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Growth in freight transport calls for creative solutions around the three mainports

The research programme entitled 'Towards a sustainable multimodal freight transport system for the Randstad', which is led by Lóri Tavasszy, focuses on the rapid growth in freight transportation in and around the three Randstad mainports (the Ports of Rotterdam and Amsterdam and Schiphol Airport). The researchers are studying ways of linking chains in trade, logistics and transport, with a particular emphasis on such issues as multimodal network design and urban distribution. The programme is a collaboration between researchers of Radboud University Nijmegen, Delft University of Technology and VU University of Amsterdam.

'For the first time ever our society has reached the point where freight transport will start growing faster than passenger transport. This has huge implications for our infrastructure and transport networks. All eyes are focused on this major social issue. And policy-makers realise this,' says Lóri Tavasszy in his Delft office at TNO. 'Just imagine...the infrastructure to and from Rotterdam will have to handle three times more freight by road, five times more by inland waterway and seven times more by rail. How can it cope? And do we even want this growth? The Netherlands is traditionally an important logistical hub in world trade. Maintaining that status is a huge challenge – particularly in the Randstad, with its four large cities and three mainports.'

Research for policy

Tavasszy continues: 'You can obviously facilitate the growth in freight transport, but only at a social cost. On the other hand, we neither can nor want to stop that growth. The middle position is the most challenging one, namely finding creative ways of managing that growth without compromising sustainability. Whatever course we take, to develop effective policy for the Randstad, we must get the facts on the table first. These include current data on freight transport, accurate forecasts, policy

analyses, and so forth. We've found that new model instruments need to be developed, estimated and tested and that new empirical research is necessary, with a specific focus on the Randstad. That's what we are going to do now.'

Knowledge development and knowledge application all in one

The SAR programme came at just the right time for Tavasszy. 'At TNO we had previously made a freight transport model for the Ministry of Traffic, Public Works and Water Management (V&W). This model, named SMILE, was intensively used in practice and was also adopted for studies in other countries such as the UK and Sweden. But there were still some unresolved scientific issues with SMILE. Now we have an opportunity to tackle these. My two hats – Professor at Nijmegen and TNO man – come in very handy for this purpose. At the university we develop fundamental knowledge, while TNO acts as a bridge to the practical world.' Tavasszy enthusiastically describes his engagement in the development of freight transport models since obtaining his PhD in the mid-1990s. 'After all sorts of practical applications, we are finally getting round to the scientific research agenda that has evolved in the past years. What's more, the programme that we can carry out now will open new avenues for research in the field of freight transport.'

System vision for trade, logistics and transport

Tavasszy explains that the programme is made up of three projects. 'The first project consists of two parts. The first part puts the demand for freight transport in focus. Who are the customers, why do they want that transport, when and for how long do they need it, how fast will it grow? We really need to delve deep here, because there are so many different data out there. The trade and transport data are based on different measurement methods, ranging from surveys to administrative records, and they also come from lots of different actors. The question now is how to integrate these data into a single coherent picture. To do this, the second part seeks to obtain a good picture of the logistical services market, i.e. the organisers of freight transport. Ultimately everything is brought together in a coherent set of models and databases for the Randstad, using the input

from the other two sub-projects. 'In our approach the system vision is the dominating factor. The data and models help us to develop a picture of the overall coherent freight transport system in the Randstad, which must also be easily reproducible. With that picture, we can deliver better forecasts of the expected growth in freight transport.'

Smart time policy saves millions

The second project is about supply: the multimodal freight transport network, the infrastructure and so forth. 'This concerns the question how to set up the network in such a way that it is not just optimal in economic terms, but also in terms of sustainability requirements,' says Tavasszy. The third project, finally, zooms in on the Randstad and makes a cross-section cutting straight through supply and demand. 'We use the outcomes from the first two projects to build a detailed simulation model specially for cities.' It is a so-called Multi Agent system, in which different policy options can be 'tried out' on artificial actors in the world of urban freight transport. 'There are policy options in various fields such as pricing, emissions norms and spatial planning. What happens with transport in the cities if you decide to place distribution centres on the outskirts of the urban area? Under what conditions is that feasible? Another option is to coordinate the time slots that lorries are allowed into the city centres to supply stores, restaurants and so forth. At present these time slots are not coordinated at all. It would save hundreds of millions of euros a year if they were.'

Educating one another

Ambitious though this programme is, Tavasszy is confident that it will succeed. 'Obviously we have to manage the users' expectations. A thesis is clearly different from an applied study. But as a TNO man I have fortunately gained some experience of the policy-making world. The programme committee's role is very important at SAR. I see the added value of the policy-makers' involvement not only in the end product of our research, but also in the 'educational process' that we will go through together in the coming four years. The policy-maker educates the researcher and vice versa. I see the SAR programme as an important experiment in this sense, and we can all learn from it.'

Meanwhile Tavasszy's programme is making good headway. 'All PhD students are known. We have our contacts at V&W and abroad. We have an NWO subsidy to organise a seminar for the first project in Tokyo in August. And in April we will be giving a course at the TRAIL research school. So everything is up and running.'

2008 – start-up year

In 2008 the Programme Committee met several times, mainly to give the first two rounds further shape. Consultation was also held with the leaders of the four research programmes that were granted first-round funding about such matters as the expected social outcome of their research. Amongst other things, the Programme Committee and programme leaders discussed ways in which the mobility world (policy-makers, businesses and other knowledge users) can be involved and kept involved throughout the various programmes. An SAR-wide user group will be set up for this purpose. In addition, researchers will take part at least once a year in a conference or other event aimed at a broad audience. ■