road ERA net

SEAMLESS
Seamless traffic data dissemination across urban and inter-urban networks

a research project of the
cross-border funded joint research programme
"ENR2011 MOBILITY – Getting the most out of Intelligent Infrastructure"

1) Introduction

"ENR2011 MOBILITY – Getting the most out of Intelligent Infrastructure" is a trans-national joint research programme that was initiated by "ERA-NET ROAD II – Coordination and Implementation of Road Research in Europe" (ENR2), a Coordination Action in the 7th Framework Programme of the EC. The funding partners of this cross-border funded Joint Research Programme are the National Road Administrations (NRA) of Belgium, Switzerland, Germany, Netherlands, Norway and United Kingdom.

2) Project Facts

Duration:	01/10/2011 – 31/10/2012
Budget:	EUR 260.000
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3) Project Description

Project "SEAMLESS" prepares for traffic data dissemination that works seamlessly across urban and inter-urban networks. It includes data dissemination to in-vehicle systems, and use of cooperative systems.

Research to date has focussed on motorway information, but uptake of devices will be limited if service coverage is limited to trunk roads only. The provision of seamless services for dissemination of data from road authorities, both national and local, has the potential to accelerate the take-up of in-vehicle devices. seamless services therefore have the potential to bring forward the time when national roads authorities can reduce reliance on roadside infrastructure.

The SEAMLESS project will build on existing research, will make further contributions to the business case and architecture for seamless services, and will then produce recommendations for harmonised protocols. The services to be considered will include virtual signs and dissemination of routing strategies. Results will be disseminated through existing partner roles and networks, and other available channels.

The project partners have the necessary range of experience as inter-urban and urban traffic management system suppliers, user representatives and service providers in multiple countries to be able to address the issues and risks and deliver valuable research results.

4) Expected Results

In a first step, the value and costs of urban data will be considered, together with the overall value and costs of seamless services. The project will also clarify the data characteristics necessary for effective services. This business case will be informed by an early trial of inclusion of urban data along with inter-urban data in an information service. The project will also consider wider aspects of cooperative systems, since the business case for dissemination to vehicles is strengthened when considered alongside other related aspects of cooperative systems, such as the role of vehicles in gathering data.

The results in SEAMLESS will base upon two Use Cases as central theme ('Traffic Light Phase Assistant', handled by the German partners and 'Seamless urban and inter-urban roads information for in-vehicle devices', handled by the UK partners).

It is not necessary for the project to define a detailed architecture, but the project will identify the essential characteristics of the architecture. Again wider aspects of cooperative systems will be considered since they have the potential to influence the architecture for data dissemination.

With a clear understanding of the business case and architectural constraints, the project will proceed to harmonisation of protocols. The project will identify the work necessary to prepare existing specifications for participation in seamless data dissemination. There are ISO, CEN and ETSI specifications for data dissemination, but there may be gaps in feeding channels seamlessly from both urban and inter-urban traffic management systems. Beside the Use Cases, areas of specific attention will include:

- Traffic control information such as lane-specific speed restrictions and dynamic use of the hard shoulder.
- Transfer of routing strategies from traffic management systems towards navigation services.
- Location references for seamless trans-national services.
- "Virtual signs" which simulate the presence of roadside infrastructure at known geographic locations.

The details will be affected by the findings of the earlier stages of the project, but the current assumption is that there will be trans-national requirements and also national adaptation to fit with well-established national architectures such as those defined by UTMC and OCA.

Beside considering UTMC, OCIT and OTS specifications, requirements for data modelling in DATEX II – which has recently been adopted as CEN Technical Specifications and also as OTS data model – will be considered. Although these sets of specifications are different, any recommendations for change will made in a harmonised way in order to increase ease of use for trans-national service providers.

TMC and TPEG specifications will be considered as a reference. This will also take into account the currently agreed common work between EasyWay and TISA on consistent modelling of data along the service chain, especially looking at the interoperability between DATEX II and TPEG.

The project will propose data exchange and dissemination protocols which are language-independent and consumable by high volume in-vehicle devices.

The results are designed to increase effectiveness of investment in infrastructure, by informing on the value of seamless services and on the best approaches for realising these services, and by moving towards a reduction in reliance on traditional infrastructure.