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FOT-Net Data

FIELD OPERATIONAL TEST NETWORKING AND DATA SHARING SUPPORT

Stakeholder Meeting 8 March 2016 Brussels

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1 Introduction

1.1 Background

FOT-Net Data is a Support Action funded by the European Commission. It is a continuation of the FOT-Net projects that networked Field Operational Tests (FOT) and maintained the common FOT methodology (the FESTA methodology) for performing these tests. FOT-Net has brought together organisers of Field Operational Tests (FOTs) in one strategic platform in order to address common issues related to the practical organisation, set up and follow-up of FOT results. FOT-Net Data develops and promotes a framework for sharing data, a catalogue to describe available datasets, recommendations for data protection, strategies to facilitate data sharing and awareness about the value of data sharing. It takes into account the pre-requisites necessary in the FOTs, such as legal agreements, to enable future re-use of data.

FOT-Net Data organises a yearly stakeholder meeting to discuss the progress in the project, to share experiences and news from FOTs and to receive feedback on the data sharing work.

1.2 Objectives of the meeting

In this stakeholder meeting we discussed issues on open data and data re-use. FOT-Net Data aims to support data sharing, both in existing projects and in new projects within the Horizon 2020 programme.

The meeting addressed three main topics:

> – The work that FOT-Net Data is performing on the data sharing platform and the data catalogue to support data sharing activities showing practical examples

> – Data sharing practices and initiatives in in the US and Europe

> – Data sharing aspects related to the upcoming pilots on vehicle automation.

Around 30 people attended the event and made it possible for organisers to foster lively discussions and to collect feedback not only about the meeting itself (though a form) but also about challenges and opportunities for new automation of FOTs and pilots (orally).

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All presentations are available at the FOT-Net website: http://fot-net.eu/Documents/fot-net-data-stakeholder-meeting-on-data-sharing-activities

2 Agenda

FOT-Net Data Stakeholder Meeting on Data Sharing Activities

Tuesday 8 March 2016

Leopold Hotel, Rue du Luxembourg 35, Brussels.

Agenda

9:30	Coffee and registrations	
10:00	Agenda	Davide Brizzolara (ERTICO – ITS Europe)
	Opening and introduction on FOT-Net Data	Sami Koskinen (VTT), project coordinator FOT-Net Data Anne Deltour, EC, DG Connect
10:20	Big Data Europe project as opportunity for pilot implementation	Simon Scerri (UNI Bonn)
10:40	ITS Observatory portal: fostering collaboration for ITS	Paul Kompfner (ERTICO – ITS Europe)
10:50	Update on the FOT-Net Data Sharing Framework: Practical example of FOT-NET data set and what can be done with it	Helena Gellerman (SAFER)
11:05	*Coffee break*	
11:20	UDRIVE: plan and reuse of data (research questions addressed and plans for the reuse of data)	Laurette Guyonvarch (Lab-France - UDRIVE)
11:40	Data sharing approaches and activities in the US	Richard Glassco (Noblis)
12:00	FOT Data Catalogue	Satu Innamaa (VTT)
12:15 – 13:15	*Lunch*	
13:15	Open data: European Open Science Cloud for Research (EUDAT)	Yann Le Franc (e-Science Data Factory)

13:35	Platforms for data sharing, data analytics and data visualization	Richard Glassco (Noblis)
13:55	Lessons learnt from past experiences: how available data can be used?	Mitsakis Evangelos (CERTH)
	Project experiences: Compass 4D, C-ITS corridor (EU C-ITS Corridor is ECo_AT)	Alexander Froetscher (AustriaTech)
14:35	Experiences from current project: NordicWay	Ilkka Kotilainen (Finnish Transport Agency)
14:55	An industry prospective on data sharing	Ahmed Nasr (HERE)
15:15 – 15:30	*Coffee break*	
15:30	Towards pilots for automation: new methodology needs	Yvonne Barnard (University of Leeds)
15:45	Evaluation of pilots for automated vehicles: international collaboration	Satu Innamaa (VTT)
16:00	Current activities (e.g. DriveME, AdaptiVe): need and challenges for data collection	Adrian Zlocki (IKA)
		John-Fredrik Grönvall (Volvo Car Corporation)
16:30	Concluding discussion and wrap-up	Maxime Flament (ERTICO – ITS Europe) and Sami Koskinen (VTT)
17:00	Adjourn	

3 Opening and introduction on FOT-Net

Sami Koskinen (VTT, and coordinator of the FOT-Net Data project) welcomed the participants and presented the FOT-Net Data project. He also explained how to use the Data Sharing Platform in four easy steps.

Anne Deltour (European Commission, DG Connect, coordinating Smart Cities) also welcomed the participants on behalf of Myriam Coulon-Cantuer, the FOT-Net Data Project Officer.

4 Big Data Europe project as opportunity for pilot implementation

Simon Scerri (UNI Bonn) presented the BigDataEurope project, a three year coordination and support action, coordinated by Fraunhofer. Its mission is to lower the barrier for using big data technologies, assist in establishing cross-lingual/organisational/domain data value chains and to show the societal value of big data.

The project addresses seven societal challenges: Life Sciences & Health, Food & Agriculture, Energy, Transport, Climate, Social Sciences, and Security. The project will engage with a diverse range of stakeholder groups and design, realise and evaluate a big data aggregation platform.

After an introduction to the project, Simon Scerri discussed opportunities for big data implementation, cross-domain collaboration and the blueprint of the BigDataEurope platform. The also explained the Transport pilot. He highlighted that FOT-Net Data is an interesting link with the transport community and its data.

Discussions with the public focused on privacy and openness of data.

5 ITS Observatory portal: fostering collaboration for ITS

Paul Kompfner (ERTICO – ITS Europe) presented the ITS Observatory, a project in the area of mobility for growth. It aims to move towards seamless mobility addressing fragmentation in ITS deployment in Europe. It is a coordination and support action with 10 partners, ERTICO being the coordinator and lasting till 04/2017.

Mr. Kompfner reflected on the three main objectives of the ITS Observatory project; namely 1) to bridge knowledge fragmentation by creating a EU-wide Database for ITS, 2) to support ITS deployment by creating an intelligent software platform, which compares the results of research, pilots and deployment projects and 3) to create a user-friendly decision-making tool to support fact-based policy making.

One of the main challenges is to engage a large number of local authorities and industrial stakeholders. As already highlighted by Simon Scerri in the previous presentation, cooperation with FOT-Net Data could facilitate this.

6 Update on the FOT-Net Data Sharing Framework: Practical example of FOT-NET data set and what can be done with it

Helena Gellerman (SAFER) gave a presentation on recommendations and best practices regarding data handling that should be taken into consideration when starting a new project. At this stage, a useful tool is the FOT-Net's Data Sharing Framework, which provides answers to seven topics: project agreements, data and metadata descriptions, data protection, education, support and services, financial models, and application procedures.

Mrs. Gellerman mentioned different projects that enable data sharing, such as SHRP2, euroFOT and, in the near future, UDRIVE. These databases will be searchable through the FOT-Net Data Sharing Platform.

She also referred to the challenges such as the industry's eagerness to preserve data ownership and secrecy

7 UDRIVE: Plan and re-use of data

Laurette Guyonvarch (Lab-France) presented the UDRIVE's approach to data re-use. UDRIVE – the first large-scale European naturalistic driving study (NDS) explores the behaviour of people from different European countries driving their cars, trucks and powered two-wheelers for at least 1.5 year. All the vehicles are equipped with a Data Acquisition System (DAS). The study is collecting video data from 7 cameras in the cars, 8 cameras in the trucks, and 5 cameras for the PTW. The DAS records data on hard discs. These will be sent to a local data centre, where the data will be pre-processed. Afterwards, this data goes to the central data centre. Remote access will be provided to analyse the data.

The aim of the UDRIVE consortium is to share data with all researchers interested in exploiting the resulting database after the project ends, in June 2017. However this objective is subject to certain challenges related to post-project funding and data protection. Post-project access will be possible but personal data will be secured, including video and GPS data. These data will only be accessible at the premises of the central and partner data centres. Third parties must apply to analyse data and adhere to the UDRIVE data protection concept.

8 Data sharing approaches and activities in the US

Richard Glassco (Noblis) gave a presentation on data sharing in the US. He started by presenting the Connected Data System Program, which has the goal to develop scalable data management and delivery methods. That way, they will enable the exploitation of the potential of high-volume multi-source data from connected and automated vehicles, connected travellers with mobile devices & other sources.

Mr. Glassco also presented the US Research Data Exchange which has been designed to host current and upcoming data environments. New data sets are added to the RDE as they become available from both USDOT projects and other projects which follow a simple submission process, which includes the assessment of the dataset's quality.

This tool can provide new ways to foster coordination between EU and US. FOT data can be obtained from the RDE while it is possible to add a link in the RDE to external sources, providing a new channel for dissemination. Research papers will need to cite the source of their data, but other than that there is no way of knowing what they use the data for.

In line with Helena Gellerman's presentation, Richard Glassco also reflected on challenges for data sharing. He mentioned data quality and timeliness, among other challenges.

9   FOT-Net Data Catalogue

Satu Innamaa (VTT) presented the principles and features of the Data Catalogue (see wiki.fot-net.eu). The FOT-Net wiki contains three catalogues. The Data Catalogue is the main catalogue and it aims to include references to all available datasets from the FOTs/NDSs carried out in Europe and internationally. Therefore, the main purpose of the Data Catalogue is to support potential data re-users in identifying suitable datasets for their purposes and to facilitate data sharing.

The work of the FOT-Net consortium on the Data catalogue aims to extend the current FOT/NDS Catalogue, improved ease-of-use and ensure that data remains with their owners.

Everyone is invited to add data entries. Mrs. Innamaa showed step by step how to make an entry, edit and retrieve data- as well as the lessons learned from the project's experience. The consortium plans to continue the contacts with data owners to encourage them to use the Data Catalogue.

By developing this account, the consortium aimed to facilitate the use for those sharing data and those looking for opportunities to re-use data.

10 Open data: European Open Science Cloud for Research (EUDAT)

Yann Le Franc (e-Science Data Factory) presented EUDAT services making an emphasis on the fact that they are all community-driven. EUDAT services (the so called B2 Service Suite) are designed, built and implemented based on user community requirements. They are covering both access and deposit, from informal data sharing to long-term archiving. The project is also addressing identification, discoverability and computability of both long-tail and big data. This way, EUDAT services seek to address the full lifecycle of research data

The consortium shares a vision in which data is shared and preserved across borders and disciplines, thereby enhancing the value and quality of research at large. To contribute to the achievement of such ambition, EUDAT aims to enable data stewardship within and between European Research Communities through a Collaborative Data Infrastructure, a common model and service infrastructure for managing data spanning all European research data centres and community data repositories. The repositories are used for shareable digital objects (B2SHARE) and harvest the community metadata for inclusion into the Virtual Language Observatory.

11 Platform for data sharing, data analytics and data visualisation

Richard Glassco (Noblis) presented the Research Data Exchange (RDE) developed by the United Stated Department of Transport (USDOT).

Mr. Glassco started his presentation with an overview of the Safety Pilot Model Deployment (SPMD). SPMD contained data that could be shared through the RDE, but not all of it, e.g. the data which contains PII that cannot be removed, the data which contains commercially sensitive information or property rights. The data that cannot be shared can, however, be stored in the FHWA's Saxton Transportation, where access to data is restricted to researchers with appropriate qualifications and training.

For data to be included into the RDE, there are certain requirements. For example, the RDE team will get rid of all data files containing PII (e.g. address, licence plate number) to protect participants identity.

12 Lessons learn from past experiences: how available data can be used?

Mitsakis Evangelos (CERTH) and Alexander Froetscher (AustriaTech) led this session. They based their presentation on the experiences of the Compass 4D project and the EU C-ITS Corridor Eco_AT.

COMPASS4D tested three C-ITS services: forward collision warning, red light violation warning, and energy efficient intersection service. 334 vehicles participated, with some 800 drivers, including trucks, buses, cars, emergency vehicles, and taxis. Different kinds of data, including GPS data, vehicle and driver data were collected. Datasets are: events datasets, on-board units' datasets, road-side units' datasets, meta-data, simulation-based datasets, and questionnaires data.

The consortium is now looking into the possibility to move towards a "Big Data" Portal where floating car data (speed, congestion, position - GPS), Bluetooth detections data and research data (COMPASS4D) would come together. They also think it would be useful to have a section for comments where people can log suggestions for tools they would like to see developed thanks to the available data sets. It remains to be seen, however, what are the details of the data policy of COMPASS4D in the long run. Discussions are ongoing.

The C-ITS Corridor includes a Big Data pilot enabled by the open data platform CKAN. The consortium has taken into account the FESTA handbook through the FOT implementation plan. The lessons learned have been taken into account within the EU C-ITS corridor.

13 Experiences from an ongoing project

Ilkka Kotilainen (Finnish Transport Agency) presented his experiences on data sharing in relation to the Nordic Way project. The project aims to enhance traffic safety and reduce the number of accidents on European roads. NordicWay includes 1 C-ITS corridor 4 countries: Denmark, Finland, Norway and Sweden 2000 users on Nordic roads.

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Digitalisation is one of the megatrends that are shaping today's world. In transport, people and vehicles are connected for more safety and cost-efficient services. The combination of sensors and the Internet make transportation means increasingly interconnected and intelligent.

NordicWay offers road users safety and interoperable services. Interoperability is a key concept as vehicles and users from any NordicWay country have to be able to use the provided services in all parts of the corridor's network. For that to be possible, the project uses common ISO/CEN/ETSI C-ITS standards and "identical" ways to utilise them.

NordicWay relies on data shared among the project partners. The project is possible thanks to public-private cooperation.

14 An industry prospective on data sharing

Ahmed Nasr (HERE) provided an insight into industry's perspective when it comes to data sharing. The idea is that data coming from both public and private bodies could mix. Solutions could be multiple clouds, connected or not necessarily providing information to everyone at all times.

Privacy is an issue. In fact, untraceable data is one important goal that should be set. Privacy is in the product design from the beginning.

The aim is to go for the minimum cut-off where the data have value but not necessary to go beyond. ITS Directive defines 6-8 safety related scenarios. It is interesting to note the use-cases on data which makes us reflect on whether public authorities should share data for public safety.

15 Towards pilots for automation: new methodology needs

Yvonne Barnard (University of Leeds) focused her presentation on methodological needs of the new wave of automation pilots.

Automation FOTs are expected to clear some unknowns about the impact of road automation in areas such as safety, mobility, environment, efficiency and overall societal impact. FOTs are only one evaluation method, but a crucial one. To answer these questions researchers have to gather knowledge and experience from different approaches and source but, however, we will still only see a small part of the whole picture. FOTs are limited tests, so we need information from many FOTs. Each of them should bring insights to contribute to the wider picture.

A common methodology would be needed in order to ensure scientific rigour and to allow for comparisons between studies. For that methodology to come to fruition, there are several aspects that need to be addressed, including study design (e.g. baselines), research questions, performance indicators, etc.

The FESTA methodology can serve as a point of departure as many practical issues remain the same, designing and performing a FOT, and analysing the results. However, FESTA has

a focus on system to be tested and a new focus may be needed for it to become fit-for-purpose.

16 Evaluation of pilots for automated vehicles: international collaboration

Satu Innamaa (VTT) presented the Trilateral Impact Assessment Subgroup for Automation in Road Transportation, which met for the first time at La Rochelle meeting on 30 March 2015. This group works on the harmonization of the high-level evaluation framework for assessing the impact of automation in road transportation. It is led by Mrs Innamaa, Scott Smith (US DOT) and Nobuyuki Uchida (JARI), from Europe, the USA and Japan respectively. The group organises calls and face-to-face meetings periodically.

As mentioned in the presentation of Yvonne Barnard, potential impacts of automation are far reaching and complex and FOTs are expensive. International harmonization in their design and implementation will facilitate sharing data and best practices. With this in mind, the group is working on gathering experience and discussing aspects such as the performance indicators used to analyse the impacts of vehicle automation, and creating a harmonized AD impact assessment framework based on automated vehicles benefits using the FESTA methodology as a point of departure.

17 Current activities: needs and challenges for data collection.

Adrian Zlocki (IKA) and John-Fredrik Grönvall (Volvo Car Corporation) presented the needs and challenges for data collection for current activities such as the DriveME and AdaptiVe projects.

Automated driving unfolds a whole new range of research questions; e.g. how does it affect the traffic system (driver, vehicle and environment)? As mentioned in previous presentations from Yvonne Barnard and Satu Innamaa, there are different evaluation tools to answer these new research questions; i.e. FOTs, but also controlled Field, Dynamic Driving Simulator and Simulation. FOTs provide an environment which is very close to the reality, and thus is a very valuable research method. FOTs examples in Europe are euroFOT, KONVOI, ADAPTIVE, and PEGASUS. There are large-scale field tests for ADAS already conducted in Europe- the next step will be the test of vehicles with increasing degrees of automated functions.

Field tests need to be prepared and require intensive pretesting. Often only small scale tests are conducted. In FOTs, data is collected in large amounts. The management of these data poses a significant challenge. Furthermore, more sophisticated sensors will result in higher amount of logged data. There are still unanswered questions about data transfer and handling.

The legal framework is crucial as it is not possible everywhere to test automated driving functions on public roads. The legislation is progressively evolving to enable this kind of research in different European and non-European countries.

18 Conclusions and wrap-up

Sami Koskinen (VTT) concluded the Stakeholder meeting and moderated a short discussion among the participants.

Some pressing issues covered during the meeting related to the dichotomy between data privacy and protection of people's integrity versus data sharing and research potentials. It is difficult to draw the line where exactly the data starts being too sensitive.

Participants highlighted the importance of preparing from the beginning of the FOT for data sharing. However, they also believe that incentives for data sharing are sometimes missing. Certifications for data shares may be a good idea so the 'sharer' opens its database with certain guarantees. Regulations and clear legislation on the topic would also help creating a propitious framework for data sharing.

Discussions also revolved around the measurement of safety in automated vehicles; e.g. what is the KPI to measure the safety of an automated car? Manufacturers will need to ensure safety in their increasingly automated vehicles for citizens to trust them. It was also discussed how difficult it will be for future researchers to measure truth. Participants wondered to what extent citizens will know what their autonomous vehicle can or cannot do.