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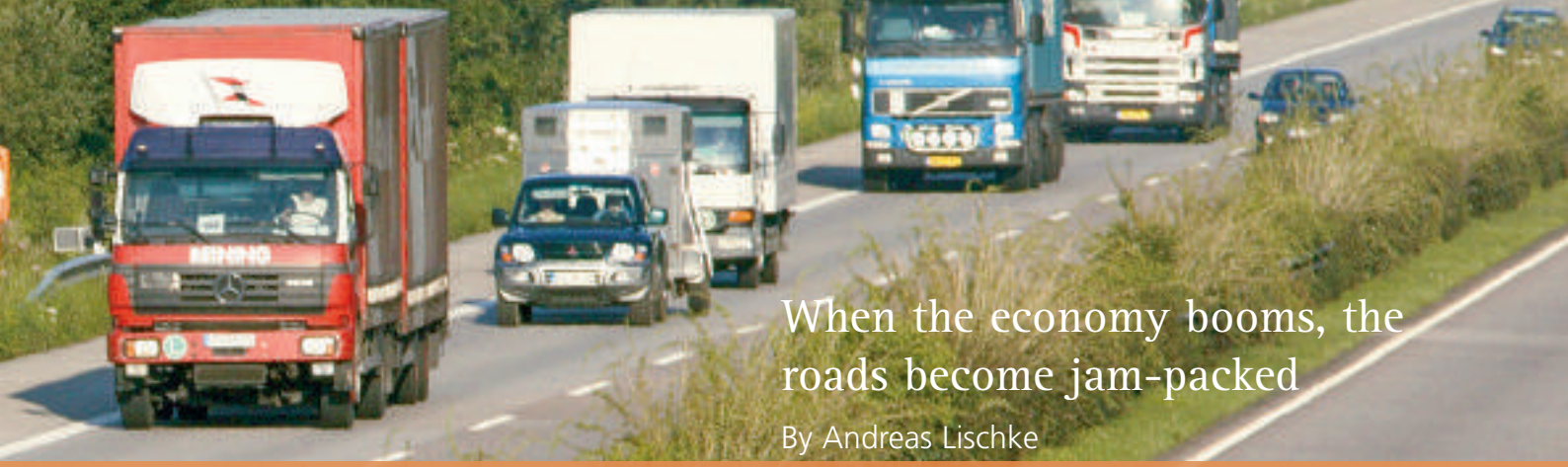
Germany's economy is experiencing an upswing – and so is freight traffic. For 2007, growth is expected in rail traffic of 8.2 percent, with 8.1 percent on the roads and 3.3 for inland waterway transportation. The forecasts are also predicting long-term growth for freight transport. Above all, road transport is set to increase. However, it is also clear that commercial traffic, as important as it is for the functioning of the German economy, is a major emitter of pollutants, carbon dioxide and noise. In order to better understand the reasons for the demand in freight traffic, the DLR Institute of Transport Research has developed the commercial transport model WiVSim.

The WiVSim model depicts the "actors" as the shippers, i.e. the producing companies and commerce, and the transport and logistic service providers together with their respective behavior. This approach describes the freight traffic caused by industry as well as service traffic. Only once the behavior of individual sectors is better understood, there can be estimated what effects future technological and regulatory measures will have on commercial traffic. The main idea is that traffic, which is caused by delivery vehicles and heavy goods vehicles as well as locomotives and rail wagons, can be designed to be more environmentally friendly through new technologies. Furthermore, the impact on people and nature can be reduced by appropriate regulatory measures. An example of a conceivable regulatory measure is the allowance of so-called "gigaliners", i.e., heavy goods vehicles with a permitted total weight of 60 tones and a vehicle length of 25.25 meters. This issue is currently being discussed at length at European level by politicians and affected lobby groups. However, there is a lack of precise knowledge on the impact of these gigaliners. The Institute of Transport Research is investigating how the vehicle-kilometers i.e., the total number of kilometers driven by road freight traffic, would change if gigaliners were permitted. It can basically be expected that the number of necessary HGV journeys would be reduced by the deployment of gigaliners, efficiency would increase, and transport costs



When the economy booms, the roads become jam-packed

By Andreas Lischke

Understanding of Traffic Development

and thus transport prices would be lowered. However, it is feared that rail transport, in particular from combined rail/road transport, would partially be re-shifted to the road-haulage.

Using the modeling tool WiVSim that was developed at the Institute of Transport Research, the expected effects can be quantified with regard to individual relations (routes between origin and destination) and projected for the entire volume of freight traffic. The model simulation calculates suitable journeys for the gigaliners; the modified consignment volumes and the relevant route patterns and transport distances are especially taken into account. Restrictions can also be taken into consideration in a 2nd step, e.g. if it is prohibited to use these vehicles on certain roads. At the end it can be forecast how many shipments are suitable for transportation with gigaliners and how many HGV journeys can be saved.

Further questions that are investigated, some of which in cooperation with other research institutes, concern the impact on traffic which results from new logistics concepts as well as the effects of measures expected from the "Freight traffic and logistics" master plan that is announced by the German Federal Government. The aim is also to use the model to investigate and calculate the changes in transport that can be expected. Also new vehicle technologies, for example like the ones that are going to develop at DLR in Stuttgart, can be investigated with the model in terms of their overall impact on freight transport.

With the expertise of different DLR institutes can be realised a link between the models for forecasting the demand in freight and passenger transport with models analyzing and monitor the road traffic related effects (e.g. emissions) Thus, much more accurate forecast can be made on the development of the demand for transport and on the impact of traffic on the environment at a local, regional and global level in the future.

Author:
Andreas Lischke is the acting Head of the Department for the topic of Commercial Traffic Modeling at the DLR Institute of Transport Research in Berlin.