

Summary

The current traffic models do not correspond well to policy needs, and thus in future we must take different approaches to working with these models. If traffic models are to remain usable in the years ahead, we must improve them, ensure they are of a higher quality, and present the model results in better ways.

In order to establish the need for improvements in the medium-term, the KiM Netherlands Institute for Transport Policy Analysis, at the request of the Mobility directorate-general of the Ministry of Infrastructure and the Environment, has conducted a study of how strategic traffic models are currently used in policy processes. This research focuses on improving the governance of traffic models. Regenerating traffic model content, so that it better corresponds to new policy themes, falls outside the scope of this research.

TNO (Netherlands Organization for Applied Scientific Research) and Rijkswaterstaat (the agency within the Dutch Ministry of Infrastructure and the Environment charged with executing public works projects) have developed a so-called roadmap, which includes a future vision for improving the content of passenger and freight transport models in the Netherlands. This future vision was created in consultation with the various parties that request and supply model developments and applications. The roadmap, which is based on (future) policy requests and developmental opportunities, describes the policy issues for which model development is required, as well as what types of knowledge and data is required for this. The roadmap does not however establish who, what, and when it will be done, nor the associated responsibilities and financing, although the latter two aspects do indeed fall within the scope of this research: the control and command of traffic models.

KiM has identified three primary challenges to be faced in the years ahead. Policy options have been identified for each of these challenges.

1. Traffic and transport models must be more varied, simpler and more coherent

Over time, traffic models have become increasingly versatile and accurate, but consequently also more complex and elaborate, and less transparent. At times too many, and too complex, calculations are made, whereas a global response would suffice. More calculations do not always lead to another or a better decision. More than ever before, policymakers need models in which they can make integral assessments regarding the economy, environment and safety.

Policy options for greater variation and coherence

1. A first option is creating more variation in the available modelling tools. In addition to the current models, simpler traffic models, rules of thumb and expert knowledge can be utilised.
2. A second policy option is creating more cohesion among models. This can be achieved through integration or coordination. Integration can be useful, but the integration of multiple models in one 'super' model is not always the most efficient solution. Coordination offers greater promise, and this can be achieved

through the improved coordination of input data, calculation techniques and model output, as well as reaching agreements about which traffic models should be used for what purposes and about how certain models should be used in conjunction with one another.

2. Quality management must improve

It happens on occasion that the parties concerned raise the issue of the applied traffic model's quality, and thus the accuracy of the model's results. A lack of trust in model calculations is understandable, however. The quality management of many traffic models is both unclear and incomplete. Moreover, there are no guarantees that quality controls are conducted independently. Policymakers therefore require greater quality assurance in the models and model results.

Policy options for assuring quality

1. The first policy option consists of more frequent requests for a second opinion on model applications and an audit for model development. The disadvantage of this relatively simple solution is that it remains unclear which quality standards the model studies must adhere to.
2. A second, more structural, solution is the establishment of a quality framework for both the development and application of models, which, preferably, would be done in consultation with the key parties concerned. Such a quality framework includes - per type of information request - which quality standards apply to the quantitative support of the response to a request, and, based on this, which standards the model development and model applications must adhere to.
3. A third option is the development of a hallmark, or quality mark, for models and/or model results, and subsequently making the use of this hallmark mandatory.

It is important to think well in advance about the question of who should be involved in the development of a quality framework or hallmark and in what capacity. If, for model studies, the Ministry of Infrastructure and the Environment is, for example, increasingly collaborating with local governments, it is understandable to then involve these parties in the process.

In the approach to these challenges, lessons can be learned from recent experiences with the new quality protocol for the New Regional Model (NRM) and from the guidelines for an Overview Effects Infrastructure (the OEI-guideline).

3. Improved transparency and better presentation and use of model results

The third challenge to be faced in the coming years involves the use of model results. Oftentimes the expectations of policymakers, administrators and politicians are simply unrealistic. People expect, for example, that a traffic model will produce highly accurate and reliable estimates of congestion on a stretch of road in the far distant future. The models' inherent limitations, and the uncertainty inherent to any prediction of future scenarios, are often overlooked. Moreover, model results are sometimes presented as 'absolute truth'. Meanwhile, frank discussions about the uncertainties associated with prognoses are avoided.

Policy options for improved transparency and better presentation and use of results

1. The first policy option is to make existing models more transparent, as this will allow greater use to be made of visualizing data in maps and charts. Additionally, the accessibility to traffic models, for example via internet, can be improved. An improved presentation of model results prevents unrealistic expectations as a consequence of a lack of insight on the part of the users. By thoroughly explaining the calculations and visualizing the results, non-specialist can also come to understand the results. By explaining the storyline - also called 'storytelling' - of how the effects were arrived at, it is easier to engage and inform the non-specialists.
2. Second, a guideline can create more clarity about the correct use of model results in policy processes. Much of the communication associated with models is focused on the technical aspects, and not on the question of how model results can be used in the policy formation processes. Setting up separate communication strategies for the various target groups (policymakers, administrators, politicians) is desirable.
3. A third policy option is cultural transformation. This means that 'big changes' are required. We refrain from 'counting on the calculations' and accept that the experts' qualitative estimates can also sometimes lead to better decisions.

Stronger form of steering

Improving traffic models demands another form of governance for model development; that is, a stronger form of steering. The current traffic models are often created based on the emergence of new techniques and ad hoc policy requests.

If we want to break the ad hoc, technically driven development of traffic models, one party or group must take the initiative. There are three possible parties capable of doing this: the market, the government or a knowledge institute. All of these parties have various advantages and disadvantages. While it is true that the market combines supply and demand in an efficient manner, the market's capacity is small and there is seldom sufficient competition. Knowledge institutes can more easily assume the role of independent coordinator, but they are relatively far removed from policy. The government can amass in-house knowledge and develop models, but this often means that the policy formation process becomes hierarchical and complex.

A permanent steering group of users

Much is already gained when users join hands to work together and clearly and consistently control the development of traffic models. A permanent steering group of relevant users of model calculations can:

- ensure that the models correspond well to information needs by clearly formulating requests;
- establish clear agreements about who must perform what tasks;
- ensure the involvement of, or coordination with, the various administrators (Rijkswaterstaat, Dutch Railways(NS)/Prorail, the regions)
- develop a long-term vision to elaborate on the previous three bullet points.

In recent years steps have been taken to tackle these challenges. In the action plan Faster and Better, a great deal of attention was devoted to the question of how there can be fewer calculations involved in the planning process. Rijkswaterstaat

and TNO have also devised a roadmap for passenger and goods transport models, in which a future vision of national traffic models is outlined. In accepting the challenge we can take these developments as a starting point.