PROJECT

SITRAS

Sustainable Intermodal Transport Systems

Systémy udržitelné intermodální dopravní dostupnosti

Funding: National (Czech Republic)
Duration: Jan 2012 - Dec 2014
Status: Complete with results

Objectives:

The proposed project focused on development of innovative software toolboxes for decision-making support in planning of transport. The software solutions are based on innovation of selection of the most effective intermodal solutions to transport tasks and the innovation in assessment of the will to travel for the personal transport.

Parent Programmes:
ALFA - ALFA PROGRAMME

Institute type: Research agency
Institute name: The Technology Agency of the Czech Republic
Funding type: Public (national/regional/local)
Other funding sources: Technology Agency of the Czech Republic

Partners:
Central European Data Agency, a.s.

Organisation:
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Key Results:

1) **Energy-optimised navigation** - utility model: energy-optimised navigation is a navigation device that allows navigation between the selected starting and finishing point in a manner that minimises the energy consumption path. The equipment includes a module that allows calibration of devices based on user data traffic, especially the position data and fuel.

2) **Energy-optimised navigation** - software: the calculated time availability based on the dataset, which contains a number of concrete parameters - slope, bend or a time limit when passing through towns, based on data from CE Traffic. The solution is a calibration tool for the preparation of navigation data for user-specified vehicle and driving style.

3) **Methodological tool to determine the parameters of specifications of freight transport and procedures for data exchange and communication between software to manage, search and booking transport**: the methodology includes specification of procedures and interfaces
necessary for the operation of information systems in order to create an open platform for increasing synergy in multimodal transport costs. A prerequisite for the application of a similar system in practice is to ensure the compatibility of input information and to constitute a software environment that is due to the synergy of different types of software with a common communication interface.

4) **Model availability of labour**: the software is based on the attractiveness in terms of availability of labour. The interface for working with the model allows the evaluation focused on the changes in the area, especially the location of the workplace centres of varying scope, areas of housing and changes in transport infrastructure.

5) **Model intermodal access to employment**: the software is based on a combination model to calculate the fastest route between the source and the target point and the model of willingness of passengers to spend time in transport and their ability to pay for services based on data obtained in the course of the project, especially from a sociological survey focused on employees' willingness to spend time and resources for transport to work.

6) **Portal of availability of labour**: pilot use consists of the module "Model availability of labour" and the module of freight transport "Portal of carrier". As a pilot use, an application server for real use was running. In order to best simulate the actual operation, the pilot use allowed free use of particular users from the public sphere, but also potential users from among potential investors and freight transport operators.

7) **Web portal for carrier**: software allows to manage and edit transport links, depots, the source and destination locations. The software allows their analysis and identification of optimal combination of transport chosen by the user shipment. The booking system is implemented and carriers use an innovative system search path by the energy optimisation.

8) **System for optimising freight transport**: the technical solution relates to an automated system allowing mining trucks to improve communications and increase the competitiveness of carriers due to increased synergy and without direct cooperation between potentially competing firms. The system allows to enter information about links and free shipping carrier capacities and search procurement opportunities in freight transport.

9) **Costs of commuting as an element of sustainability of spatial development strategies**: the presented paper deals with the issue of sustainability of the spatial arrangement of homes and jobs in city regions. Based on the findings of the research, the majority of Czech commuters to their jobs is on a daily basis. Extending distances between homes and workplaces of the commuters indeed imposes pressure on transport infrastructure, the environment, energy security, and both social and economic well being of the commuters.

10) **The computing core for the Portal of Carrier**: the computing core allows server-side management and editing transport links, depots, source and destination points, their analysis and identification of optimal combination of transport chosen by the user. The core is implemented in Python using CherryPy library for secure web interface. As storage the SQL database sqlite3 with the possibility of easy replacement alternatives with better scaling options is used.

11) **EnEval**: the EnEval programme is a software for the evaluation of energy needed by a modelled vehicle to go through the path defined as an input parameter. The path is specified as a sequence of sections with specified length, slope and maximum speed. The output of the software is an amount of the energy consumed.

12) **Route2EnEval**: the programme for creating routes from the GIS network. The route is generated from the programme as a sequence of sections with attributes of length, slope and maximum speed. The output is a database with attributes.

13) **The transport energy consumption in urban and suburban areas - overview of monitored areas**: the specialised map with expert contents: the project has defined monitored areas, which consist of selected settlements in the hinterland of the capital city of Prague. In the last ten years these cities experienced a large increase in the functional areas intended primarily for housing. This thematic series of maps display information about each area. Besides the areas, the density of households, the proportion of people commuting and public transport in the form of departures of buses are investigated.

14) **The transport energy consumption in urban and suburban areas - fuel consumption and CO2 measured from mobile analyser**: specialised map with expert contents: one of the main aims of the project was several measurements in the form of car rides between the monitored areas, located in the hinterland of the capital Prague and the city itself. The aim was to measure emissions during operation using the data available from the on-board vehicle diagnostics (OBD) and the consumption of vehicle. These values were converted into the GIS and visualised.
15) **URPM**: the software for more precise specification of workplace (jobs) distribution. It uses UrbanAtlas data for specification of distribution of workplaces from census data and for estimation of the change in distribution according to the changes between the censuses.

**STRIA Roadmaps**: Smart mobility and services  
**Transport mode**: Multimodal transport  
**Transport sectors**: Passenger transport  
**Transport policies**: Societal/Economic issues  
**Geo-spatial type**: Network corridors