



Thinking ahead – central government planning of high-speed railways

The Swedish National Audit Office has audited central government planning of the high-speed railway that is intended to run from Stockholm to Gothenburg and to Malmö, in both cases via Jönköping. Central government planning consisted partly of inquiry reports commissioned by the Government about high-speed railways, partly of processing high-speed railways in the ordinary planning process in the area of transport infrastructure. Important elements here are preparation of infrastructure bills, national transport plans and overall impact assessments.

The background to the audit is that the investment, if made, will entail the greatest financial commitment in modern time for the Swedish State, and the decision is of an irreversible nature that may affect Swedish society for a long period of time. In order for politicians to be able ultimately to make an informed decision, a good planning process and sound decision-making data are required.

The audit was based on the transport policy objectives formulated by the Riksdag and the Government. The overall ambition is to guarantee an economically efficient, sustainable transport system for citizens and enterprises throughout the country. The audit was also largely based on the clear guidelines that the Riksdag and the Government have set up for planning processes and decision-making data in the area of transport infrastructure.

Audit findings

The overall conclusion of the Swedish NAO is that to date the planning process has not been unbiased in nature. The audit findings are summarised under the following headings.

Planning has been based on the solution rather than the problem

In the guidelines drawn up by the Riksdag and the Government to test possible infrastructure investments, it is assumed that there is a problem description and a gap analysis linked to the objectives of state transport infrastructure. We have consistently found the problem descriptions to be general and without more detailed analysis. The two main shortcomings highlighted are that the climate impact of domestic air services is too high and that there are capacity problems on some of the current main lines.

An explanation for these poor problem descriptions is that the remits from the Government to investigate high-speed railway lines have often been too narrow. It is not clear that the government inquiries were to examine the economic efficiency of implementing a planned project. Rather, there is a tendency towards an implicit view that the main question is how to build a high

speed railway line. Research on “mega projects” has shown that projects of this kind at the earliest planning stage are mostly populated by people who are in favour of the project. They concentrate on the solution without having properly addressed the problem that the measure is to solve.

The planning has not been carried out in accordance with the four-step principle

According to the four-step principle, imposed by the Riksdag and the Government, an initial unbiased test is to be carried out on whether measures other than a major investment could solve the problem that has been identified. However, virtually no such tests have been carried out in the government inquiries that have been conducted. The investigators did not examine alternative measures, such as various taxes or charges, to solve identified problems, such as the excessive impact of aviation on the climate. Nor have other policy instruments to solve existing capacity problems in the rail network been examined.

We have found a few different explanations for this. One of these is that the inquiry investigations are almost always carried out under tight time constraints. This can be seen as a paradox, as planning has been in progress for decades. However, there is a strikingly small amount of time allotted to each of the inquiries and it is common to find excuses being made in the reports for the lack of time for more in-depth analysis. Another explanation may also be that the four-step principle has a background in the old Swedish Road Administration, whereas the principle of unbiased testing of investments has not fully taken hold within the railway area. This was noted by the Swedish NAO in a previous audit.

Economic efficiency has not been an important criterion

The intentions of the Riksdag and the Government were that potential investment must be tested against the criterion of economic efficiency. Economic efficiency should not be the sole criterion when deciding on investment projects. However, the criterion is so important that it should have an impact on the decisions. However, in our opinion, the assessment of the high-speed railway has been carried out in essential respects without any appreciable influence from this criterion.

An example is that the Government, through terms of reference for the Swedish Transport Administration, has taken the initiative to include three sections of the high-speed railway, Järna-Linköping (the ‘Eastern Link’), Gothenburg-Borås and Hässleholm-Lund as part of the national transport plan, without there being any supporting documentation in the form of choice of measure studies (or equivalent). In addition, at the time of issuing these terms of reference there was no overall impact assessment of the routes Gothenburg-Borås and Hässleholm-Lund, and only older impact assessments of the Eastern Link produced before the formation of the Swedish Transport Administration. Thus the prescribed sequence that testing possible investment options should be preceded by both an analysis of measures based on the four-step principle and an overall impact assessment has not been followed in this case. It can also be noted that other investment projects in the national transport plan and, in addition, the majority of named projects which have fallen ‘below the line’, are significantly more economically profitable than the projects that are included as part of the high-speed railway project. Therefore, even if it is not possible to

identify precisely which other projects have been crowded out for the benefit of the high-speed railway projects, it is probable that many of the displaced projects would bring more public benefits than the high-speed rail projects. This also means that the achievement of the objectives in relation to the transport policy objectives is likely to be lower.

Decisions to date have been taken in the wrong order

Neither the Riksdag nor the Government has taken a decision to build a complete high-speed rail track between Stockholm and Gothenburg and Malmö, respectively. Nevertheless, the project has “been slipped into gear” through the Government’s decision to implement the Eastern Link (a section between Järna and Linköping), and in addition with the constraint that the project is to be implemented within the financial framework of the regular planning framework. Here a situation arises where an individual decision on a section of a route may implicitly lead to a decision on a whole high-speed railway. The process has some similarities with the mixing up of decision-making and implementation process that research has noted frequently in the planning of mega projects. In our opinion, this is an inverted decision-making procedure which, through lock-in effects, risks leading to economically inefficient solutions.

The costs of the project were underestimated for a long time

In the Riksdag’s and the Government’s guidance on how to assess the investments envisaged, it is of particular importance to carry out comprehensive impact assessments, which include a qualified analysis of the costs of the project. However, we have found that in particular cost estimates were of low quality, and the costs were heavily underestimated. The assessment of the investment cost for the entire high speed project has risen from about SEK 50 billion in 2003 (corresponding to SEK 86 billion in 2015 values) to currently well over SEK 200 billion. These increases in costs have taken place in the early planning phase of the project, before decisions have been taken on the construction of the whole high-speed railway. It was only in 2015 that a more qualified approach was taken to the total investment costs. The planning had then been ongoing for about a decade. The assessment of what the final cost will be, is still uncertain.

Research into mega-projects shows that it is very common for the costs initially to be underestimated, and that significant delays and cost increases often arise as the project progresses. One explanation is that it is difficult to plan mega-projects, but the research also shows that planning at an initial stage is characterised by the fact that those who work on the project tend to be optimistic and, as a rule, believe that activities will run according to plan. Moreover, according to research, it is typical that there is an initial reluctance to make a proper cost estimate. The Swedish high-speed project has thus suffered from the same problems that researchers perceive as a pattern in the planning of mega projects.

The low quality of the cost calculations in turn meant that the high-speed project was assessed as being economically profitable for a long time. When the Swedish Transport Administration for the first time started to make more thorough overall impact assessments, the project proved to be very unprofitable. The size of the economic benefits to society is currently considered to represent only 40 % of the size of the economic costs to society.

Current impact assessments are broadly of acceptable quality

Our review shows that the current impact assessments broadly give a fair view of the overall benefits and costs of the project. However, there are benefits and costs that are not taken into account in the economic calculation. In the case of benefits, the effects of cross-border traffic as well as the impact of the investment on delays are missing. In the case of costs, extension needs that may arise on sections close to terminals are not included, for example on the Järna-Stockholm section, as well as the cost of the necessary interlocking sections, the adaptation of terminal stations and the handling of excavated fill material. In addition, costs incurred by other actors, such as the purchase of high-speed trains and the construction of depots are not included, but this applies in general to rail investments

The assumptions on which the impact assessments are based appear broadly plausible and in accordance with applicable standards. However, there is a strong argument that the assumptions, for example about journey times and fares, are not entirely realistic and overestimate the benefits of the project. Some of the benefits, costs and assumptions of the cost-benefit analysis can thus be questioned. Our assessment is, however, that these potential errors are not of such a magnitude that they can change the overall conclusion of the Swedish Transport Administration that the high-speed railway is economically highly unprofitable.

National Negotiation on Housing and Infrastructure – a short-cut that became a detour

In the period 2014-2017, the regular planning process in transport infrastructure was supplemented by an official inquiry called the National Negotiation on Housing and Infrastructure, which was assigned an important role in the planning of the high-speed railway. According to the Government terms of reference, the main task of the inquiry was to develop principles for funding and development strategy proposals for new main lines between Stockholm and Gothenburg/Malmö. The inquiry was also to conduct negotiations, mainly with municipalities and regions, in order to allow for the rapid implementation of new main lines. As a result, a parallel process emerged during the regular planning process, where an organisation with a dozen employees had the primary responsibility for the issue of high speed rail, as well as a number of other assignments.

This separate organisational solution meant a significant disruption of the Swedish Transport Administration's work of planning infrastructure and developing solutions in the context of the current planning system. Research shows that deficiencies arise from separate organisation of mega projects. The risk of such a separate organisation is that it tends to be populated by people with too little knowledge, and it jeopardises institutional memory. In the high-speed rail project, the National Negotiation on Housing and Infrastructure organisation can be seen as an example of such a separate organisation.

During this period, the Swedish Transport Administration continued to plan, on the basis of the Government's mandate, for a slow expansion of a few confined parts of the high-speed railway line, in particular the Eastern Link between Järna and Linköping. The requirement from the Government was that this would take place within already allocated infrastructure planning

frameworks for transport infrastructure, with the result that the Eastern Link is now planned as a section allowing a maximum speed of 250 km per hour. The proposals ultimately submitted by the National Negotiation on Housing and Infrastructure — a fast loan-financed extension of the high-speed line with a maximum speed of 320 km per hour — have so far not been adopted by the Government. The overall picture is that this parallel process over three years was ineffective and that the idea of the National Negotiation on Housing and Infrastructure as a kind of short cut to high speed rail was instead a detour.

Recommendations

Before taking further decisions on the high-speed railway, the Government should instruct the Swedish Transport Administration to examine with an open mind the shortcomings that exist in relation to the transport policy objectives, and what alternative solutions exist to address the shortcomings in an economically efficient way. The instruction to the Swedish Transport Administration should contain the following elements:

- Identify the deficiencies in relation to the transport policy objectives which the high-speed railway is intended to resolve.
- Investigate alternative solutions that can remedy the deficiencies identified on the basis of the four-step principle. This is primarily a matter of investigating stage 1 measures, such as charges and taxes, to achieve more efficient capacity utilisation, but also step 2 and step 3 measures, such as optimisation measures and tuning operations.
- Carry out overall impact assessments of the main options and compare these with overall impact assessments for the high-speed railway.

The Swedish Transport Administration should be required to fulfil the assignment following consultation with the Swedish Transport Agency, Transport Analysis and the Swedish National Road and Transport Research Institute.