. Round table

After the presentations of the speakers, Dr. E. Bekiaris (CERTH/HIT) concluded with some general issues and all participants were requested to express their opinion (Annex 10).

The first issue raised concerned the ontologies that are drafted by GOOD ROUTE and have to be finalised until the end of September 2006. Several parameters were discussed, like the classification of the vehicles that should be followed, the cargo characterisation, etc.

The VOLVO participants commented that if the vehicle to be used is a bulk, the type of trailer as well as the maximum dimensions of the vehicle (already in GOOD ROUTE ontology) should be identified. Participants from GST pointed out that the turbo and breaks temperature should be also included.

All parameters, identified in addition to those that already exist in the ontology will be added and the final ontology will be published to the project web site (<http://www.goodroute-eu.org>) until the mid of October 2006 and will be subject to changes and comments from anyone interested.

The second issue raised was the type of sensors that need to be used. ELPA stressed out the importance of the tyres pressure sensors and the sensors measuring cargo temperature, leakage, pressure, etc. BP referred to the electronic shield sensors, which are widely used and linked to the GPS. Open valves or pumps as well as level of loading are detected. Level of loading can be also calculated manually.

The third issue raised was the ethics concerning re-routing policies.

Some participants thought that this is not a main concern, since the risk cannot be avoided completely in any case. A risk (even minimum) will always exist, but a threshold for the acceptable values should be put.

A discussion followed for the conflict resolution. There are the following two principles:

- 1<sup>st</sup> case: Design of conflict resolution in view of the infrastructure operator benefit.
- 2<sup>nd</sup> case: Design of conflict resolution taking into consideration the business priorities for the whole logistic network.

BP participants stated that the first case should be preferred. The principle “First in (first that requests) first out” should be the basis. Expert rules of GOOD ROUTE could be changed to comply with the infrastructure policy.

## 14. Conclusion of the meeting

Dr. D. Tzovaras (CERTH/ITI) and Dr. E. Bekiaris (CERTH/HIT) thanked the participants for being present to this workshop and for providing their assistance to enhance the project progress and informed them that they will be all sent the workshop minutes.

The minutes, the presentations of the workshop and the ontology will be also found in the project web site (<http://www.goodroute-eu.org>).

All participants have been invited to join the project User Forum, in order to create a community where GOOD ROUTE concepts and developments will be discussed, reviewed and updated through the whole project duration and after its official finalization. The responsible contact person for the GOOD ROUTE User Forum is Mrs. Dionisios Negkas (ELPA). Any participant that wishes to join the project User Forum could access him at [negkas@ath.forthnet.gr](mailto:negkas@ath.forthnet.gr).