

3rd Newsletter, 2011 February

RATIONALE OF THE PROJECT

TRANS-TOOLS ("TOOLS for TRansport Forecasting ANd Scenario testing") is a **European transport network model** that has been developed in collaborative projects funded by the European Commission Joint Research Centre's [Institute for Prospective Technological Studies \(IPTS\)](#) and DG MOVE.

WHAT'S NEW IN THE PROJECT?

In this issue **the focus is on** the exciting topics of

- ❖ **Linkages to databases and other models**
- ❖ **Status report of the two central models of the Project:**
The Passenger and the Freight Models

and you can find at the end some information about

the professional community involved in dissemination.

DATA COLLECTION AND VALIDATION

Efforts conducted for data collection

The main attention in WP5: "Data collection and validation" the first 8 months of the project has been dedicated to obtaining data from ETIS+. There has been an intensive and continuous cooperation with the ETIS+ consortium regarding the data specification. However, issues related to the other tasks under WP5, such as producing demand matrices or network development, have also been considered as all the tasks are interdependent and rely on each other.

At this point of the TT3 project a picture has begun to emerge about data availability from ETIS+ and the need to draw on other data sources in order to obtain all variables needed, their definition and level of detail as well as input/output files format. As originally planned, the ETIS+ project will provide the main part of the data for the TT3 project, however, within TT3 the consortium partners have had to be creative and innovative in order to identify other data sources (national and international) and solutions to fulfil the purpose of the TT3 model. So far, the main data issues concern freight transport, while the passenger transport data seem to be sufficient.

Efforts to extract data from external sources that may be of use to the TT3 model were discussed in the meetings held in October 2011 about the passenger and freight models. The issues discussed concern possible sources for complementary

travel and socio-economic data as well as challenges involved with obtaining regional and disaggregated data from national sources.

Linkage to ETIS+

ETIS+ sets out to build upon the strengths of the ETIS project (2005) and to address the lessons learnt. In principle, the Commission’s objectives have not changed (namely, the need for a pan-European database on the flow of goods and people, covering all current and proposed Member States), but greater emphasis is required upon the frameworks, i.e. the knowledge management process and institutional arrangements, as a pre-condition for the successful implementation of the ETIS+ knowledge base.



Several innovations and extensions are proposed by the project.

The database will contain three main datasets:

- Supporting data
- Freight and logistics data
- Passenger demand data



Due to the complexity of the specification process, the delivery by ETIS+ of the initial version of the database (networks and matrices) is postponed and is currently expected to be delivered in March 2012.

You can reach ETIS+ homepage at <http://www.etisplus.eu>.

LINKAGE TO ECONOMIC MODELS

The main objective of TT3 is its development as the detailed core model for travel demand and network analyses for transport in the EU. The model does not forecast changes in economy, workforce and population, which are needed as input to long term transport forecasts. Models of economy and population development build on the other hand only on a simplified description of the transport sector. The main objective of the WP6 in the TT3 project is thus to support the development of “boundary data” to be used using the model for forecasting. This includes population

data, work force data, GDP data, car ownership, etc. Two different approaches for this will be developed:

- 1) A scenario generator will be developed in order to assist users in defining future year scenarios for any model year. We believe that this will be a useful tool in the context of sensitivity analyses of assumptions with regard to the model explanatory variables (e.g., fuel prices and GDP development).
- 2) Development of a protocol for the linkage to external models that can be used to forecast the external variables, and provision of the possibility to define linkage to external models.

STATUS ON THE PASSENGER AND THE FREIGHT MODELS

The passenger model

For the passenger model, the task is to re-estimate the demand models and to update the model to 2010. This includes addressing known weaknesses such as overestimating long rail trips. We will build on progress already made in context with the TEN CONNECT project, in which new passenger models were estimated using a tour based approach at the NUTS 3 level, segmented on short and long distance trips. In the current project, we will carry this work further by improvements in data as well as in estimation. We will also try to extend the description of the destination zones in order to improve the model.

Data will be improved by the updated Generation-Attraction based aggregate trip matrices from the ETIS+ project, and by extending the Nuts 3 zone definition to a zone system where differences between countries in zone sizes will be more harmonized. This will make the zones more comparable and will cause less bias in the models.

Recent advances in estimation of non-linear functions have been successfully used in long distance modelling in UK and Sweden. This experience will be fed into the estimation of the TT3 models, enabling efficient search for optimal model specifications. The estimation will be based on disaggregate data from the Dateline survey, possibly together with additional data from national travel surveys and modelling in different European countries.

The freight model

A general structure for the model has been designed and issued. However, there remain questions of data which relate both to model calibration and implementation. This means that a fuller definition of the model can only be available when the data issues have been resolved.

The key components of the overall model are a) the Base Matrices of freight flows, b) the Trade Model for future exogenous growth, and c) the logistics model for the choice of modal chains. While it is the logistics model which offers the greatest challenges (and is the major innovation for TT3), there are questions as to the level of detail at which the Base Matrices can be provided, and this in turn has consequences for the Trade Model.

Discussions have been held with the ETIS+ project over the Base Matrices, and remain ongoing. At a meeting in May 2011, it was agreed that the matrices should be prepared at the NUTS3 level, that commodity groupings should be based on the more recent NST2007 classification, and that – as far as possible – the matrices should aim to reflect the desired “Production-consumption” format (while recognising that this data only exists at a country-to-country level). A new commodity classification has been designed by the Freight team which is considered appropriate both for the logistics and trade models. However, there remain doubts as to precisely what level of detail the ETIS+ freight matrices will contain.

As far as the logistics model is concerned, it has been decided that the highly detailed (firm-to-firm) operation which is a feature of the Swedish and Norwegian freight models is probably too disaggregate for TT3, which has to operate at the international rather than the national level. Nevertheless, it is still considered essential to have a dataset which allows individual shipments to be modelled. By far the best dataset which we have identified for this process is the French “ECHO” survey from 2004, and we are in the process of making application to use this data. If this succeeds, we should receive the data by the end of March 2012. We also have access to the Swedish Commodity Flow Surveys.

LEARNING FROM OTHERS

LEeds Freight Transport Model (LEFT)

LEFT is a strategic policy testing freight transport model for Great Britain. It looks at the impacts of cost changes on (road plus rail) market size (tonne-km), mode split, and vehicle km.

LEFT is a spreadsheet based model, and is disaggregated by the following dimensions:

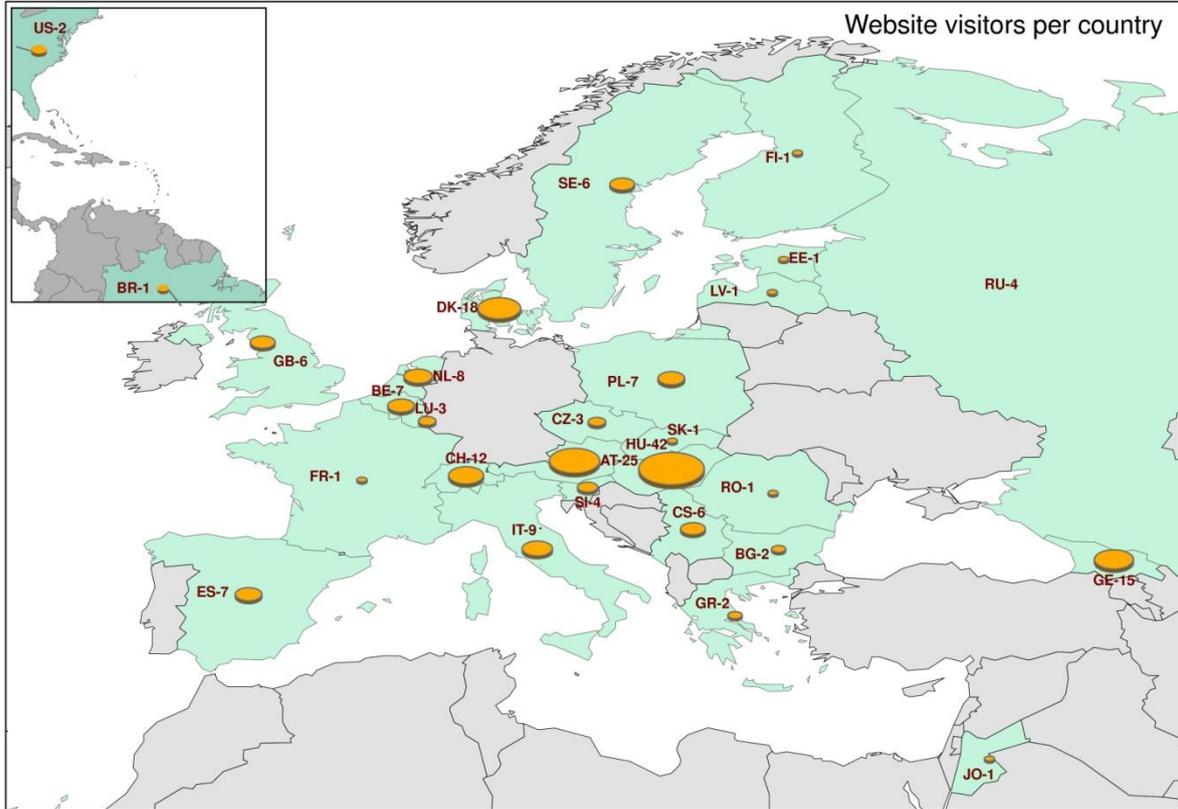
- i. The base total market is split into train-friendly (TF), or train-unfriendly (TU) operations.
- ii. The base data is split over 7 commodity groups.
- iii. The base data is split over 9 distance bands

Cost models are provided that calculate costs in each cell for Road and Rail. Base traffic matrices are provided for 2000 and 2010. Policy changes are allowed to affect the costs of each mode in each of the 126 cells (=2x7x9). A simple logit model, calibrated to exactly reproduce the two base matrices, gives the cell traffic percentage split by mode. The same logit model parameters are used to form a composite cost for each cell that is allowed to affect the total (road plus rail) traffic in that cell. Interesting data outputs for tonnes and tonne-kms are presented on an output sheet. Example outputs of the effect of the EU Working Time Directive, SRA Company Neutral revenue Support, DfT Road User Charging, and increased road vehicle efficiency will be presented.

For more information see: <http://www.etcproceedings.org/paper/left2-a-strategic-freight-transport-model-for-great-britain>

TT3 GOES ON-LINE TO INVOLVE STAKEHOLDERS

The **2nd Newsletter was sent out to some 800 validated email addresses** that generated an increasing interest in the project website as well. The average time spent on the site was a bit more than 4 minutes (slight increase compared to previous screening) with a bounce rate at around 30% (5% less than before); later this rate was continuously decreasing. The territorial coverage and awareness raised considerably since last reporting.



THE CONSORTIUM

Beneficiary name	Country
Technical University of Denmark	Denmark
Institute of Transport Studies, Leeds	United Kingdom
Royal Institute of Technology	Sweden
Rapidis	Denmark
Tetraplan	Denmark
University of Oxford	United Kingdom
National Technical University of Athens	Greece
John Bates Services	United Kingdom
Swedish National Road and Transport Research Institute	Sweden
Nouveau Espaces de Transport en Europe Application de Recherche	France
ETH Zürich	Switzerland
University of Belgrade	Republic of Serbia
FÓMTERV Zrt.	Hungary
AustriaTech – Federal Agency for Technological Measures Ltd.	Austria



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