Editorial

This newsletter reflects the latest FOT-Net Data efforts to boost data sharing and re-use, as well as the projects' contribution to the largest Intelligent Transport System event, the ITS World Congress, which will be held this year in Bordeaux (5–9 October 2015).

The project has finalised the integration of new Data and Tool Catalogues with the FOT-Net Wiki. The aim of these catalogues is to provide detailed information on datasets from Field Operational Tests (FOTs) and Naturalistic Driving Studies (NDSs). Information provided in the new sections of the Wiki will allow other projects to re-use data from previous activities to answer new research questions, saving time and resources. The next challenge is now to enrich the content of the wiki with the support of all FOTs and NDSs stakeholders.

Moreover, the project is working on a Data Sharing Framework. It includes input received from international stakeholders such as the US Department of Transport. A complete package of the different elements of the Data Sharing Framework will soon be available on the project website fot-net.eu. We hope that it becomes a valuable asset for researchers in the light of upcoming large-scale field tests and pilots of automated vehicles.

I would also like to draw your attention to the FOT-Net Data activities at the ITS World Congress. The "International Workshop on ITS and Connected Vehicle Data" on 5th of October will focus on challenges and opportunities of C-ITS data collection, sharing, and management in a context where research on connected vehicles matures and opens up the way towards international deployment. Papers on the Data Catalogue and Data Sharing Framework will also be presented in Technical Session 87, “Are Big Data and Open Data Transport’s ‘Silver Bullets’?”. Finally, the project is organising the Special Interest Session 11 on “Field Operational Tests for Automated Driving”.

But this issue of the newsletter is not only about FOT-Net Data. It also contains information about currently running FOTs, updates on related projects and short reports on previous events.

Enjoy your reading!

Myriam Coulon-Cantuer, FOT-Net Data Project Officer, EC DG CONNECT Smart Cities and Sustainability
**FOTs in the spotlight:**

**NordicWay Cellular/Hybrid C-ITS**

NordicWay pilots cellular Cooperative ITS (C-ITS) services in a road network that extends from Denmark and Norway to Sweden and Finland, covering important parts of the Nordic triangle. It included parts of the core TEN road networks in the participating countries and parts of urban and urban-interurban transport networks.

It is a three-year (2015-2017) real-life deployment pilot, which will be followed by wider deployment in the Nordic countries and elsewhere in Europe. The road and transport authorities of Finland, Sweden, Norway and Denmark are the initiators of the project, which receives EC support through the CEF programme.

NordicWay tests and demonstrates interoperability of C-ITS services both for passenger and freight transport. The pilot involves several service providers offering the same user experience across the NordicWay corridor.

It represents a proof-of-concept as it is the first large-scale pilot demonstrating the technical feasibility of probe data collection and C-ITS service delivery using cellular communication (LTE/4G) throughout the corridor, based on European C-ITS standards. NordicWay offers to the users continuous interoperable services with roaming between different mobile networks and across borders.

The project takes a pragmatic approach, as it aims to build a sustainable business ecosystem for the data value chain and its stakeholders, i.e. public sector – (road authorities, C-ITS operators, automotive industry, telecom operators) as well as content and service providers. NordicWay will demonstrate the quality improvements that C-ITS and probe data may bring to key safety services. To do so, it pilots three services and their interoperability:

1. cooperative hazardous location warning
2. cooperative weather and slippery road warning
3. probe vehicle data services

NordicWay will assess the performance of the systems, acting as the last mile between C-ITS research and development and wide-scale deployment.

**Cycling Safety Research On The Rise**

As cycling becomes more and more popular in Europe and North America, cycling safety research gains importance worldwide as a way to support and promote this healthy and fun activity. Real-world data collection and technology applications stand out as key ingredients for cutting edge research on cycling safety. Instrumented bicycle collecting naturalistic data are now an established methods to investigate road-user behavior, infrastructure design, and crash causation, while new technologies both support novel systems for data collection and deliver new active and passive systems to improve safety.

Naturalistic riding data in particular offer a unique opportunity to validate and complete other road data in order to better understand the cycling safety picture and guide the development of new countermeasures to bicycle accidents. Issues such as intoxication, distraction, inattention, and drowsiness are among the most relevant human factors for a safe interaction between cyclists and other road users.

Real world data from instrumented bicycles and new technology applications for cycling safety were just some of the topics presented on September 15-16 in Hannover, Germany at the 4th International Cycling Safety Conference (ICSC). The International Cycling Safety Conference is a yearly event and will take place in Bologna, Italy in 2016 and in Davis, California in 2017.
FOT-NET DATA Updates

Data Sharing Framework Awaiting Feedback

The Data Sharing Framework provides guidance and recommendations on how FOT and NDS data could be shared and re-used to answer new research questions. It is based on the practices and knowledge gained from data sharing cases within the FOT-Net community.

A complete package of the different elements of the Data Sharing Platform is currently under development. Parts of it are already available on the FOT-Net website (www.fot-net.eu).

Previously, the drafts of the Data Protection Recommendations and the Data and Metadata Descriptions chapters were available. These are essential areas to boost the willingness of some researchers to share data and for others to see whether these data could be used to answer their research questions.

The last chapter contains recommendations for content in project agreements regarding data sharing, training, support and research services, business models, and application procedures. Data Sharing in Project Agreements includes a comprehensive list of areas to discuss when setting up a project.

Training discusses personal privacy and immaterial property rights. The chapter includes recommendations on essential information to convey, including the set-up of analysis workplaces and procedures to access the data.

The chapter on Support and Research Services discusses different levels of assistance to the researchers. The support spans from providing information regarding the data and data analysis practices to giving detailed training in data handling and providing tools.

Financial Models focus on how to finance datasets after data collection. An overview of different financial models and their pros and cons is provided together with a list of items to be financed.

Finally, the Application Procedure lists the suggested items to be included, together with recommendations on what information should be provided by the applicants.

Welcome To Make Entries To The FOT Data Catalogue

FOT-Net Data project has enhanced the FOT-Net Wiki (wiki.fot-net.eu) by improving the ease-of-use of the FOT and Tool Catalogues.

A new catalogue describing the datasets collected in FOTs, NDS and other field trials have also been added to the wiki. It will be an important tool for promoting these datasets and also a convenient way to search for them. This Data Catalogue is now open to the public.

The new Wiki includes three separated catalogues: one for Tools, one for FOT, and one for Data. The functionalities of these catalogues have been improved. From now on, wiki user will be able to create and update entries easily by filling simple forms. Moreover, the browsing and searching capabilities have been improved, making it simpler for users to find the data they are looking for.

The new FOT and Tool Catalogues already include most of the information that was poured into the old wiki. The content harmonisation will be completed this autumn. People who have already included their FOT data in the wiki will be invited to update the information.

The datasets included in the catalogue should be available for further research work and described in reasonable detail for potential re-users. The wiki includes only those datasets whose data owner is either willing to share (e.g. openly, under NDA or with contract) or with which the data owner is willing to provide analysis support services (i.e. she/he does not share data but provides tailored analysis in line with customer’s research needs).

By providing a draft for comments, we aim to collect thoughts and practices used in different data sharing activities, to adjust the final Data Sharing Framework to the needs of researchers.

Above: FOT-Net Data Wiki

A wiki is a product of the whole FOT-Net community. Therefore, we invite you to take a look at the new wiki, create new entries for the three catalogues, update your previous contributions, and use the wiki to find information, datasets, tools and new cooperation possibilities.

Your feedback on the wiki will be highly appreciated.
News From Other Projects

Big Data Europe

BigDataEurope was launched in 2015 with the aim of utilizing the power of data in tackling the seven societal challenges defined by the H2020 program: Climate, Energy, Food, Health, Transport, Security, and Social Sciences.

The project aims to design and implement an architecture for an infrastructure that meets requirements, minimizes the disruption to current workflows, and maximizes the opportunities to take advantage of the latest European RTD developments, including multilingual data harvesting, data analytics, and data visualization.

The Transport Societal Challenge set its eyes to contributing to the following objectives: resource-efficient transport that respects the environment; better and more informed door-to-door mobility; less congestion and unforeseen delays; safer and more reliable multi-modal mobility; secured exchange of personal information; global leadership for the European transport industry; and socio-economic and behavioural research and forward looking activities for policy making.

The project will organise a series of annual workshops, the first of which will be held in Bordeaux on 7 October during the ITS World Congress. It will focus on the elicitation of requirements for Big Data management within the intelligent transport domain and participants will have a unique opportunity to influence the design of the Big Data platform that the project will deliver.

UDRIVE

UDRIVE is now collecting Naturalistic Driving data on trucks, cars and scooters across Europe, i.e. England, France, Germany, Netherlands, Poland and Spain. The collected data is very rich; it includes Controller-Area Network (CAN) data, vehicle data, 7 camera views inside and outside the vehicle and a smart camera (MobilEye). It will be used to gain new insights into driving behaviour in relation to key topics in road safety and environmental issues. Analyses will be done on crash causation factors, distraction, interaction with cyclists and pedestrians and eco-driving.

The overall objective of these analyses is to understand where, when and why drivers fail to perform the driving task safely. In the light of the results of these analyses, public authorities may develop countermeasures to increase road safety and enhance eco-driving.

Moreover, a very promising area for Naturalistic Driving Studies to improve driving performance lies in vehicle automation. Systems could be developed to support drivers in critical situations and or to prevent critical situations to happen.

The UDRIVE consortium’s goal is to contribute to the improvement of new systems currently under development and to identify the need for new systems to be developed.

FOTsis

After four years of activity, the FOTSIS final event marked the end of the project. It was held on 27-28 April 2015 at OHl Concesiones in Madrid and it attracted around 70 people from all over Europe. It consisted of both presentations and demonstrations of 7 different C-ITS V2I communication services developed within the project. Among them, a service which aims to give an added value to the eCall standard by including the infrastructure manager in the rescue process was demonstrated.

Although the final review report from the European Commission will define the next steps and actions to be taken, exploitation of results is already under way in Germany and Spain. As an example, the Bavarian authorities have deployed the variable maximum speed and optimum route systems tested during the project in the ring around the Munich football stadium, which connects the northern part of the city with the centre.

These systems help predict traffic flows and make recommendations in order to avoid bottlenecks. Thus, a driver might receive indications to take a longer but less congested route in order to improve mobility and avoid the stop & go situations, thereby improving road safety.
Data Sharing in Practice

Naturalistic Driving Data To Allow Effective Deployment of ITS

Understanding how the driver behaves in a real world driving context is essential when developing intervening technologies for Intelligent Vehicles. Recent advancements in vehicle automation have raised the demand for data to understand the drivers’ state, driving environment, and the capabilities of intervention for safe and effective deployment of such technologies. To understand driver behaviors in real world driving context, researchers from different disciplines have investigated Naturalistic Driving across populations of drivers.

The 2nd workshop on Naturalistic Driving Data, which was held within the framework of IEEE Intelligent Vehicles (IV) Symposium in Seoul 28 June – 1 July 2015, showed different areas where these data are utilized. Examples are driver modelling, understanding crash causation and vehicle-pedestrian crash testing scenarios. A special focus was on computer vision and machine learning techniques.

One of the main challenges with automation is to develop vision systems that are accurate and reliable enough for the vehicles to depend on during autonomous driving. Naturalistic datasets have been used for the purpose of testing new developments in computer vision against a wide array of environments, illumination, and occlusion settings. Some of the new datasets are shared with researchers to allow for collaboration and benchmarking, for instance in the areas of traffic sign detection, hand and driver face detection and head pose estimation.

Data Publications Appear In Peer-reviewed Journals

In the last years, several academic journals have started to welcome papers that describe scientifically valuable datasets. This practice allows for researchers to get credit for collecting and publishing data. The first journals to include data publications mainly cover biological and biomedical topics, but engineering datasets have also been included: Nature Scientific Data, Gigascience, F1000 Research, Biodiversity Data Journal, ZooKeys and PhytoKeys.

The data publications generally consist of overviews on how a dataset was produced, validated and formatted. They could be seen as brief metadata documents.

Currently, datasets are rarely cited formally. Researchers would favour formal citations as a method for getting recognition as well as a condition for sharing data. Today, for example Research Data Alliance (RDA) is working on improving guidelines for data citations. Additionally, they contribute to harmonising practices between various data repositories.

New Data Environments Added To The RDE

The Research Data Exchange (RDE) is a web-based data resource provided by the USDOT Intelligent Transportation Systems (ITS) Program.

It collects, manages, and provides access to archived and real-time multi-source and multi-modal data to support the development and testing of ITS applications.

The RDE now contains two new data environments associated with intersection queues and weather sensing applications which were demonstrated during the 2014 ITS World Congress in Detroit, MI and which are available for download:

Intersection Queueing data and Situation data based on J2735 messages:

- Queue counts by lane at a downtown intersection
- Counts of instrumented vehicles in queue at traffic signal phases
- Videos of queues
- Vehicle situation data from nine instrumented vehicles
- Intersection and traveler situation data from Roadside Units

Data from a Weather Sensing and Alert Demonstration

- Road weather-related observation data
- Road weather-related advisory warnings

New Features for Release 2.2

- Version control to track updated versions of data.
- A link to the Weather Data Environment (WxDE) containing road weather data
- A graphical and text based search capability across all data environments
- The ability to “like” or promote files with social media

Soon be added to the RDE is a Two-Month Sample of the Safety Pilot Model Deployment (SPMD) data, which will supplement the One-Day Sample of SPMD data that is currently available on the RDE.

To check the RDE, scan the QR code or visit its-rde.net

Above: Panellists during th event
Watch the FESTA Webinars:

Data bases, Data analysis and hypotheses testing

Impact assessment and socio economic cost benefits analysis

Upcoming Events

Save The Dates!

- FOT-Net Data International Workshop on ITS and Connected Data, 5 October 2015 Bordeaux
- FOT-Net Data session at the ITS World Congress in Bordeaux (SiS 11): “Field operational tests for automated driving”, 6 October 2015 Bordeaux
- BigDataEurope Workshop on Smart, Green and Integrated Transport, 7 October 2015, Bordeaux, France
- International Conference on Digital Information Processing, Data Mining, and Wireless Communications, 1 December 2015, Dubai
- ecoDriver project Final Event, 16-17 March 2016, Sttutgart

In Focus

FOT-Net Data International Workshop on ITS and Connected Vehicle Data

5 October 2015, Bordeaux (France)

FOT-Net Data has been organising this workshop in collaboration with the U.S. Department of Transportation (DOT). The overarching objective of this event is to facilitate exchange of information on FOTs and data sharing between the three regions (i.e. Europe, Asia and the Americas).

The workshop will focus on challenges and opportunities for data collection, sharing, and management in a context where connected vehicle programs transition from research to deployment.

It will be held between 9 am and 3.30 pm at the Palais de Congress, right before the ITS World Congress opening ceremony.

Some of the questions that will be addressed include:

- How can lessons learned from FOTs concerning data ownership, personal data and anonymisation be used in the deployment phase?
- How to deal with research versus operational data?
- How can stakeholders profit from international sharing of data and experiences from FOTs and pilots?
- Which research areas or specific questions need to be answered to enable and facilitate deployment, and can analysis of existing FOT datasets provide some of the answers?

In the workshop we will have presentations from FOTs and pilots from the three regions. There will be discussions in small groups, addressing these questions and exploring potential solutions.

This workshop is meant for everyone interested in ITS and connected vehicle data sharing, people working in FOTs, decision-makers in private and public organisations, data experts and transport researchers. We strongly encourage the participants to bring their own questions and experiences.

After the event, a news coverage will be available on the FOT-Net Data website (www.fot-net.eu) together with some audiovisual materials and all presentations.
Past Events

FOT-Net Data Workshop on Data Anonymisation
1-2 September 2015, Gothenburg (Sweden)

Personal data collected in FOTs such as video and GPS, require a high level of data protection. Experts from Europe and the US, industry and academia, discussed with some 50 participants trends, possibilities and challenges.

The first day was devoted to anonymisation of video images. Several techniques are now available to hide the driver’s face using blurring, replacing it by avatars or even facial characteristics from pictures of other people, while maintaining the facial expressions.

Making the environment anonymous is much harder. Blurring number plates and pedestrians is possible but buildings are hard to anonymise, so still revealing the location of where a FOT participant is driving.

The second day addressed anonymisation of GPS data, a tough problem, as drivers usually have routine trajectories, which give away a lot about the location of their home and workplaces. Different approaches and algorithms were explained and discussed, but there is not yet an ideal solution.

Anonymisation is becoming more and more important, due to growing awareness of the need to protect participants’ privacy, new laws and regulations, and requirements from project funding bodies.

The workshop concluded that (international) collaboration and discussion between researchers, computer scientists and legal experts is necessary to advance the development towards successful ways to keep personal data anonymous.

If the data could be anonymised while still keeping the information that is essential to research, the access and the re-use of the valuable data would be greatly facilitated.

FOT-Net Data Stakeholders Meeting on Open Data and Data Re-Use in Horizon 2020
10 March 2015, Brussels (Belgium)

The FOT-Net Data Stakeholders Meeting discussed the way in which the new Horizon 2020 projects will deal with open data and how they can profit from re-using data gathered within the framework of previous projects.

Speakers also made recommendations on open data for new proposals. Finally, they referred to initiatives on data sharing and open data in Europe and the USA.

FESTA Webinars
20-27 May 2015

FOT-Net Data organised two webinars to explain the FESTA methodology for designing and conducting Field Operational Tests.

The webinars covered two topics: “Data bases, data analysis and hypotheses testing” and “Impact assessment and socio economic cost benefits analysis”.

They were led by Felix Fahrenkrog (Aachen University) and Pirkko Rämä (VTT Technical Research Centre of Finland) respectively, and moderated by Haibo Chen (Institute for Transport Studies, University of Leeds).

The webinar recordings are available on the FOT-Net Data library: fot-net.eu/library

Above: Workshop hosted by SAFER
Above: FOT stakeholders gathered in Brussels
About FOT-Net Data

FOT-Net Data, Field Operational Test Networking and Data Sharing Support, is a 3-year support action project to

- Support the efficient sharing and re-use of available Field Operational Tests (FOTs) datasets
- Develop and promote a framework for data sharing and data re-use
- Build a detailed catalogue of available data and tools and
- Operate an international networking platform for FOT activities.

FOT-Net Supports:

- Networking Platform
- Data Sharing Framework
- Catalogue of Data and tools
- FESTA Methodology

Project Partners

Join us!

Become an associated partner and learn:

- How to design and execute future FOTs
- How to re-use existing FOT data to answer new questions
- How to prepare your data collection, storage and documents so that they can be re-used later

You can also send your information on FOT-projects to info@fot-net.com

www.fot-net.eu