

QUATRA

Software and Services for the Quality Management of Traffic Data

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 – 30/09/2013
Budget:	EUR 290.000
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3) Project Description

QUATRA deals with the creation of tools for quality management for traffic data on freeways and in urban road environments. It has two major objectives:

The first objective is to develop procedures and software tools to measure and estimate the quality of incoming online traffic data in a freeway control centre. The incoming data, usually in a minute-to-minute interval is used for freeway control, management and information. For different control or information purposes it is often very important to know, if the underlying traffic data is correct or erroneous. In that case the type of error needs to be identified.

The second objective is to develop a comparable service for the evaluation of urban traffic data for cities and their transport authorities. This service has access to the cities' traffic data database and calculates offline the performance measures and quality indicators on a daily basis. The results are then reported, e.g. via email, to the transport authority. The big challenge is to find and identify quality indicators for urban detectors as well as errors that corrupt the daily traffic control.

The quality management for freeways will increase the reliability of automated and manual traffic control under freeway conditions (for example guidance and speed harmonization) or the generated traffic messages which are also partly based on detector data. On urban roads

it will improve for example the signal coordination mainly during peak times and will also help to reduce travel times and emissions.

The software will be developed in order to be used for a variety of different existing data collection systems and data formats. Test data of the ASFINAG (Austrian Freeway Authority) and the City of Munich will be analyzed.

4) Expected Results

Expected results are quality management tools for the assessment of traffic data on freeways and in urban environments. Both systems will be incorporated in software that is able to import different kinds of data streams and formats to access a wide range of applicants and traffic service providers.

Furthermore the software will inform the users about the quality standard that has been applied as well as the thresholds used for the creation of alert messages and the criteria catalogue the modelling tool has been based on.

As a result the software will send alerts if these thresholds have been exceeded and quality standards undermined. For the freeway traffic data these alerts will be produced online. Therefore the road operator is able to decide if the traffic control and guidance needs to be adapted and can also schedule repairs.

For urban road environments these alert messages will be produced on a daily basis. Thus the road operator can monitor the situation too and schedule repairs.

The data quality and recognition of erroneous data in time is an essential basis for decisions and strategies. The proposed traffic data quality is not available internationally in this form. Therefore the system could be used by various telematic operators to offer services with appropriate quality. The competition data for testing is limited to a few suppliers.

The software as well as the model will be based on the evaluation of field tests. Therefore a high degree of practicability will be guaranteed.

Due to the high quality of the consortium a corresponding leading market position can be reached quickly. The prospective customer can be guaranteed to the maximum coordination among the pre-existing systems. This results in additional economic opportunities for the project, particularly for consulting services.