

DSSITP

Decision support system for intermodal transport policy

DURATION OF THE PROJECT
15/12/2006 – 31/01/2009

BUDGET
380.745 €

KEYWORDS

Multi and intermodal transport, Sustainable mobility, Freight transport, Simulation model, Policy measures

CONTEXT

In recent years intermodal transport has received an increased attention due to the problems of road congestion, environmental concerns and traffic safety. European policy as well as federal and regional policy measures are trying to stimulate intermodal transport. The objectives of this project are to find ways to enhance the growth of intermodal barge and rail transport. As well as the stimulation of growth, it is also important to foresee the limits of their growth.

To achieve the goals of this project, an assessment framework for policy measures has to be developed. This will allow policy makers to evaluate the impacts of measures before and after their introduction. The assessment framework will be tested on policy measures that have been used until now and new policy measures will be simulated.

PROJECT DESCRIPTION

Objectives

The objectives of this project are to find ways to enhance the growth of intermodal barge and rail transport. Both combinations have a particular market structure and operations, but it is important to analyse them together in order to take care of potential competition distortions. This will also allow to integrate the policies for intermodal transport on a federal and regional level in a better way. Next to the stimulation of the intermodal transport growth it is also important to predict its limits. In how far, is the intermodal terminal landscape saturated? Is the capacity of our inland waterway network and rail way network high enough to cope with a further increase? The congestion in the port of Antwerp is identified as a major bottleneck for barge terminals. What kind of alternatives are available to solve these problems?

This project anticipates the need for information about policy measures to stimulate intermodal transport and provides federal, regional and local governments with information to support decisions in the field of freight transport and mobility.

Methodology

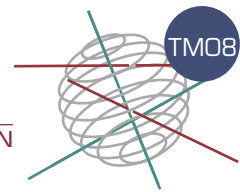
A first step will be to predict the potential modal shift in the network caused by the measures. This analysis can be made by means of the freight models developed by FUCaM. In a second step, the capacity problems have to be predicted. For the inland waterway network a discrete event simulation model will be developed by UHasselt. This simulation model will allow to detect potential future bottlenecks (e.g. certain locks, parts of the network or terminals) and will allow an optimisation of the handling of container barges in the port of Antwerp. The model will also be used to analyze the consequences of various policies intended to improve the operational efficiency of barge transport. For the railway network potential capacity problems will be detected by the network model of FUCaM.

In order to simulate the impact of new terminals on the modal split, a combination of two models will be used: The network model of FUCaM and the LAMBIT model of VUB. The first model identifies an optimal location, while the second model analyses the impact of the locations on the market shares of the current and potential terminals. The combination of the models creates a decision support system that allows to simulate and predict potential problems in the freight infrastructure network.

INTERACTION BETWEEN THE DIFFERENT PARTNERS

In work package 1, the state of the art of intermodal transport and policy measures will be given by VUB. An overview of the evolution of intermodal transport and the intermodal terminal landscape will be provided. Furthermore, in order to complement this, practical information from stakeholders in the field will be collected by in-depth interviews. Data from these interviews will be relevant input for the models that will be developed in the later work packages. VUB will develop the assessment framework, which will help to achieve a complementarity between the models in work package 2. The framework will also indicate how data will be shared among the partners in work packages.





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FUCaM will focus on the refinement of their freight model in work package 3. An accurate multi-modal freight network for Belgium will be developed along with origin-destination matrixes for several groups of commodities. As a further step, a cost function for the transport means will be set up. The development of a calibrated baseline scenario will serve to construct a set of scenarios. The scenarios and traffic prognoses of the freight model will serve as an input for the discrete event simulation model, which will be provided by UHasselt in work package 4. Information required for this work package will be collected by VUB and UHasselt.

Optimal location of terminals based on the NODUS module of FUCaM

with an extension of the LAMBIT model of VUB will be developed in work package 5. Finally, all partners will join together in work package 6 for the analysis of policy measures.

EXPECTED RESULTS AND/OR PRODUCTS

On the academic level, the dissemination will mainly be done by the presentation of papers at international conferences such as WCTR, (W)RSAI or NECTAR. The project has a vital link towards stakeholders, mainly policy makers. Therefore, the results of this project will be addressed directly to the stakeholders involving policy makers and companies through an open workshop.

PARTNERS - ACTIVITIES

- Vrije Universiteit Brussel (VUB) – MOSI – Transport & Logistics
- Universiteit Hasselt (UHasselt) – IMOB – Transportation Research Institute
- Facultés Universitaires Catholiques de Mons (FUCaM) – GTM – Group Transport & Mobility

Activities

MOSI-Transport and Logistics research group is specialized in the application of socio-economic evaluation methods in the field of transportation and logistics. Among other things, the MAMCA (Multi-Actor, Multi-Criteria Analysis) method is further elaborated and refined so it could be applied in the field of transportation and logistics. Its research can be divided into four main research areas: intermodal transportation, mobility policy, transportation infrastructure and traffic safety tech-

nology. In all cases, an integrated and policy-orientated approach is aimed at.

The Transportation Research Institute (IMOB) at Hasselt University in Belgium is an independent scientific research institute that has accumulated a strong expertise in fundamental and applied scientific research in the areas of transportation and traffic safety.

Group Transport & Mobility (GTM) is an inter-departmental entity focusing on research in the field of transport economics. The main lines of research at the present time include: cost-benefit and multicriteria analysis of transport infrastructure, analysis of the relative importance and monetary value of the qualitative attributes of transport and NODUS software for multimodal transport networks.

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Follow-up Committee

For the complete and most up-to-date composition of the Follow-up Committee, please consult our Federal Research Actions Database (FEDRA) by visiting <http://www.belspo.be/fedra> or <http://www.belspo.be/ssd>

