1. Publishable summary

This project report describes the first year of activity in the TransTools 3 project (TT3), which is developing the third upgraded version of the European TRANSTOOLS model. The project itself is on track, only with few deviations from the expected plan – all of which have been dealt with.

However, the project is planned to build on data from the ETIS+ – another EU-project – which is heavily delayed. This has not seriously affected the first year of work in TT3, but it is expected to delay the upcoming phases. The expected delay is nine months. A further complication is that ETIS+ will not deliver all the expected data. Dealing with these issues is to be settled with the EU Commission.

1.1 Summary description of project context and objectives

The objective of the TT3 project is to upgrade and further develop the current TRANSTOOLS model (TT2) to a new and improved European transport demand and network model (TT3).

The project will improve the methodological basis of TRANSTOOLS, improve and validate its data foundation, deal with known deficiencies of the existing model, make the software faster and more efficient, and focus on the user needs, model documentation and model validation. In addition, the model will update the current TRANSTOOLS model - from 2004 as base year- to 2010 as base year based upon ETIS+ data, which include transport networks (all modes), traffic counts, transport matrices (persons, vehicles/coaches, freight in volumes and monetary values), zonal data (including socioeconomic data) and the geographical coverage of the model will be enlarged.

The level of detail with regard to the rail, maritime and air transport modules of the model will be increased. This allows for better analysis of costs, capacity and externalities of transport. Finally, the impact assessment model will be improved.

When finalised, the TT3 will deliver a validated, well documented and user friendly model that will provide policy makers with a tool for assessing and developing better transport policies. The final model of TT3 will as such be IPR free and more open than the present model (but building on ArcGIS and Windows).

The TT3 project consortium consists of 14 partners:

Partner	**Country**
Danmarks Tekniske Universitet (DTU)	Denmark
University of Leeds (Univleeds)	United Kingdom
Kungliga Tekniska Hoegskolan (KTH)	Sweden
Rapidis ApS (Rapidis)	Denmark
TetraPlan A/S (TP)	Denmark
The Chancellor, Masters and Scholars of the University of Oxford (UOXF.JQ)	United Kingdom
National Technical University of Athens (NTUA)	Greece
John Julian Bates (JB)	United Kingdom
Statens Vag- och Transportforskningsintstitut (VTI)	Sweden
NESTEAR SARL (NEST)	France
Eidgenössische Technische Hochschule Zürich (ETH)	Switzerland
Univerzitet u Beogradu - Saobracajni fakultet (FTTE)	Serbia
Fomterv Mernoki Tervezo Zrt. (FT)	Hungary
AustriaTech – Gesellschaft des Bundes fur Technologiepolitische Massnahmen GMBH (AT)	Austria

1.2 Work performed since project initiation

Within the first 12 months of the project, the Consortium focused on:

- Establishing project coordination structures, systems and procedures to ensure proper execution of the project framework;
- Development of the overall model design as well as sub-model designs;
- Preparation of data, including specification of data needs as well as clarification of access to adequate data of a sufficient quality;
- Base software development of sub-models.

Initial test of ETIS+ data and preliminary work on data was planned to have initiated during the first year of the project. However, the first preliminary data delivery from ETIS+ was received 8 months later than expected, and only contained a subset of the data. Hence, the planned TT3 validation activities were not initiated as planned. They will be launched immediately after each delivery of preliminary data from ETIS+.

During the reporting period, time has been invested in discussing with the ETIS+ consortium what data could possibly be delivered and when, validating preliminary data from ETIS+, and considering how to deal with the issue of the delayed ETIS+ data.

The TT3 project is organized in 12 work pages (WPs) including a WP for project management (WP1) and a WP for cross-cutting activities (WP2) – both relating to the management and coordination of the project. Activities that have been carried out during the first year of the project are outlined in the following:

WP1: Consortium Management and WP2: Cross cutting activities: The objective of WP1 and WP2 is to ensure an effective overall management and coordination of the TT3 project that will cater for an efficient and successful implementation of the project.

During the first year of the project, the project organization has been set-up, a kick off meeting has been held, and a number of subject-oriented meetings have been held within the different WPs. Procedures, guidelines and formats for project reporting, and a production plan have been developed and communicated to project partners. Furthermore, a project website has been set up, 3 newsletters and a project leaflet have been produced and distributed to stakeholders. A first Project Steering Group meeting was held in October, 2011.

WP3: Architecture and configuration: The objective of WP3 is to design the changes necessary to the overall model structure of TT2 in order to ensure a modular and flexible model implementation.

The WP has made an initial analysis of possible model architecture and configurations. However, due to the delay of ETIS+ data, these could not be tested on real data, and thus have the character of “muck ups”.

WP4: Flexible modelling framework: WP4 deals with the linking of all sub-models developed in the project into one complete modelling system which will make it easy for users to create and run different configurations of the model framework.

Some initial design considerations have been made. The main effort: To connect the different sub-models, will take place after the sub-models have been developed.

WP5: Data collection and validation: The objective of WP5 is to validate ETIS+ data, and collect and prepare data for estimation if needed.

So far, the main activities have been to coordinate and establish links with ETIS+ and to update the geographical zone-system, including collecting geographical and socio-economic data from the member states and other

European countries. Data collection for most countries is finalised. A number of meetings have been held with the key partners in the ETIS+ consortium and DGMOVE.

WP6: Scenario generator: The objective of WP6 is 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.

Definition of boundaries between the scenario generator and the various sub-models has been outlined across WPs and a model design note has been prepared laying the ground for future work in this WP.

WP7: Freight models and logistics: The objective of WP7 is to develop a new freight model, based on 2010 data.

The design phase has been relatively intensive, since the freight model will be a completely new model. Activity has been extensive – both related to designing the freight models and to identifying adequate data. Several meetings between key partners have been held, and a model design note has been produced. A solution for how to link the TT3 model with socio-economic models is being discussed.

WP8: Passenger demand model: The objective of WP8 is to re-estimate the passenger demand model from TT2, update the base year of the model and take nonlinearities into account.

Focus has been on identifying disaggregated sources for model estimation and meta-data from national models and national studies. Several meetings have been held with key partners, and a model design note has been produced.

WP9: Traffic assignment: The objective of WP9 is to improve the route choice and traffic assignment component of TRANSTOOLS.

So far, the main effort has been to analyze the design of the traffic assignment models in TT2, and design the traffic assignment models in TT3 from a general framework perspective in order to proceed at a later stage with the specific design of each traffic assignment model for each mode.

Since existing models will be used in TT3, the main effort in WP9 will be to calibrate these models once data from ETIS+ is available and an effort will be made on speeding up the calculation time with various techniques. A model design note has been produced laying the ground for future work in this WP.

WP10: Project assessment model: The objective of WP10 is to develop a project assessment model that will be able to evaluate physical infrastructure as well as tax policies and combinations of these.

As this model will use input from the other models (WP6-9), the main testing will await these. The methodological approaches have been discussed though, and a model design note has been produced.

WP11: Model validation: The objective of WP11 is to undertake proper validation of the overall model in order to rule out possible errors and to establish a common consensus on the outcome of the model.

WP11 will ensure that all models in TT3 are thoroughly revised and that there will be a validation of the complete model framework and of the user interface. This WP will not start until the other WPs have delivered models that can be validated. As such, the WP is planned to run the last half year of the project.

WP12: Deployment, user guide, and maintenance: The objectives of WP 12 are to provide a robust mechanism for the end user to install and uninstall TT3 and a comprehensive User Guide for TT3. Work will be carried out in parallel with WP 3, 4 and 6-10; but the merge of all this, will first take place in the final phase of the project.

1.3 Results achieved and expected results

The following formal deliverables have been accomplished and approved by the EU Commission:

- (D2.1) A project web page has been developed and launched at www.transtools3.eu
- (D2.2) A format for a project newsletter has been developed and three newsletters published at the project website and distributed by email to relevant stakeholders. A project newsletter will be published and distributed every 4 months throughout the project.

In addition, the following deliverables have been submitted and await the Commission's approval:

- (D3.1) Guideline for model configurations
- (D3.2) User interface design documentation
- (D5.1) Note with specifications for ETIS+.

Seen from a project point of view, the main contributions of the project the first year are the following:

- A set of model design notes (Milestone) have been produced, distributed among key partners and submitted to the EU Commission for information. These notes lay the methodological foundation for the model development in the remaining part of the project.
- There has been a clarification of the need for software development, both within WP3 and 4 and the cross cutting WP6, and within the specific model components: WP7-9 (freight, passenger and traffic assignment).
- There has been an extensive dialogue with ETIS+ concerning the interaction between this project and TT3. This also included commenting on format specifications and meta-data in ETIS+.
- Alternative data sources for model estimation have been identified and data access ensured.

1.4 Potential impact and use of results

The project works towards producing one overall and final result: An integrated model that will cater for more informed transport policies and decisions. All WPs, tasks and activities in the project are targeted towards this end result; hence, there are no project activities as such producing intermediate results which may have an impact during the cause of the project.

Still, it must be assumed that in the course of the project, involved partners, stakeholders and people exposed to the project during conferences, workshops, discussion groups, etc. will gain a higher level of knowledge of modelling techniques and links between transport and other issues, such as economic, environmental, trade, etc. Many Consortium members are represented in national and international committees and boards. This guarantees an efficient dissemination of the ideas and activities carried out in the project to the scientific community and governmental organizations.

Likewise, the TT3 website, the newsletters and the leaflet – the last two distributed to over one thousand people associated with the transport sector, are likely to increase the knowledge level of people exposed.

The main impacts – when the model has come into use - are expected as follows:

- The project will validate data on transport from ETIS+, and collect data from other sources, compile and merge them into a joined database that describes transport in Europe. This provides a general knowledge on transport in Europe. All data will be available in an IPR free format, whereby it can be of use – not only to DG MOVE – but to member states, transport organisations, NGO's etc.
- TT3 can be used for assessing impacts of overall European Transport Policy, energy and/or fiscal/economic policies with focus on the transport sector, as well as evaluation of TEN-projects and other infrastructure projects.
- TT3 can also be used for evaluating large-scale national and interregional projects beyond the TEN-net.
- Finally, TT3 can be used in context of national transport models – in cases/countries where no national model exists, as a base for developing national models, or in order to describe international traffic to/from and through countries, especially in countries with much international transport or in border regions.