EVALUATION OF TRAVEL AND TRAFFIC INFORMATION BETWEEN ITALY AND SLOVENIA IN THE PROMET PROJECT

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Abstract

The Project PROMET (PROject for the Management of European Traffic) covers the North-East of Europe and ranges from the Italian Region Friuli Venezia Giulia to the west of the Slovenian Country. The ambition of the project is to cover a crucial cross-border motorway link between Slovenia and Italy (on EU Corridor V) characterized by daily high freight and fleet flow coming from a country to another and by seasonal traffic peaks during the summer holidays.

The paper describes the evaluation of Travel and Traffic Information between Italy and Slovenia. In particular it describes the results of an interview campaign conducted the 9th of December 2008 during a holiday peak traffic situation.

Keywords
Evaluation, Travel and Traffic Information, Cross Border Traffic Management

PROJECT AREA

The concerned road network of PROMET covers the North-East of Europe and ranges from the Italian Region Friuli-Venezia-Giulia to the west of the Slovenian Country. The ambition of the project is to cover a crucial cross-border motorway link between Slovenia and Italy (on EU Corridor 5) characterized by daily high freight and fleet flow coming from a country to another and by seasonal traffic peaks during the summer holidays. The picture below shows the network and the international corridor crossing the project area.

The corridor Razdrto-Villesse is part of the 5th European Transport Corridor and is part of the connection between Northern Italy, a very busy industrial area, and Slovenia which due to its strategic position plays an important transit role on the way to Eastern Europe.

In the PROMET area we are in the presence of two alternative cross-border routes between Italy and Slovenia.

The first route (higher belt) is represented by the Razdrto-Villesse corridor, with a passage from Gorizia/Nova Gorica. The second route (lower belt) is the passage through Trieste and the border of Fernetti, travelling on the A4 motorway (Italy) and on the A3 and A1 (Slovenia).

The two different routes from Razdrto to Villesse are almost equal in travel distance (62 km via Nova Gorica/Gorizia - 47 km on Slovenian side - and 66 km via Fernetiči/Fernetti - 24 km on Slovenian side) and both carry a large number of heavy vehicles. Although both routes have almost equal travel distance, the travel time varies due to different road categories: the section Razdrto-Fernetti is a highway and on the other hand the highway on the section Razdrto-Nova Gorica is still under construction so the traffic is using the national road. In case of a disturbance on one of the routes, the road users are informed by Variable Message Signs (VMS) at the decision points in the network.

PROMET OBJECTIVES

PROMET wants to focus on the very specific and operational task, to practice the necessary "tactical management" of a cross-border link and the coordination of ITS systems of two adjacent regions/motorways of an old and a new EU country, with a view of increasing the quality of traffic monitoring, management and safety impact to road users through interoperability and continuity of services.

The aim of PROMET Project is to provide efficient traffic related information for users on the motorway network of the two adjacent regions and to minimize perceived discontinuity in quality of information for traffic management services on

both sides of the cross-border section. The idea is to harmonize monitoring infrastructure, applications and technologies in cross-border ITS applications and traffic management systems through interoperability and continuity of services. The main focus is on specific manners to exchange the relevant data between the traffic control centers in Kozina and Palmanova. The project aims to define the scenarios for coordination of cross-border traffic management plans (enhancing current coordination) envisaged to the use of ITS.

One of the main goals is also to provide Traffic and Travel Information (TTI) to the road users on the network which allow them to decide what alternative to use in case of an incident situation.

In particular, the objectives of the project are:

1. to reduce traffic and to increase the use of the cross-border connection network by drivers travelling from Italy to Slovenia, through the use of a homogeneous data exchange system;
2. to improve road safety by establishing timely intervention action by the different authorities of that country and the motorway operators;
3. to improve the monitoring level of the road network by means of the use of new technologies;
4. to support the management efficiency of the cross-border network by providing timely information to users;
5. to guarantee users the continuity of the road network in terms of infrastructures and the provision of services;
6. to promote the inter-operability of the systems through the use of European standards (example: Datex);
7. to improve comfort and safety for drivers by implementing the road information service with new services and to enrich the services already existing;
8. to assess the overall effects of the applications and their impact, paying particular attention to road safety, to the verification of the real effectiveness of the implementation by the managers of the road network, and the chosen transport mode;
9. to assess the level of attainment of the main objectives of the application;
10. to improve co-operation in the management of traffic through the monitoring of road conditions, the exchange of information and the use of coordinated plans;
11. to obtain good levels of quality in the information services offered to travelers in the adjacent areas/regions, promoting compatible traffic monitoring techniques and technologies and the use of the regulations of the European Union to exchange data and services;
12. to integrate the management strategies of the road network and of heavy traffic in particular.

PROMET Partners are:

- Ministry of Transport of Slovenia (Project Coordinator)
- Ministry of Transport and Infrastructure of Italy
- DARS d.d. (National Road Agency Operator that manages the motorway stretch Gorizia – Postojna and the TCC in Kozina)
- Autovie Venete S.p.A. (Motorway Operator that manages the motorway stretch Palmanova – Gorizia and the TCC in Palmanova)
- Autostrade per l'Italia S.p.A.
- Traffic Design LTD
- Mizar Mediaservice S.p.A.
- Politecnico di Milano - Dipartimento IN.D.A.CO. - Laboratory for Mobility and Transport

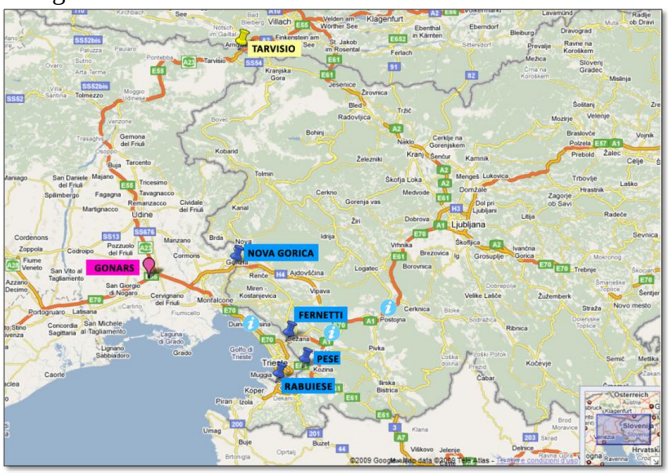
ISSUES ADDRESSED

Many significant events involving the motorway network of the PROMET area, such as accidents, adverse weather conditions (strong wind brings to the closure of the motorway to the heavy vehicles) and the closure of lanes or of entire carriageways, may disturb the cross-border traffic of light and heavy vehicles.

The development and application of the Traffic Management Plan (TMP) as well as reasoned and coordinated management of the two alternative cross-border routes (higher and lower belt) may improve traffic management and lessen the inconvenience during these critical phases.

USERS INFORMING

Variable message signs allow for the users to be notified of the traffic situation and they are activated by the Traffic Control Centre (Kozina in Slovenia and Palmanova in Itlay). The variable message signs are positioned in strategic points which allow for timely notification of information regarding individual critical situations (accidents, traffic jams, work in progress etc…) to users, who may therefore make a choice regarding the route to take.



Position of VMS placed on the route of interviewed users (indicated with the letter "i")

EVALUATION OF TRAVEL AND TRAFFIC INFORMATION

The presented paper describes the impact of Travel and Traffic Information between Italy and Slovenia on users behavior. In particular it describes the results of an interview campaign conducted the 9th of December 2008.

The decision to interview motorway users aimed at assessing the final and direct impact on users of a series of activities, which motorway concessionary societies developed within the PROMET project, and in particular:

- The improvement of methods and technologies for exchanging cross-border data on traffic conditions and events taking place on the motorway networks of each country;
- The feasibility of cross-border traffic management plans after relevant events occur on the network of one of the countries; management plans include a possible detour of cross-border traffic from the upper belt to the lower belt and vice versa, based both on the kind of event that is taking place and its position;
- The possibility to provide users with information on the critical states affecting the motorway network of the neighboring country, in order to be ahead in terms of space and time with information and to create the conditions necessary to timely change one's cross-border travel strategies.

The final information that can be given via VMS or other means therefore represent the result of a chain of competences and activities, which can be summed up in the previous three points.

An interview that concentrates on the understanding and quality of the information given to users can therefore evaluate the whole chain of activities carried out by concessionary societies. The final result is clear, timely and relevant information and instructions, which, provided that they are properly interpreted and respected by users, can help manage particularly critical situations affecting cross-border traffic conditions at one's best.

The interviews toke place on Tuesday, 9th December 2008 at the service area of Gonars Nord (westbound) in Italy. The 9th December was chosen to evaluate the effectiveness of Travel and Traffic Information systems with high traffic volumes, which can cause even serious congestion. In Italy, Monday 8th December, the Feast of Immaculate Conception, is bank holiday; on the whole national territory heavy vehicles were therefore forbidden to travel during daytime for three subsequent days from 4 p.m. of 6th December until 10 p.m. of 8th. An intense traffic situation was expected in the early morning of 9th December, especially from Slovenia to Italy, with possible queues at the Trieste – Lisert toll barrier, caused by two main effects: the massive arrival of heavy vehicles in Italy (eastbound – westbound), which were previously limited by the running prohibition, and ordinary traffic of remaining light and heavy vehicles recovering their normal midweek activities. In fact the intense traffic caused by several days of holiday caused a series of collisions involving heavy vehicles rather than queues at toll barriers. Four accidents occurred that day.

The Traffic Control Centers of Palmanova and Kozina exchanged information and agreed on the information to be reported on Variable Message Signs both in Slovenia and Italy. The interviewed drivers did have read both the Slovenian and the Italian communication.

CONCLUSIONS

The main results given by the analysis of the interviews can be summed up as follows:

- The motorway corridor that was chosen to carry out the interviews, and in general the cross-border motorway network within the PROMET study area is actually characterized by a highly international type of traffic, as witnessed by the general characteristics of the sample users interviewed. Sample users have the following characteristics:
  - present a great number of nationalities: Italian (39,1%), followed by Slovenian (20,3%) and Croatian (14,5%). The remaining 26% of interviewees is divided into 11 different nationalities
  - speak a great number of languages (12 different languages known by interviewees)
  - they are mainly professional/habitual users (72,5% of interviewees) and work in freight transport (55,1%) in particular using heavy vehicles over 35 quintals (46,4%)
- The countries where the journey began, which was under way at the interview (direction Slovenia – Italy), include not only Slovenia, Austria and Croatia, but also several countries of Central-Eastern Europe (Romania, Slovakia, Bosnia, Hungary, Bulgaria, Lithuania). Destinations are not limited to Italy but also include countries like France and Spain;
- The use of VMS as a source of information is generally frequent: most users passing under Slovenian and Italian VMS noticed them (95,7% of interviewees noticed VMS

in at least one country and 34,8% in both countries) and almost all users who saw VMS also read the information they reported (97% of users in at least one country).

- Information provided by VMS is almost unanimously appreciated and the level of understanding/usefulness of the information reported is also very high:
  - the percentage of users who considered the news understandable with respect to those who read them is 98% in Italy and 93,8% in Slovenia
  - the percentage of users who considered the news helpful with respect to those who read them is 100% in Italy and 96,9% in Slovenia. Only a little percentage of users considered the news not understandable, principally because the location of the event was not very clear (or not known)
- News reported on VMS often affect travel strategy: 43,8% of the sample users who read news on VMS decided to change their travel strategy. 55,6% of them decided to stop and wait at Gonars service area; 40,7% decided to change trip itinerary or to exit highway before section of event; 3,7% decided to change the cross border point (from Fernetti to Gorizia). Among all users who did not change their travel strategy, 30,6% of them would have changed it if they had received clear indications or suggestions on VMS. These data show the great potential of VMS and other sources of information in order to implement cross-border traffic management strategies, with a high degree of willingness on the part of users to adjust themselves to the indications received
- 37,7% of interviewees received traffic information via other devices, with a marked prevalence of the radio (34,8% of all interviewees). The information received from dedicated call centers of concessionary societies (2,9% of interviewees) is always understandable and helpful for the users who made use of it. However, the radio results just as effective for 79,2% of interviewees. Nevertheless, in some cases the transmission language on Italian side (provided mainly in Italian language) was not known by foreign users (on Slovenian side is informing the users both in Slovenian and English language), thus making it difficult to understand the information provided.

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BIOGRAPHIE

Luca Studer is a Transport Engineer and he works at the Laboratory for Mobility and Transport - Politecnico of Milan (University) - Italy.

The Laboratory is since the year 2000 consultant of the Italian Ministry of Transport for the evaluation of the impact of ITS implementation.

Luca Studer is member of the Evaluation Expert Group, of the Traffic Management Expert Group (both promoted by DGTREN) and of the Management Committee of IBEC (International Benefits, Evaluation and Costs Working Group).

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