

*Summary*

Train delays – causes, responsibilities  
and measures (RiR 2013:18)



## Train delays – causes, responsibilities and measures

The Swedish National Audit Office has examined how the railway works from a number of different aspects of significance to train delays. This includes maintenance measures to avoid train breakdowns and problems with the rail infrastructure in the form of, for example, torn down catenaries. It also involves measures to use existing track capacity in the most expedient way through, for example, train path allocation, pricing and traffic management. Accordingly, the assessment has included the significant causes of delays. Finally, the National Audit Office has also examined whether supervision and monitoring provides the Government with sufficient data to counter the train delays.

The National Audit Office's overall conclusion is that there is an untapped potential in the use of existing tracks. It is possible to streamline both the planning and management of the infrastructure's maintenance contracts, traffic management, depot issues, capacity allocation, train operations and vehicle maintenance. If this capacity was utilised more, it would impact punctuality faster and not be as costly as infrastructure investments.

The Government has developed a new steering framework for the Swedish Transport Administration's operation and maintenance of road and rail, and has appointed a special investigator to review the railway's organisation. However, the National Audit Office believes that the Government does not have the overview and the information needed to, in an effective way, manage the governmental and private actors in complex railway issues in a manner that minimises train delays. The Government has not provided authorities and other actors with the conditions and incentives necessary to prevent train delays. The division of responsibilities that was established in conjunction with the rail sector being opened up to competition has not been fully implemented so that the regulatory framework, incentive structure, capacity utilisation and supervision promote punctuality on the railway.

The Transport Administration has initiated a process of change with, among other things, improved punctuality as a goal. Many measures have been recently initiated but it is still not possible to confirm any effects of the measures. The National Audit Office believes that the Swedish Transport Administration and

Swedish Transport Agency have not adequately addressed, followed up on and reported deficiencies in those factors that have a bearing on train services' punctuality. In summation, this means that the efforts to minimise train delays are inadequate.



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The increased railway traffic in the last 20 years means that more passengers and freight customers suffer when trains are delayed or cancelled. Delays in business and work travels may lead to missed flights or train connections, postponed appointments, longer working hours and missed business opportunities. Delays also affect the freight customer and hamper freight operators' ability to compete with road haulage.

According to the Transport Administration's data for 2012, the Transport Administration caused 57 per cent of the train delays and the railway operators caused 43 per cent. Freight traffic caused almost twice the proportion of delays as passenger traffic. SJ, the biggest passenger train operator, caused few delays compared to the average for freight and passenger operators, if caused delays are set in relation to traffic volume.

## Assessment background

*Reasons:* Even before 1988, when deregulation of the market began, train delays were a recurring problem. The National Audit Office's pre-study found review-worthy indications that the train delays are not only explained by inadequate investments in new tracks or in track maintenance, but are also symptoms of inefficiencies in the public and private rail operations and inadequate government steering of railway traffic actors.

*Aim:* The National Audit Office has examined whether the Government has provided authorities and the actors in the rail market with conditions/incentives that contribute to railway punctuality. Furthermore, it has been examined whether the responsible authorities have addressed, followed up on and reported any deficiencies that are significant for punctuality.

*Implementation:* The assessment has been carried out using document studies of board minutes, owner directives, internal audit reports, research reports, supervision cases, etc. Furthermore, the National Audit Office has conducted some 50 interviews with representatives from agencies and ministries as well as representatives from railway operators, industry associations and research. A consultant has been hired to compile an expert report on the Transport Administration's capacity allocation model. The assessment focuses on the Government, the Swedish Transport Administration, the Swedish Transport Agency, SJ and Jernhusen, a state-owned company in the rail depot market.

## Assessment results

*The Transport Administration's improvement work is underway but it is too early to examine its effects*

The Transport Administration has an extensive mandate that spans all types of traffic where synergies between road and rail traffic in particular are to be developed. Since the agency was established in 2010, the management has implemented a number of measures aimed at achieving

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increased goal-fulfilment within transport policy. The management has, for example, started a project to centralise a previously fragmented and highly regionalised organisation.

The agency has also identified a number of fundamental problems in the system that have previously gone unaddressed. The National Audit Office can thus establish that the Transport Administration has implemented a number of initiatives with improved punctuality as the goal. The assessment shows that there is much that remains to be done, and the National Audit Office believes that it is too early to determine the impact of the Transport Administration's measures.

*There are uncertainties in the Transport Administration's conclusions regarding the trend of punctuality and causes of train delays*

According to the Transport Administration, the punctuality of trains has increased over a longer period. Since the late 1990s, the punctuality of passenger traffic has been approximately 90 per cent of the number of trains that arrived at the end station. Weaknesses in the Transport Administration's statistics work, however, means that the agency's assertion regarding punctuality improvements in recent years is uncertain. One reason is that the Transport Administration, in its assessment of punctuality, has not taken into account the increasing number of cancelled trains. Furthermore, the agency does not present how different circumstances, such as changes in rail traffic composition, affect punctuality. According to the National Audit Office, this means that it is difficult to draw a conclusion from the Transport Administration's presentation of punctuality statistics regarding whether or not there has been any real improvement in punctuality.

Another piece of important decision data is the Transport Administration's information on who and what causes delays. The National Audit Office also finds that there are reliability problems in the coding of causes of train delays, which makes it difficult to determine who should pay for train delays.

*The Transport Administration's quality charge system does not provide sufficient steering*

The quality charge system, which is administered by the Transport Administration, provides incentives for actors to implement measures to prevent train delays. The lack of quality in how the system is designed and the hitherto minimal level of charges does not provide sufficient incentives for preventive measures in the organisation of operations and track and vehicle maintenance. The charge system has not fully functioned as intended in that it does not encourage infrastructure managers and rail operators to improve punctuality.

*The Transport Administration has not adequately managed track maintenance and railway capacity utilisation through traffic management and train path allocation*

The Transport Administration's organising of railway network maintenance is not working effectively. Above all, the Transport Administration does not steer the quality of the maintenance measures to a sufficient degree in the procurement, as well as when the measures are implemented

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and followed up. For example, the current contract design contributes to short-term corrective maintenance being carried out at the expense of long-term preventive maintenance.

Utilisation of the tracks is currently not priced based on marginal costs, but are instead under-priced. The consequence is a larger volume of traffic than is socioeconomically appropriate. Correct pricing would likely reduce congestion on the track and conditions for punctuality would be more favourable. The Transport Administration has chosen to, gradually over the next decade, raise the levels of track access charges to progressively cover the cost of wear and tear, in accordance with the Railways Act.

The assessment shows that the Transport Administration has not developed a method for *capacity allocation* that guarantees the most socioeconomically efficient outcome. With a developed method, track capacity could have been utilised more optimally, which would have countered delays due to incidents. Today there is not enough appropriate criteria for assessing the socioeconomic value of each individual train and each individual piece of track maintenance. Nor has the agency the sufficiently developed technical tools necessary to be able to optimise the timetable. Furthermore, the Transport Administration lacks a long-term strategy for the allocation of capacity in the long term based on society's needs. This creates uncertainty for rail operators not engaged in publicly procured services. The Transport Administration believes that the agency acts based on how the agency perceives the requirements and limitations of the Railways Act.

*Traffic management* is a key function in being able to handle increased traffic and an increased need for maintenance work on the tracks. Today, there are systematic differences in the traffic management centres' ability to manage disruptions. Although the Transport Administration has taken steps to strengthen the traffic management, the agency has not conducted adequate analyses of how traffic management works in different parts of the country.

*Maintenance depots complicate the maintenance of trains and create empty runs which take capacity from railway traffic*

Jernhusen is the state-owned company that is the main supplier of *maintenance depots* to rail operators. Jernhusen's existing depot network in the metropolitan areas gives Jernhusen a unique position in the market and a competitive advantage over new actors. Furthermore, there are entry barriers with the consequence that few new companies see an opportunity to establish themselves in the depot market.

The assessment shows that current depot activities are not conducive to a railway trend towards reducing delays. The availability of modern and traffic-adjacent depots constitutes a restriction for vehicle maintenance. Since there are no new modern depots being built that are available to all operators, trains must travel long distances across the country to existing depots. A consequence of ineffective depot activities is that the preventive *maintenance of vehicles* will be neglected and that



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the extensive empty runs utilise capacity from the railway traffic. It involves costs for both rail operators and infrastructure managers and makes it difficult to achieve punctuality in rail traffic.

The Transport Administration has the ability to influence the conditions that facilitate effective and traffic-adjacent depot provision and simultaneously promote the capacity utilisation of main tracks. The Transport Administration believes that depot provision is the responsibility of the market actors, and considers itself to currently not have any clear responsibility in the matter. The National Audit Office believes that it is necessary to clarify the Transport Administration's responsibilities in this area.

*Supervision and monitoring are inadequate and do not support the work with punctuality*

The significance of the Swedish Transport Agency's *supervision and market monitoring* has been emphasised, but the Government has not clearly defined what the agency's supervision and market monitoring should include, and what should be reported. The Transport Agency has not yet taken sufficient measures. Supervision of the specific factors affecting punctuality - capacity allocation, depot issues and quality charges - has not been sufficiently prioritised by the Transport Agency. Nor has the agency, within the context of market monitoring, reported any deficiencies in the market's functioning that impact punctuality, resulting in a lack of targeted measures from the Government.

*The Government has not provided the actors with the appropriate conditions in the form of regulations, incentive structure, capacity utilisation and supervision*

The National Audit Office believes that, during the process of gradual deregulation, the Government has not adequately analysed the conditions necessary for punctuality in railway services. The Swedish Transport Administration is currently the infrastructure manager, while at the same time having clear governmental tasks such as infrastructure planning. The agency's various roles involve a potential conflict of interest and what in some cases is good for the agency does not favour the railway system as a whole. The Government commissioned the Transport Administration to design and manage the quality charge system, despite the agency thus taking on the roles as both responsible for the system and as one of the market participants that would be controlled by the system. In this regard, there may be a need to separate the duties.

Moreover, there are no requirements in the Railways Act regarding the standard/quality of the tracks and vehicles, other than from a rail safety perspective. The Transport Agency therefore does not supervise how maintenance of significance to punctuality is implemented. Furthermore, the Transport Agency only supervises procedures and processes, and does not perform regular on-site inspections. The railway system is therefore lacking both clear and effective rules regarding the standard/quality of tracks and vehicles, and sufficient incentives in the quality charge system to lead to preventive operations and maintenance measures. This negatively affects punctuality.



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With regard to the depot market and the availability of storage tracks, this was identified as a possible bottleneck even before the deregulation was implemented. Despite this, the Government chose to only manage Jernhusen on the basis of financial targets, with the consequence that there are no efficient and modern depots that are open to all rail operators. Depots and storage tracks currently constitute the bottleneck that was feared before the deregulation.

Prior to the deregulation of passenger traffic, the Government instructed the Transport Administration to optimise existing capacity in the railway system in order for the reform to have the desired effect. The National Audit Office believes that it is also important from a punctuality standpoint that capacity is optimally utilised. Despite the Government's intentions, it gave the Transport Administration considerable freedom to design the processes surrounding the allocation of capacity. The National Audit Office believes there is an untapped potential to achieve socioeconomic efficiency in the capacity allocation of individual train paths and individual pieces of track maintenance. The Transport Administration states that the agency is bound by the provisions of the Railways Act. The National Audit Office finds that it may therefore be necessary to clarify whether amendments are necessary in the law so that socioeconomic balances between availability and punctuality can be achieved early on in the capacity allocation process.

## The National Audit Office's recommendations

The National Audit Office's recommendations aim to change the management of the railway actors' operations in the context of current track capacity, in order for delays to be reduced.

### *The Government*

Investigate whether changes are necessary in the national railway legislation and supervision by:

- Investigating whether the legislation can be amended to include explicit requirements regarding standard/quality of tracks and vehicles of importance to punctuality.
- Investigating whether the legislation needs to be and can be amended to create a greater scope for socioeconomic efficiency, both in setting timetables and depot pricing during actual monopoly situations and in depot provision.

Improve the incentive for market actors to take preventive measures against train delays by ensuring that the quality charge system promptly attains the functionality needed for it to constitute an actual incentive. There are four issues that must be resolved:

- The coding of causes of delays in the system does not maintain adequate quality and quality assurance, and an overhaul is necessary.



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- The supporting data for the charge system is not comprehensive, and methods should be developed to include secondary delays caused by primary delays and cancelled trains in the system.
- The charge level is too low to have a steering effect and a review is needed.
- Decision on charge levels should be made by an agency outside the quality charge system.

Increase socioeconomic efficiency in the capacity allocation of train paths and times for track work by:

- Exploring the possibility of more quickly fulfilling the Railways Act's requirements on marginal cost pricing.
- Imposing requirements on the Transport Administration's implementation and reporting of socioeconomic efficiency in timetable planning. This refers to both the allocation of train paths and times for track maintenance so that the capacity of the track is used in the most effective manner.
- Ensuring that there is a long-term strategy for which socioeconomic assessment will be applicable to commercial traffic versus community-paid traffic in the timetable planning, so that crowding out effects are avoided, predictability increases, and commercial rail operators can make the necessary investments to improve punctuality.

Clarify the Transport Administration's responsibility for facilitating the construction of modern maintenance depots in the proper places in relation to the traffic pattern, thereby releasing capacity for the main tracks. In this context, special consideration should be given to the barriers for new depot actors.

Appoint an independent official statistical authority for punctuality statistics that meet the requirements for official statistics.

Prioritise a long-term budget allocation as the planning of track maintenance is complex and difficult to implement on short notice.

### *The Transport Administration*

Strengthen analytical competence and prioritise research investments in operations of importance to punctuality by:

- Strengthening analytical competence in statistical production, coding of causes of delays, depot issues and in the capacity allocation of train paths and times for track maintenance.
- Prioritising both short-term and long-term research initiatives to ensure that allocation of capacity is socioeconomically efficient.



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Exert more control over maintenance contractors in the procurement, contract and monitoring phase, and enforce sanctions by:

- Incorporating quality aspects in the procurement, strengthening the incentive structure in maintenance contracts, improving the monitoring of maintenance contracts, and enforcing sanctions in the event quality standards are not met.

Strengthen and develop the cause/effect overview by:

- Building up systems to evaluate the impact of maintenance measures on punctuality.

Perform more systematic track maintenance so that weak links in whole sections of track are detected and maintained.

Analyse the reasons why the proportion of caused errors in relation to the volume of traffic and complexity differs significantly between traffic management centres.

### *The Transport Agency*

Ensure that the supervision of the systems for capacity allocation, depot issues and quality charges encourages the punctuality of train services.

Promptly start the work with market monitoring, and draw up a programme for how the market monitoring will be designed in order to identify potential deficiencies in the rail market from a long-term perspective.

