Workshop Data Acquisition

Report on joint NEXT-ITS/NorSIKT workshop on Data Acquisition.

Title: "Towards better data quality, cost-efficiency and network coverage via vehicle-based data acquisition"

Venue: Radisson Blu SkyCity Conference Centre, Arlanda Airport.

Date and Time: October 16 2018; 10.00 - 16.30

Participants: Full participant list, please see annex 2.

Hosts: The workshop was hosted by the **NorSIKT** project and the **NEXT-ITS3** working groups on traffic management and Information and Communication Technologies.

NEXT-ITS3

Partners: Ministries/Road Administrations from Sweden (Coordinator), Finland, Denmark, Norway and Northern/Eastern Germany. Financially supported by the Central Europe Facility of European Commission.

The project (2018-2020) covers the Northern part of the Scandinavian-Mediterranean corridor, including the core road network and the key comprehensive network links. The aim is to enhance corridor and network performance by deployment of ITS services that ensure interoperability and continuity of services, support harmonization, and increase the cost-efficiency in the operation of traffic management.

From NEXT-ITS3 the working groups A2 Traffic Management Services and A4 Information and Communication Technology were responsible for carrying out the workshop.

NorSIKT

The NorSIKT project is carried out in cooperation between all Nordic countries (Sweden, Denmark, Island, Finland and Norway)

The main objective of the NorSIKT project is to standardize the system for classification of motor vehicles in the Nordic countries.

- First phase: current traffic data system in the Nordic countries, basis for developing a preliminary vehicle classification system
- Second phase: test of different type of registration equipment to investigate how these meet different classification principles

Background

Collecting traffic data is one of the components of traffic management because traffic data are used as an input to support traffic control. The current roadway-based infrastructure for traffic data collection, such as loops, microwave sensors, or laser detectors will be replaced by vehicle-based data. That will result in cost savings as well as the new generation of traffic data that is more powerful than the existing one. Thus the workshop focusses on possibilities, examples and best practices of vehicle-based data acquisition. The main topics are:

- State-of-the-Art concerning fixed data sources
- Mobile data sources: best practices, experience and projects
- Data quality of mobile data sources and the relation between fixed sources and mobile sources.

Objectives

The workshop aimed at giving an overview on the NorSIKT project, the status of mobile data acquisition from NorSIKT's and NEXT-ITS' point of view including best practices, experiences and the relation between fixed and mobile data sources. Furthermore the workshop aimed at information exchange between the involved projects and the participants in general.

(1) Welcome and Introduction

Dieter Sage welcomed the participants and gave an overview on the projects NEXT-ITS and NorSIKT and the programme of the workshop.

(2) State-of-the-Art concerning fixed data sources

Traffic Data Collection State-of-the-Art, Results from the NorSIKT project – *Torbjørn Haugen, Norwegian Public Administration*

Torbjørn Haugen gave a presentation on the status of the NorSIKT project and the current state of the classification systems of the Nordic countries. Furthermore he explained which fixed monitoring equipment was able to fulfil the different requirements the NorSIKT project has developed.

In the discussion it was stated that the determination whether data is good enough is a question of the cost/benefit ratio of the specific situation. Furthermore it was explained that the Nordic countries use the same classification up to level 2 for comparison. Besides this each country uses their own scheme in parallel. Few of the tested equipment can manage level 4 on a reasonable level of quality.

(3) Mobile data sources: best practices, experience and projects

In this session Ilkka Kotilainen (Finnish Transport Agency) gave an overview on Event-based data from the NordicWay project. James Hobbins (INRIX) presented travel times and sources. Thomas Jansson (Connected Cars) presented the data partnership of the Danish Road Directorate with Connected Cars. In the final presentation Edoardo Felici (National Data Warehouse, the Netherlands) presented the car as a sensor, experiences from the National Data Warhouse.

Event-based data (Nordic Way) - *Ilkka Kotilainen, Finnish Transport Agency*

Ilkka presented the background of the NordicWay 2 Project on C-ITS. He explained the partner structure, objectives, service definitions, live demonstration and first results.

Discussion: Ilkka stated that one can be sure of the quality of the information if more than one service confirms the incident. He furthermore pointed out that it is expected that in the year 2020 a business model will be developed.

Travel times and sources –*James Hobbins, Inrix*

In the discussion James presented the data acquisition, how people use INRIX' services, how the quality of INRIX' journey times is ensured and the recent case study on roadway analytics (Transport Scotland – Queensferry Crossing)

James explained that the determination of traffic volume out of FCD-data will probably never be as accurate as inductive loops. However FCD-data is used for determining traffic volumes in some US states. James furthermore explained that INRIX does traffic prediction for about half an hour or one hour.

Danish Roads Directorates data partnership with Connected Cars - *Thomas Jansson, Connected Cars A/S*

Thomas gave an introduction in Connected Cars and presented the Danish car fleet statistics based on 70.000 cars participating. He furthermore showed the results of the evaluation of speed changes (ATK). Then he presented the consequences of the Great Belt Fixed Link shut down on September 29th on the traffic situation in Zealand.

In the discussion Thomas explained that in the project currently about 70.000 cars are involved. The goal for the future is to enhance this to about 250.000 cars. Up to now they do not have real time services but the data is suitable for detailed analysis.

The Car as a Sensor: experiences from the National Data Warehouse in the Netherlands - *Edoardo Felici, National Data Warehouse, the Netherlands*

Edoardo presented the experiences from the National Data Warehouse concerning the collaboration of the partners, the transition from road-side to floating data, the potential and innovation of floating car data, the use cases for road authorities and the results of the trial with vehicle data.

He furthermore informed about the tender on the possibility to use floating car data to show travel times on variable message signs and to detect unexpected congestion. The tender was won by Be-Mobile.

Discussion: Edoardo Felici answered the question whether FCD-data can replace "old technologies" (i.e. inductive loops etc.). Also in the future inductive loops will be necessary for calibration. FCD gives a much better economy than old technologies. Furthermore he explained that the work would be much easier if all countries would use the same, but this would lead to less innovation.

(4) Data quality of mobile data sources and relation between fixed sources and mobile sources

In this session Leif Rystrøm gave an overview on "European data quality criteria and recommendations (EU-EIP), Edoardo Felici presented "Programming for Data Quality: experiences and possible roles for the National Data Warehouse in the Netherlands. Torbjørn Haugen gave a presentation on Data quality. Statistical Data vs Traffic Information.

European data quality criteria and recommendations (EU-EIP) - *Leif Rystrøm, Danish Road Directorate*

Leif gave an overview on the different EIP projects (EIP, EIP+, EU EIP) which run from 2013 until 2020 and the related subjects of the projects. He furthermore informed about the ITS Directive and the different delegated regulations. Leif presented EIPs quality criteria, practices and methods.

Programming for Data Quality: experiences and possible roles for the National Data Warehouse in the Netherlands - *Edoardo Felici, National Data Warehouse, the Netherlands*

Edoardo presented the experiences from the National Data Warehouse concerning the collaboration of the partners, the approach of the national data warehouse, public/private approach and the sectoral approach.

Data quality concerning statistical purposes and traffic information – *Torbjørn Haugen, Norwegian Public Administration*

Tobjørn informed about the experiences, challenges and problems with travel time information. He showed several examples, different results etc. and raised the question whether travel times are comparable. He furthermore presented experiences, challenges and problems by calculating Speed data and traffic volumes and density.

Discussion: Torbjørn explained that for calculating adequate travel times at least 5 vehicles in a five-minute interval where speed do not vary too much are necessary. Ideally local knowledge is existing and loop sensors nearby for verification. Furthermore Torbjørn pointed out that there is a need for a common description on how to calculate travel times.

Conclusions

The participants stated that the workshop was a good opportunity to exchange information also between the two Projects NEXT-ITS and NorSIKT and to get information on the projects NordicWay and EIP. The experiences from Denmark and the National Data Warehouse of the Netherlands showed interesting results on practical applications of mobile data sources.

Many technical and also operational advances were presented and discussed. Some key challenges were highlighted like access to data.

Good solutions for all of Europe or even globally were presented. These include the NorSIKT classification, the NordicWay cloud2cloud solution, and EU EIP quality recommendations.

Furthermore the basis for tendering was interesting. So the approach to harmonize most issues in order to make tenders covering a big area shows high cost efficiency but on the other hand reduces innovation and competing approaches.

The differences between road-side equipment and mobile data sources were intensively discussed. Although mobile data are quite cost efficient road-side equipment would also stay necessary for calibrating the results of mobile data and for some issues (e.g. weather forecast) a fixed location is necessary.

Furthermore the difficulties of calculating travel time especially for statistical purposes were presented and the fact that different approaches lead to differing results. There is a need to come to a common definition and guidelines.

Annex1: Agenda Data Acquisition Workshop

Stockholm Arlanda 2018-10-16

09.30-10.00 Coffee

Introduction

10.00-10.15: Welcome & Introduction

State-of-the-Art concerning fixed data sources

10.15 -10.45: **Presentation of NorSIKT concerning the State-of-the-Art** – *Torbjørn, Norwegian Public Administration*

Mobile data sources: best practices, experience and projects

10.50-11.15: **Event-based data (Nordic Way)** - *Ilkka Kotilainen, Finnish Transport Agency*

11.15-11.40: **Travel times and sources** –*James Hobbins, Inrix*

11.40-12.05: **Danish Roads Directorates data partnership with Connected Cars** - *Thomas Jansson, Connected Cars A/S*

12.05-12.30: **The Car as a Sensor: experiences from the National Data Warehouse in the Netherlands** - *Edoardo Felici, National Data Warehouse, the Netherlands*

12.30-13.15 Break, light lunch

13.15-13.40: **Discussion and exchange of experience**

13.40-14.10: **European data quality criteria and recommendations (EU-EIP)** - *Leif Rystrøm, Danish Road Directorate*

Data quality of mobile data sources and relation between fixed sources and mobile sources

14.10-14.35: **Programming for Data Quality: experiences and possible roles for the National Data Warehouse in the Netherlands** - *Edoardo Felici, National Data Warehouse, the Netherlands*

14.35-15.00: **Data quality concerning statistical purposes and traffic information** - *Torbjørn, Norwegian Public Administration*

15.00-15.30 Coffee

15.30-16.00: **Discussion and exchange of experience**

Conclusions

16.00-16.15: **Conclusions from Next ITS & NorSIKT**

16.15-17.00: **General Conclusions from all participants**

Annex 2: List of Participants

Åke Egemalm	Vejdirektoratet
Bjarne Bach Nielsen	Vejdirektoratet
Dieter Sage	Logos Ing. GmbH
Edoardo Felici	National Data Warehouse, the Netherlands
Gunn H Möller	Landsverk/NorSikt
Ilkka Kotilainen	Finnish Transport Agency
James Hobbins	Inrix
Joachim Sejer Damgaard	Vejdirektoratet
Johan Bring	statisticon
Karolina Hedberg	Viati/Trafikverket
Kristen Gryteselv	Statens Vegvesen
Leif Adolfsson	Trafikverket
Leif Rystrøm	Vejdirektoratet
Malin Eriksson	Statens Vegvesen
Maria Varedian	Trafikverket
Peo Svensk	Trafikverket
Per Melén Trafikverket	NorSIKT
Petri Antola	Finnish Transport Agency
Risto Kulmala	Traficon
Sami Louma	Finnish Transport Agency
Snorre Hansen	Statens Vegvesen
Thomas Jansson	Connected Cars
Thor Gunnar Eskedal	Statens Vegvesen
Torbjørn Haugen	Statens Vegvesen
Torgeir Vaa	Statens Vegvesen