

CHANGING TRACKS

TOWARDS BETTER INTERNATIONAL
PASSENGER TRANSPORT BY TRAIN

JULY 2020



About the Council for the Environment and Infrastructure

The Council for the Environment and Infrastructure (*Raad voor de leefomgeving en infrastructuur*, Rli) advises the Dutch government and Parliament on strategic issues concerning the sustainable development of the living and working environment. The Council is independent, and offers solicited and unsolicited advice on long-term issues of strategic importance to the Netherlands. Through its integrated approach and strategic advice, the Council strives to provide greater depth and breadth to the political and social debate, and to improve the quality of decision-making processes.

Composition of the Council

Jan Jaap de Graeff, Chair
Marjolein Demmers MBA
Prof. Pieter Hooimeijer
Prof. Niels Koeman
Jeroen Kok
Annemieke Nijhof MBA
Ellen Peper
Krijn Poppe
Prof. Co Verdaas
Em. Prof. André van der Zande

Junior members of the Council

Sybren Bosch MSc
Mart Lubben MSc
Ingrid Odegard MSc

General secretary

Ron Hillebrand PhD

The Council for the Environment and Infrastructure (Rli)

Bezuidenhoutseweg 30
P.O. Box 20906
2500 EX The Hague
The Netherlands
info@rli.nl
www.rli.nl



CONTENTS

SUMMARY

5

PART 1: ADVICE

8

1 INTRODUCTION

9

1.1 Background

9

1.2 Why we need better international rail access

10

1.3 Research question

12

1.4 Structure of the report

13

2 BOTTLENECKS IN INTERNATIONAL PASSENGER TRANSPORT BY RAIL

14

2.1 The four layers of the rail transport system

14

2.2 Bottlenecks from the passenger's perspective

16

2.3 Bottlenecks per layer

19

3 RECOMMENDATIONS

24

3.1 The case for a European corridor approach

25

3.2 Mobility services: Improve information provision, ticketing and passenger rights

29

3.3 Transport services: New international services and the train as an attractive option

31

3.4 Traffic services: More efficient capacity allocation and more use of information technology

33

3.5 Infrastructure: Invest in connections to the east

34

PART 2: ANALYSIS

36

1 CONNECTIONS LINKING THE NETHERLANDS INTO THE EUROPEAN RAIL NETWORK

37

1.1 International rail access to and from the Netherlands

37

1.2 Technical differences between rails systems in Europe

40

2 DUTCH AND EU POLICY FOR INTERNATIONAL RAIL TRANSPORT

46

2.1 European policy for international rail transport

46

2.2 National policy for international rail transport

53

2.3 Reintroduction of night trains

60

3 REASONS FOR IMPROVING INTERNATIONAL RAIL ACCESS

62

3.1 Economic competitiveness

62



3.2	International tourism and European cohesion	63
3.3	Substituting rail for road and air	64
<hr/>		
4	BOTTLENECKS IN THE INTERNATIONAL RAIL SYSTEM	70
4.1	Bottlenecks in mobility services	71
4.2	Bottlenecks in transport services	74
4.3	Bottlenecks in traffic services	78
4.4	Bottlenecks in the infrastructure	79
<hr/>		
5	MODAL CHOICE, TRAVEL INFORMATION, TICKETING AND PASSENGER RIGHTS	81
5.1	Traveller's choice of transport mode	81
5.2	Travel and passenger information	83
5.3	Ticketing	85
5.4	Passenger rights	87
<hr/>		
6	OVERVIEW OF EU INSTITUTIONS AND BODIES CONCERNED WITH RAIL TRANSPORT	91
6.1	EU executive and representative bodies	91
6.2	EU agencies and other bodies	93
6.3	European industry associations	93
<hr/>		

REFERENCES	95
-------------------	----

APPENDICES	102
-------------------	-----

LETTER TO THE EUROPEAN COMMISSION	102
-----------------------------------	-----

RESPONSIBILITY AND ACKNOWLEDGEMENTS	107
-------------------------------------	-----

OVERVIEW OF PUBLICATIONS	110
--------------------------	-----





SUMMARY

For urban agglomerations in Europe to be economically competitive it is vital that international destinations are easily accessible. Although in the past century much has been invested in the construction of the European rail infrastructure, rail passenger transport has grown less rapidly than transport by road and air. This is regrettable, because compared with other modes of transport travelling by train is not only safer, but also better for the environment and the climate.

At the time of publishing this advice it remains uncertain when and how the international transport market will recover from the consequences of the Covid-19 pandemic. Governments are currently pumping hundreds of billions into recovery funds and economic support packages to contain the consequences of the crisis and at the same time make their economies more sustainable. Some of this money will be used to green the transport sector. In a letter to the European Commission the Council for the Environment and Infrastructure ('the Council') and four advisory councils from other European countries argue for linking government support to companies in the transport sector with the objectives of the European Green Deal (see Appendix). Such a link is also desirable in the Netherlands. Greening the transport sector could be the stimulus needed to change tracks towards better international rail access within Europe.

Bottlenecks for the rail passenger

Why do people not make more use of international trains? The Council has studied the many bottlenecks in the international rail system – not just from the viewpoint of the railway sector (infrastructure managers, train operators), but more particularly from the perspective of the international rail passenger. The Council's analysis shows that although passengers have an extensive international rail network at their disposal, in practice they experience various constraints that discourage international train journeys.

The world of international rail travel is exceptionally complex. Not only are there many countries connected by rail, but within each country the operation of international rail services depends on close cooperation between public and private parties. To comprehend this complexity the Council has broken down the existing bottlenecks in the rail system into four groups that correspond to four layers of the rail transport system: mobility services (journey planners, apps and such like), transport services (railway companies and their rolling stock), traffic services (capacity management and safety systems) and the infrastructure.

Much more can be done with the existing infrastructure

The construction of new rail infrastructure is a way of improving accessibility by train within Europe. However, this is costly, difficult and time-consuming. It is something politicians are all too keen to talk about, but shy away from when it comes down to it. Moreover, the Council contends that much can be achieved with cheaper and quicker measures in the other layers of the rail transport system that make it possible

for the existing rail infrastructure to be used more intensively, more efficiently and by more international travellers. Adaptations and changes to the rail infrastructure will eventually be needed, but then as part of a comprehensive approach involving the services described below.

Improve mobility services: information provision, ticketing and passenger rights

The international rail passenger will benefit from better information services, such as apps that give access to the services provided by all operators. Travellers will also benefit from measures that make it easier to find and book international train tickets. Moreover, the Council feels that train tickets should be available earlier than at present (which is often no more than three months in advance of travel). Improvements are also needed in passenger rights, for example on missed connections.

Improve transport services: new international services and the train as an attractive option

It is important to encourage the introduction of new international transport services and the Council advises the government to actively seek out operators that are willing to run transboundary services. Further, the Council considers it essential to make international trains an attractive travel option that can compete better with other transport modes. This can be achieved by providing comfortable, rapid, direct services between the internationally important metropolitan areas at fair and competitive prices.



Improve traffic services: more efficient capacity allocation and more use of information technology

Under the existing principles for capacity management it will soon become very difficult to find more room for international services. However, the Council thinks that space can be found if the existing capacity is used more intelligently. For example, within the 'basic hour pattern' (basisuurpatroon) scheduling that is operated on the Dutch railway network there is room to increase the frequency of services on all international routes in the Netherlands. Introducing information technology applications will also help to make more intensive use of the rail network.

Improve the infrastructure: invest in one eastern corridor

In the longer term, improvements to the rail infrastructure will also be necessary. The Council urges the government to invest in one eastern corridor. What the Council has in mind are adaptations to the existing tracks that will permit trains to travel at speeds from 160 to 200 km/hour. Unbundling regional, national and international rail transport will help to improve access to destinations in the Netherlands by international train services. Station capacity also needs to be looked at in connection with this.

In conclusion

The Council is aware that boosting international rail passenger transport is a complex business:

- Putting the proposed policy into effect will involve action not only by government but also by the operators. For them it is important that there is indeed a market for a growing number of passengers. The government

can do very little to directly influence passenger numbers, but improving the mobility and transport services will stimulate this market.

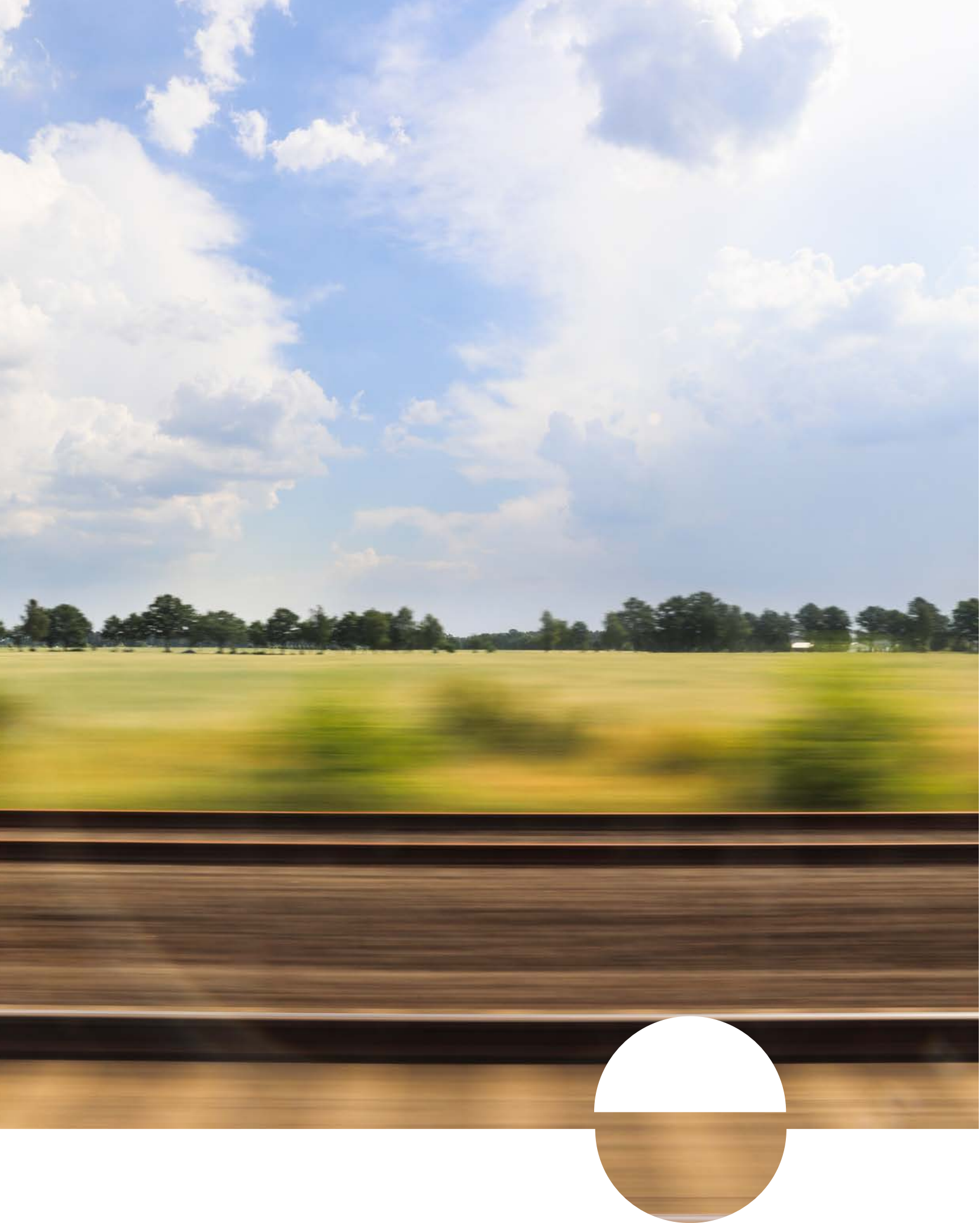
- Many countries are involved and they have different ideas about the number of tasks and range of powers the EU should be given in this area. That is why the Council proposes a gradual approach.
- Finally, further growth in international passenger transport will make increasing demands on the available capacity on the rail network. Spare capacity is available, but is not limitless. A time will come when choices will have to be made about the allocation of capacity between passenger and freight transport and/or national and international services. This is a political decision, and it must not be avoided. The Council points out that at the moment the interests of international rail passengers are not being taken fully into account.

Not all of the Council's recommendations can be implemented in the short term, but this does not alter the fact that with its long-term recommendations the Council supports the pursuit of policy objectives that are endorsed both nationally and in the European context.



PART 1 | ADVICE





1 INTRODUCTION

1.1 Background

Over the past few decades the volume of travel between the European metropolitan agglomerations has risen sharply, especially by road and air. International rail services have so far accounted for a modest share of this growth, but as a safe and environmentally friendly mode of transport they should be meeting a much bigger proportion of this demand for mobility. Greater use of international train services could also enhance the economic competitiveness of urban agglomerations.

The European Commission has already taken many initiatives to improve transboundary rail services, and in doing so to encourage international travellers to make more use of the train. In recent decades European policy has focused primarily on the harmonisation of technical systems and of safety and operational regulations, and on more competition in the market for international rail passenger transport. Despite this, the share of rail in the international transport market within Europe has not increased, but has actually decreased. The vast majority of travellers still choose to go by car or plane.

Urgent need for a transition

Since the 2015 Paris Agreement (in which international agreements were made to curb global warming) and the 2019 European Green Deal (which

contains a roadmap towards a sustainable EU economy) there is an urgent need to revisit policy on international rail transport. A transition to sustainable transport is needed in order to achieve the stated goals. The European Commission argues that better connections within Europe, including a strategic transport network, also serves cohesion policy (European Commission, 2020a).

The Council for the Environment and Infrastructure ('the Council') is of the opinion that improved international rail access to and from the Netherlands is important not only for the national economy, but also for greening the transport sector. But the rail sector, and the international rail sector in particular, is exceptionally complex. Not only are there many countries involved, but within each country the operation of international rail services depends on close cooperation between public and private parties. What can the Netherlands do within this complex constellation of forces? That is what this advisory report is about. It discusses questions such as why rail still has such a limited share of the international travel market, where the bottlenecks are and what is needed to resolve them.

Consequences of the Covid-19 pandemic

At the time of publishing this advice it remains uncertain how far and in what way the international transport market will recover from the Covid-19 pandemic. Governments are currently pumping hundreds of billions into recovery funds and economic support packages to contain the consequences of the crisis. Some of this money will be used to green the transport sector. There are those who foresee a move from the plane

to the train and talk of a 'post-pandemic shift to rail' (UBS Investment Bank, 2020) and 'a renaissance of rail transport' (Peeperkorn, 2020), but the Council is aware of the considerable uncertainty that shrouds the future of the international transport sector. In a letter to the European Commission the Council and advisory councils from several other European countries¹ argue for linking government support to companies in the transport sector with the objectives of the European Green Deal (see Appendix). Such a link is also desirable in the Netherlands. Climate policy must be as coherent as possible with other government policies. The Council hopes that this will involve changing tracks to better international rail access within Europe.

1.2 Why we need better international rail access

Sustainability and safety

An argument that is frequently made for encouraging international travellers to choose the train is that taking the train is more sustainable and safer than travelling by car or flying. And it is true: compared with other transport modes, trains have relatively low emissions (Otten et al., 2015; Savelberg & De Lange, 2018) and they are a relatively safe form of transport.

¹ [The independent European advisory councils in the field of sustainability and the environment cooperate in the European Environment and Sustainable Development Advisory Councils network \(EEAC\). See section 3.1 for the main points in the EEAC letter to the European Commission.](#)



Accessibility, business climate and economic competitiveness

International rail passenger transport also makes a valuable contribution to the accessibility of urban agglomerations. Rail connections give access to dense public transport networks in almost all areas of Europe. And this is what makes rail as a mode of transport a key element in good spatial planning and for relieving pressure on the roads.

Expanding international passenger rail services will generate a new mobility demand. The Council sees this as a positive development because this additional mobility can enhance the quality of the business climate and the economic competitiveness of urban agglomerations, while at the same time boosting international tourism and European cohesion.² European knowledge centres and research institutes will also benefit (see Part 2, Chapter 2 on the arguments for improving the international rail system).

European objectives

Creating a Europe-wide integrated railway network has long been an aim of the EU (European Commission, 2011; European Parliament, 2020). As mentioned above, the subject has become more urgent in recent years as a result of the Paris Agreement and the European Green Deal (2019).³ The agreed severe reduction in carbon emissions (a 90% reduction from 1990

² In connection with this, European Commissioner for Transport Adina Vălean recently noted: ‘Railways [...] connect the EU together not only in physical terms. Setting up a coherent and functional network across all Europe is an exercise in political cohesion’ (European Commission press release 4 March 2020).

³ The importance of improving international rail passenger transport can be found in several sustainable development goals of the United Nations (2015): Goal 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities) and 13 (Climate Action).

levels by 2050) will largely have to be achieved through a transition to sustainable forms of transport. In view of this, the European Commission has announced that it proposes to make 2021 the European Year of Rail (European Commission, 2020a).

Objectives of the EU’s Fourth Railway Package

The EU’s railway policy is for a gradual opening of the rail transport market. Rail transport within the EU must not be obstructed by national borders and incompatible technical specifications or safety requirements and procedures. To this end a series of ‘packages’ have been introduced since 2001. The latest is the Fourth Railway Package of 2016, which consists of six legislative texts divided between a market pillar and a technical pillar.

The legislative proposals in the market pillar are designed to open the market for rail passenger services, both within and between the Member States, to new railway operators (open access). This is expected to deliver a growth in services and an improvement in the quality and efficiency of rail services. The direct award of public service contracts for passenger transport by rail remains permitted, but from 2023 will be subject to certain conditions.

The legislative proposals in the technical pillar concern interoperability, authorisations for placing on the market of railway vehicles within the EU, and safety certificates for railway undertakings active in more than one EU Member State.



The Fourth Railway Package has been transposed into Dutch railway legislation by amending the Railways Act, the Passenger Transport Act 2000, the Local Railways and Tramways Act and the regulations based on these Acts (Eerste Kamer, 2019).

Perspective of the rail passenger

In this advisory report the Council puts the international rail passenger first. After all, better international rail access is ultimately all about the passenger. In their efforts to upgrade the quality of the rail transport system and the services on offer the organisations involved sometimes seem to lose sight of the international passenger. In this advice the Council makes a point of identifying what is needed to resolve the bottlenecks experienced by international rail passengers.

1.3 Research question

This advisory report investigates what is needed to upgrade international rail access to and from the Netherlands. What are the obstacles and what can be done to remove them? The central question the Council set out to answer is:

How can the factors that stand in the way of better rail access to (and from) the Netherlands be overcome?

To explore this properly, the Council imposed two limitations on the scope of the study:

1. The advice focuses on accessibility by rail passenger transport. The Council considered that including freight transport would make the study too extensive and complex for it to be completed within a reasonable period. Nonetheless, freight transport is addressed to the extent that it has an influence on passenger transport.
2. The advice primarily concerns the main connections linking the Netherlands into the international high-speed rail networks in Belgium, France and Germany, which are also important for access to more distant destinations in Europe. The international rail services that are largely of regional significance are not included in this advice.

Different sorts of transboundary rail links

The Netherlands has different types of transboundary rail links. The Council divides these into three types:

1. Transboundary links of international importance:
 - a. Amsterdam–Brussels and beyond (south);
 - b. Amsterdam–Düsseldorf/Frankfurt and beyond (east).
2. Transboundary links of subnational importance (inter-regional transboundary transport with connections to the high-speed network in neighbouring countries) on (potentially) intercity level, such as the Berlin line, Eindhoven–Düsseldorf, Heerlen–Aachen/Maastricht–Liège, Groningen–Bremen.
3. Transboundary links of regional importance, such as Weert–Hamond, Enschede–Münster, Hengelo–Bielefeld.



This advice focuses mainly on level 1 and takes in level 2 where these connections can serve as feeders and alternatives when services on level 1 connections are disrupted. This certainly applies to the connections that give access to the international high-speed rail network just across the border (Aachen, Liège, Düsseldorf, Osnabrück, Bremen). Notwithstanding this, several important improvements to rail transport at levels 2 and 3 remain firmly on the agenda.

1.4 Structure of the report

The remainder of Part 1 of this report is structured as follows. In Chapter 2 the Council discusses the organisational structure of the international rail transport system and the bottlenecks that continue to present a problem, and explains how these problems affect the international rail passenger. In Chapter 3 the Council argues that the European Commission should give a major boost to international rail passenger transport. Further, the Council makes a number of concrete recommendations to the Dutch Government and Parliament on improvements that need to be made in the various parts of the rail transport system. The appendices provide information on the investigative work underlying this report, such as the expert meetings organised by the Council. They also contain the letter by the Council and several sustainability councils from other EU Member States to the EU's Transport Commissioner with recommendations for action that should be taken at the European scale. Additional background information can be found in Part 2.





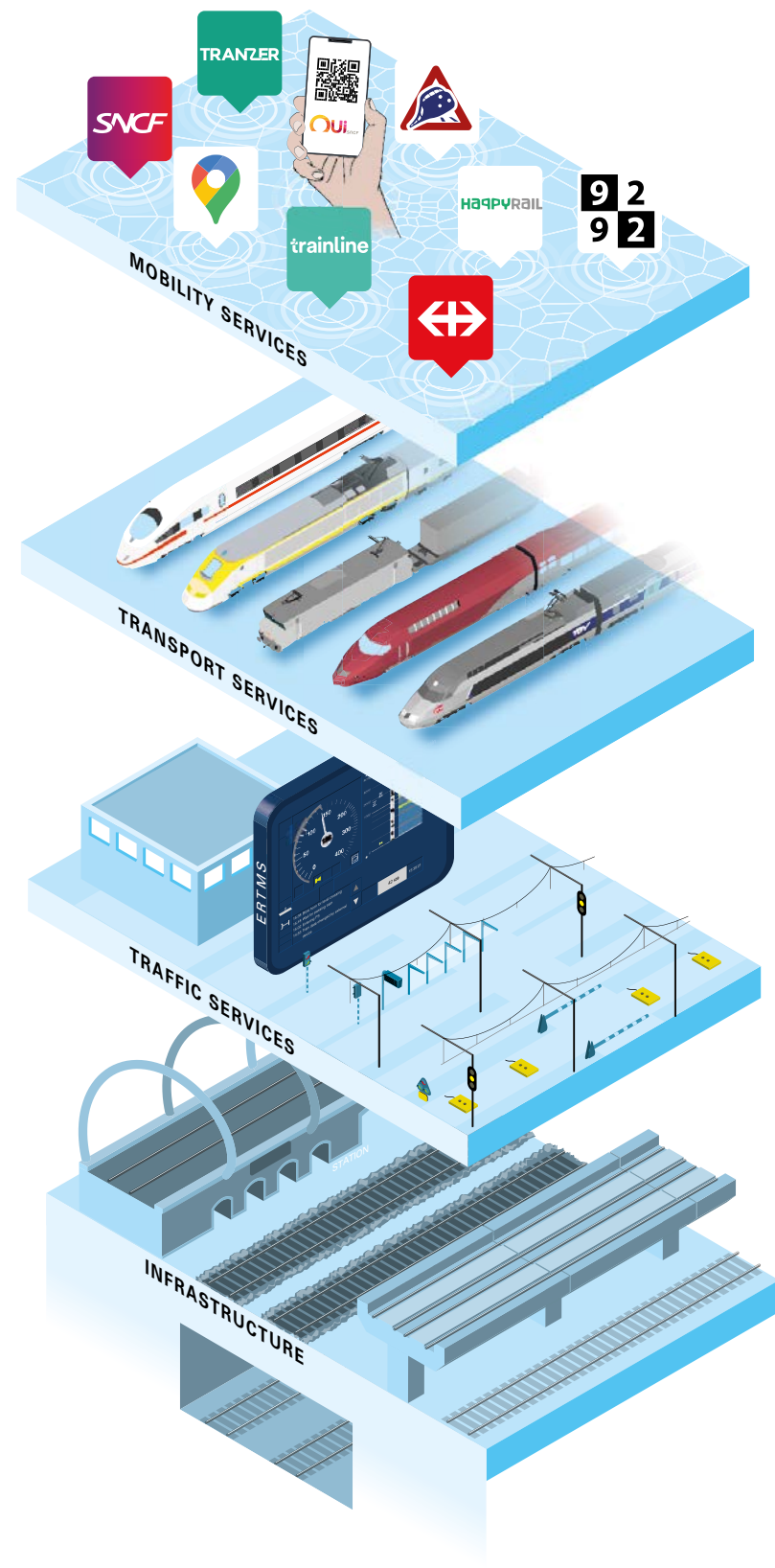
2 BOTTLENECKS IN INTERNATIONAL PASSENGER TRANSPORT BY RAIL

In this chapter the Council discusses the organisational structure of the international rail transport system (section 2.1). The Council considers it important to examine the bottlenecks that affect the international rail passenger (section 2.2). This information is then used to make a further analysis of the bottlenecks in the different 'layers' that can be distinguished within the system (section 2.3).

2.1 The four layers of the rail transport system

As mentioned in the Introduction, the world of international rail travel is exceptionally complex. Not only are there many countries involved, but within each country the operation of international rail services depends on close cooperation between public and private parties. But what is the international rail transport system exactly? In a previous advisory report from 2018, the Council explained that the mobility system can be described as having four layers; for this advice the Council has identified what these four layers consist of specifically for the rail transport system (see Figure 1). Teasing these four layers apart gives insight into this complexity and a handle for working with it.

Figure 1: The four layers of the international rail transport system



Each layer of the rail transport system has its own set of distinct physical forms and features. It also has its own specific set of players that are active within it.

1. The *mobility services* are the first layer. These consist of a whole range of services to assist travellers with planning, purchasing and making their journey. They include the more or less traditional services, such as traffic information and route planners, as well as new, often digital services such as real-time route information and Mobility as a Service concepts (MaaS) that are built around the journey from A to B rather than a specific transport mode.
2. The second layer of the rail transport system consists of the *transport services*. These concern the users of the rail transport system (such as railway companies) and the rolling stock and transport services they use to convey their passengers.
3. The third layer consists of the *traffic services*. These are the sum of measures and instruments for making optimal and safe use of the capacity on the rail network. They include the allocation of train paths to the various operators and traffic management on the available infrastructure as well as the various systems to facilitate traffic flows and safety, such as the ERTMS.⁴
4. The fourth layer is the *physical and digital infrastructure*. This is the basis of the rail transport system: the system of tracks, stations, rail yards and digital hardware on which and along which journeys are made.

⁴ European Rail Traffic Management System.



This layer model reveals the dependencies between the layers. The lower layers facilitate what happens in the layers above. In other words, the layer above makes demands on the provision of the specific functions and services in the layer below. Without any tracks there are no transport services; without any digital infrastructure there can be no train protection system.

Each of the four layers of the rail transport system (and its subsystems) is organised in its own way. Each layer has its own set of organisations and organisational structures. The roles and division of tasks and responsibilities differs between public authorities, implementing agencies, transport companies and other commercial partners. The financing, revenue and market models are also different in each of the layers (Rli, 2018). Chapter 6 of Part 2 gives an overview of organisations involved in the rail transport system at the European level.

For this advisory report the Council analysed the rail transport system for international rail passenger transport, which revealed several bottlenecks within and between the layers of this system. In the first instance, the Council looked for the bottlenecks that would discourage international travellers from choosing the train. Then the Council analysed the bottlenecks in each layer to obtain insight into how this complex rail transport system can be made to function better.

2.2 Bottlenecks from the passenger's perspective

In this advice the Council puts the international rail passenger first. The Council notes that so far the main purpose of the policy for improving international rail services has been to optimise the rail transport system itself. This is expressed in the two pillars of European policy: open access and technical harmonisation. The purpose of the railway packages is to contribute to improving the quality, competitiveness and efficiency of the European railway sector (Europees Parlement, z.d.-a), the idea being that this will serve the interests of the international train passenger. However, the assumption that this policy would lead to a large increase in international rail passenger services has not materialised. In fact, in recent years the relative share of rail in the European transport market has even fallen.⁵ From the perspective of the international rail passenger this is understandable, as they still have to contend with numerous bottlenecks: poor travel information, complicated booking procedures, mediocre comfort levels, unreliable timetables, infrequent services and low speeds on many routes (see also Europese Rekenkamer, 2018). It is therefore only logical that travellers do not see the train as a realistic alternative to the car or plane at the moment. International travellers are independent and take their own decisions about how to travel; governments can influence that choice by meeting the needs of travellers – but have not yet done enough in that regard.

⁵ Surprisingly, there is little data available on the development of transboundary rail services. Most sources contain aggregated data at national or European scales.



Figure 2: Putting the passenger first



The problem is clearly not limited to the infrastructure alone. International travellers have an extensive European railway network at their disposal. For example, from the Netherlands passengers have direct access to the railway networks in Belgium, France and the United Kingdom via the high-speed HSL trains and to the German railway network via the high-speed ICE trains to Frankfurt and the Intercity to Berlin. These connections give the Dutch traveller access to the whole of Europe, although with one or more changes. Nevertheless, the potential of the train for travellers in Europe is not being fully utilised due to the bottlenecks and problems mentioned above. The main ones are discussed below.

Access to the system is problematic

The first barrier that travellers have to overcome when choosing to travel by train is poor access to the system compared with other modes of transport. The Council observes that booking an international train journey is a complicated business. For many international destinations it is hard to find and book tickets. And in many cases tickets are only available three months in advance of travel, whereas the recreational traveller often wants to plan and book their journey much further in advance. The process leading up to a booking has its faults, too. The service must be visible in the set of travel options to choose from and if travellers are not aware of the international train services that are available they will never choose the train to get to their foreign destination. Access to the system can be summarised by four keywords: knowledge, findability, bookability and assurance. These factors must be improved to get more people to choose the train for their international journeys.



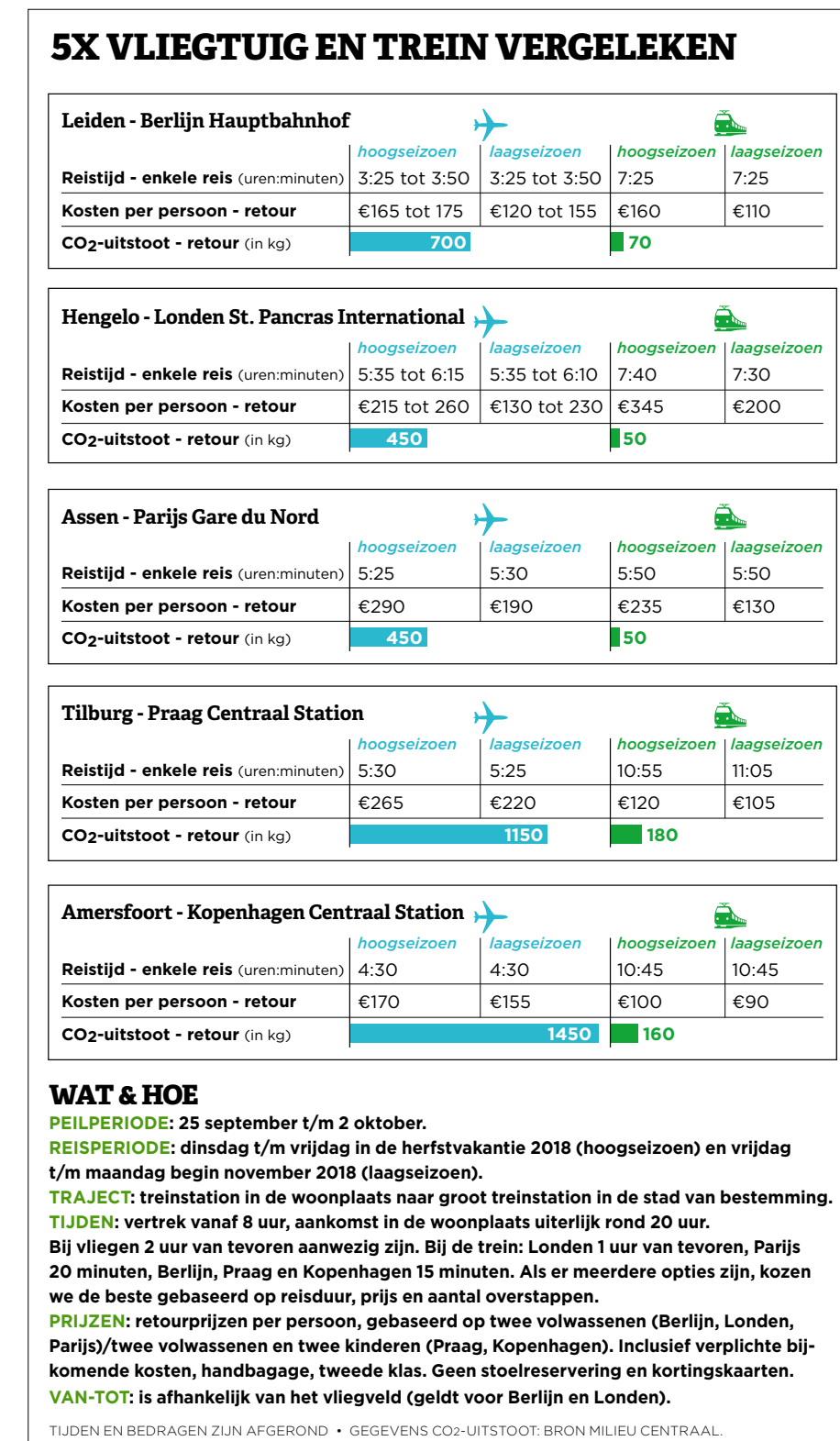
The train is considered to be expensive

The second barrier experienced by the traveller is the price of the train ticket. Many people consider ticket prices for train journeys to be high compared with the cost of flying. But it is by no means certain that this is the case. It is difficult to accurately compare the cost of train and air tickets because the prices of the tickets on offer vary so much, but a sample study of ticket prices by the Dutch Consumers' Association (Consumentenbond) in 2019 showed that the train is often cheaper than flying (see Figure 3). Moreover, travellers often do not take the additional costs of travelling by plane into account, such as parking fees at the airport and the costs of travel to and from airports.

Changes: too few direct train services

Having to change trains during a journey is one of the biggest sources of stress for travellers (Van Hagen & De Bruyn, 2015). Changes make a journey more uncertain in all sorts of ways. Will I make the connection? What will happen if I miss my connection? How do I get from one train to the next? Will I be able to wait in comfort for my next train, or will I have to stand around on a cold platform? Will it be safe, or will I have to keep a close eye on my luggage? Moreover, a change almost always involves additional waiting time and therefore adds to the total door-to-door journey time compared with a direct service. For some travellers, these concerns weigh so heavily that they prefer a longer journey without any changes to a shorter one with a change (see box).

Figure 3: Sample ticket prices by rail and by air



Source: Consumentenbond 2019, p.16

Importance of direct services

Although it has been possible to travel from the Netherlands to London by train since 1994, interest in the Channel Tunnel rail link has only recently increased with the introduction of a direct service between the Randstad and London. The total door-to-door journey time is about the same, but the big advantage of a direct service is that passengers do not have to change trains during the journey.

The train journey from Amsterdam to Berlin is another example that shows just how important a direct service is to people. With a cross-platform and comfortable change to the ICE in Hannover, passengers can be in Berlin twenty minutes earlier than with the direct service to Berlin – but many people still prefer the direct service.

Another reason why international passengers are reluctant to choose train journeys involving one or more changes is that they consider passenger rights to be inadequate when changes are involved. For example, if your train is delayed and you miss a connection, can you take the next train without having reserved a seat? Also, if there has been a delay on one part of the journey, can you claim compensation for the whole journey? In addition, changing from one operator to another can be risky: unlike airlines, operators of international rail services have not made agreements on taking over each other's passengers in the event of delays or cancellations (see more on this in Part 2, Chapter 5).

Journey time: too few fast connections by train

Besides price, journey time is a major factor when choosing how to travel. The train is more attractive if the journey time is competitive with alternative options. The biggest time savings are made where trains run on dedicated tracks and average speeds are very high. Many European countries already have such high-speed networks, but on large sections of these networks trains cannot yet run at the intended speeds. Moreover, the high-speed networks were planned and built with national interests in mind, involving choices that make a lot of sense from a national perspective (such as extra stops and permitting national services on the line) but which lead to delays for international travellers (see also the box in section 2.3 about Eurostar). This means that the European high-speed network in which billions have been invested (including EU funds) cannot be used to its full potential (Europese Rekenkamer, 2018).

2.3 Bottlenecks per layer

The Council's analysis of the rail transport system has identified a number of significant bottlenecks in each layer:⁶

- **Mobility services:** *lack of passenger friendly access* to information and tickets.
- **Transport services:** *domination by national operators* which are largely geared to the domestic market.

⁶ Chapter 4 of Part 2 gives a more detailed account of the inventory of the bottlenecks per layer made by the Council on the basis of a document analysis and several expert meetings.



- Traffic services: *capacity restrictions* as a result of (a) disparate technical, train protection and control systems, and no common language, and (b) problematic allocation of capacity on certain sections of track between national and international services and between passenger and freight transport.
- Infrastructure: *speed restrictions* as a result of the limited capacity and quality of existing infrastructure and stations.

The Council investigated why these bottlenecks within and between the layers of the rail transport system are so persistent and has identified three explanatory factors:

1. The main players in the rail transport system have a predominantly *national orientation*, which means that the interests of international passengers are underrepresented in decision-making.
2. Efforts to improve rail accessibility *focus primarily on infrastructure and infrastructural and technical bottlenecks*, which diverts attention from improvements for international passengers in the areas of passenger rights, travel information and ticketing which are easier to make.
3. The technical harmonisation of the European rail transport system *pays insufficient attention to improving the main links* in the network (corridors), which are important for international passengers.

These three observations are explained below.

Re 1. Little attention to the international level

Most players with influence in the rail transport system are national in scope. In the execution of their responsibilities they have a national orientation: they look to optimise the national rail transport system without paying much attention to the effects at the international level. They disregard the international dimension of the rail transport system largely because they are 'rewarded' primarily for their domestic performance. To these players the benefits of international transport performance are mostly intangible and largely irrelevant for performance reviews.

For example, the NS concession for the designated core network contains few firm requirements for international connections, just a best effort commitment for a number of routes. And the few concrete agreements that are included in the public service contract tend to be pushed into the background. An example is the agreement to improve the connection to Aachen by introducing an intercity service (Eurekarail, 2020).

The Council feels that the Ministry of Infrastructure and Water Management gives insufficient weight to the interests of international passengers.

The Council also feels that the national governments of Member States underplay the economic and other interests of the metropolitan agglomerations in their decision-making on international transport services. In addition, the Council points to a worrying lack of decisive international coordination in balancing the needs of national and international rail transport. This has consequences for the quality and thus the competitiveness of international rail passenger transport (see box).



National interests thwart time savings on Amsterdam–London service

During an expert meeting held by the Council in January 2020, Eurostar railway company said that in the short term it should be possible to cut at least 16 minutes off the journey from Amsterdam to London, and that the five infrastructure managers on the Amsterdam–London route are all attempting to optimise the use of capacity within their own area. This time saving can be achieved if there is better coordination between the available international time paths. The journey time would then be reduced from 3 hours and 58 minutes to 3 hours and 42 minutes, which would make the train much more competitive with flying. Calculations by the European Court of Auditors (Europese Rekenkamer, 2018) indicate that this amounts to a theoretical economic value of almost €6 billion. There are many examples in the Netherlands and Europe where similar time savings can be achieved, because international services are still mainly an offshoot of national choices.

According to the Council, better and more frequent scheduling of international services does not have to be at the cost of national services, as is often assumed.

Re 2. Overemphasis on new infrastructure

Building new rail infrastructure is widely thought to be the best way to improve accessibility by train within Europe. However, the EU has about 200,000 kilometres of railway lines (of which 11,000 kilometres are high-speed lines) to which the Netherlands is connected, either directly or

indirectly (Europese Commissie, 2020b). What is most lacking are direct services via international corridors (see point 3 below).

Although the construction of new rail infrastructure is by no means always the best way to improve accessibility by train, physical bottlenecks do exist and investment in the physical infrastructure is needed on some lines, such as the Amsterdam–Düsseldorf route (see section 3.5). But the Council believes that building new infrastructure should be restricted to where capacity is inadequate or speeds insufficient to meet the required quality standards. Upgrading infrastructure is costly and time-consuming. The Council notes that various alternative options for improving accessibility by train are currently available. For one thing, the capacity of the existing rail network can be better utilised (see box).

Capacity of the rail infrastructure

The capacity of the rail infrastructure is the combined outcome of the amount of available track (physical infrastructure), the safety systems (technology) and how the infrastructure is used. The utilisation of capacity is influenced by the priority given to the various rail services in the allocation of capacity. Changes to any of these will lead to a better or different utilisation of the available capacity.

1. The safety of the infrastructure is determined to a large degree by the technology. Other than on the roads, the rail safety infrastructure ensures safe distances between trains. The technology used determines the minimum distance and the degree of permitted



flexibility and so improvements in the safety infrastructure can lead to substantial increases in capacity. An example of this is the introduction of information technology (such as ERTMS) that makes it possible to make much more intensive use of the existing rail infrastructure.

2. The way the rail infrastructure is used is based on many years' experience and incremental adjustments and improvements to starting acceleration, braking curves, stopping pattern, stopping times and other operational aspects of the running of trains. A major reappraisal of how the rail infrastructure is utilised would have an impact on capacity. Capacity can be increased through a creative and critical examination of how the system is used, an example being shorter stops at stations. Doubling voltage to 3 kV can also help.
3. The 'basic hour pattern' scheduling is the basis for the timetabling of services on the Dutch railway network: in principle, the timetable is repeated every hour. However, on many corridors the timetable is based on repeating a 'basic half hour' or even a 'basic quarter hour'. These same corridors also have to accommodate *international* trains, which generally run just once every hour in an allocated path. This means that in every hour there is a 'surplus' half-hour period (or sometimes three quarter-hour periods) within which room can be found for additional international trains without making any alterations to the infrastructure. These could be used, for example, to double the frequency of services between Amsterdam and Brussels. Services to Germany could be increased from 7 per day to Berlin and

7 per day to Frankfurt to as many as 64 each day.⁷ This would require giving higher priority to international passenger transport.

Another option is to give international trains a prominent role in the national passenger timetable, where they could take on the function of domestic long-distance services. There are few such services in the Netherlands due to the relative short distances involved, but in Germany and France some international trains are integrated into the national timetable. It is important, though, to consider the availability of seating capacity in these trains for both international and domestic passengers and the journey time. Also, increasing the speed of services on the existing infrastructure would require rescheduling these services in the timetable and reviewing the principle of the 'basic hour pattern' scheduling.

Other, non-physical measures can also be taken to resolve bottlenecks affecting international passengers. Examples include:

- improving coordination between countries on 'train paths' (time slots allocated to operators to run services on specific sections of track);
- making it easier to find and book international train journeys;
- encouraging the expansion of international transport services.

These types of 'soft' measures can deliver substantial benefits for international passengers, even in the short term. Moreover, without these

⁷ Part of this room on the network is already used by freight traffic. Belgium and Germany would also have to be prepared to release the necessary connecting capacity.



measures the significant investments in new infrastructure will have considerably less effect.

Re 3. Insufficient attention to international corridors

Over the past twenty years the European Commission has produced four 'railway packages' of legislation (see section 1.2) for more competition and uniform technical solutions to promote the harmonisation of the rail transport system. However, this European policy has not always led to the desired improvements, both in the market pillar (aimed at open access entry to rail corridors) and in the technical pillar (aimed at interoperability across the European railway network). Solutions that work well for services to Germany have been found not to work or to work differently on services to Belgium and France. This can be explained largely by the differences in technical and other systems between countries, but the significant differences in culture and procedures also play a role. Railways have a long history, infrastructure managers are perceived to be fairly inflexible and operators are not particularly willing to work with each other. This is also an important conclusion from the expert meetings held by the Council (see Part 2, Chapter 4).

The prime concern for international rail passengers is that better services are introduced on the main links – the corridors – between Europe's major urban agglomerations. Travellers will therefore benefit if policy is focused on making improvements in the core network (which in principle can be made quickly). However, at the moment policy attention is not focused on these corridors but is spread across the whole network. This situation

is at odds with the priorities of the European Commission, which has recently set a target of completing the core network (of the Trans-European Transport Network) by 2030 and subsequently the comprehensive network by 2050 (Europese Commissie, z.d.-b). The relevant EU legislation will be evaluated in 2020/2021.

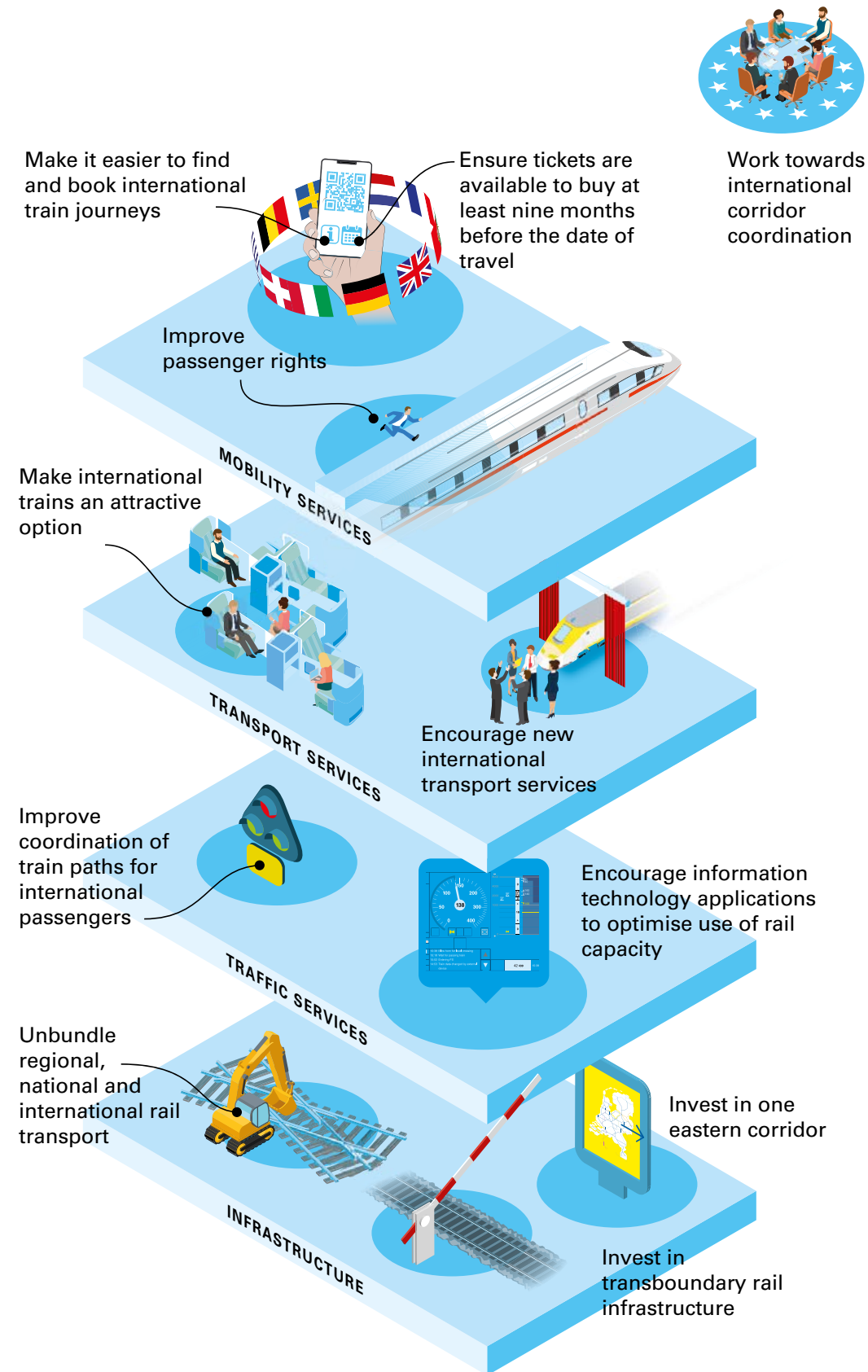




3 RECOMMENDATIONS

The Council feels that there is now an excellent opportunity to adopt a fundamentally different approach to the whole subject of international train travel. The bottlenecks within and between the layers of the rail transport system are still approached too narrowly from the perspective of the internal logic of the system itself and not enough from the perspective of the international (and domestic) rail passenger. The Council supports the Dutch government's initiative of making the case in Europe for giving a major boost to international rail passenger transport. To bring the four layers of the rail transport system into closer cooperation a first step will be to improve the functioning of international corridors (section 3.1). The Council envisages improvements that can already take effect in the short term. The recommendations made by the Council in this chapter concern the improvements that are needed in the four layers of the rail transport system: the mobility services (section 3.2), the transport services (section 3.3), the traffic services (section 3.4) and the infrastructure (section 3.5).

Figure 4: Overview of recommendations



3.1 The case for a European corridor approach

Recommendation 1: Work towards corridor coordination

The Council has analysed the existing rail transport system and identified bottlenecks in each of the layers of the system. These bottlenecks are still approached too narrowly from the perspective of the internal logic of the system itself and not enough from the perspective of the international (and domestic) rail passenger. The Council is of the opinion that an approach geared to improving the functioning of international corridors would help to bring about a more integrated resolution of the bottlenecks. A corridor approach would challenge the players in the four layers of the rail transport system to work together more effectively.

Coordination on the international rail network

The Council sees the need for good international coordination on the main rail links between the major urban agglomerations in Europe. Together with the other advisory councils, the Council has already advised on this aspect in a letter to the European Commission (see box and Appendix). First, on the main European corridors there is a need for better coordination comparable with the current approach for freight traffic in the Rail Freight Corridors.⁸ The Council feels that in the long term there will have to be more European control over the rail network in order to improve rail services between the European metropolitan agglomerations.

⁸ The Rail Freight Corridors already provide a form of corridor coordination, see Part 2, section 2.1.2.

Recommendations by European advisory councils to the European Commission

1. *Give a major boost to train travel through Europe.* The European Commission should give a major boost to stimulate the development of European rail passenger transport. More political attention should be given to initiatives to improve international rail transport.
2. *Establish a European rail authority.* The European Commission should work towards a European system of rail traffic control and a European capacity manager for international rail transport. As the potential of rail travel between metropolitan agglomerations is so great, corridor authorities could first be established for these lines and then later merged to form a single pan-European authority.
3. *Regulations are needed on travel information, ticketing and passenger rights.* European legislation on travel information, ticketing and passenger rights must be considerably improved to make the train a more attractive travel option for passengers. Findability and bookability must be improved by making data public. Tickets must be made available for longer in advance, reservation systems must be interoperable and passenger rights must be improved.

A corridor coordinator is responsible for ensuring that all parties work together to ensure better connections between international transport links and train paths (time slots allocated to operators to run services on specific sections of track). The Council expects that in time the need will arise for political stamina and authority to break the deadlock.

Figure 5: Main international rail transport corridors from and to the Netherlands

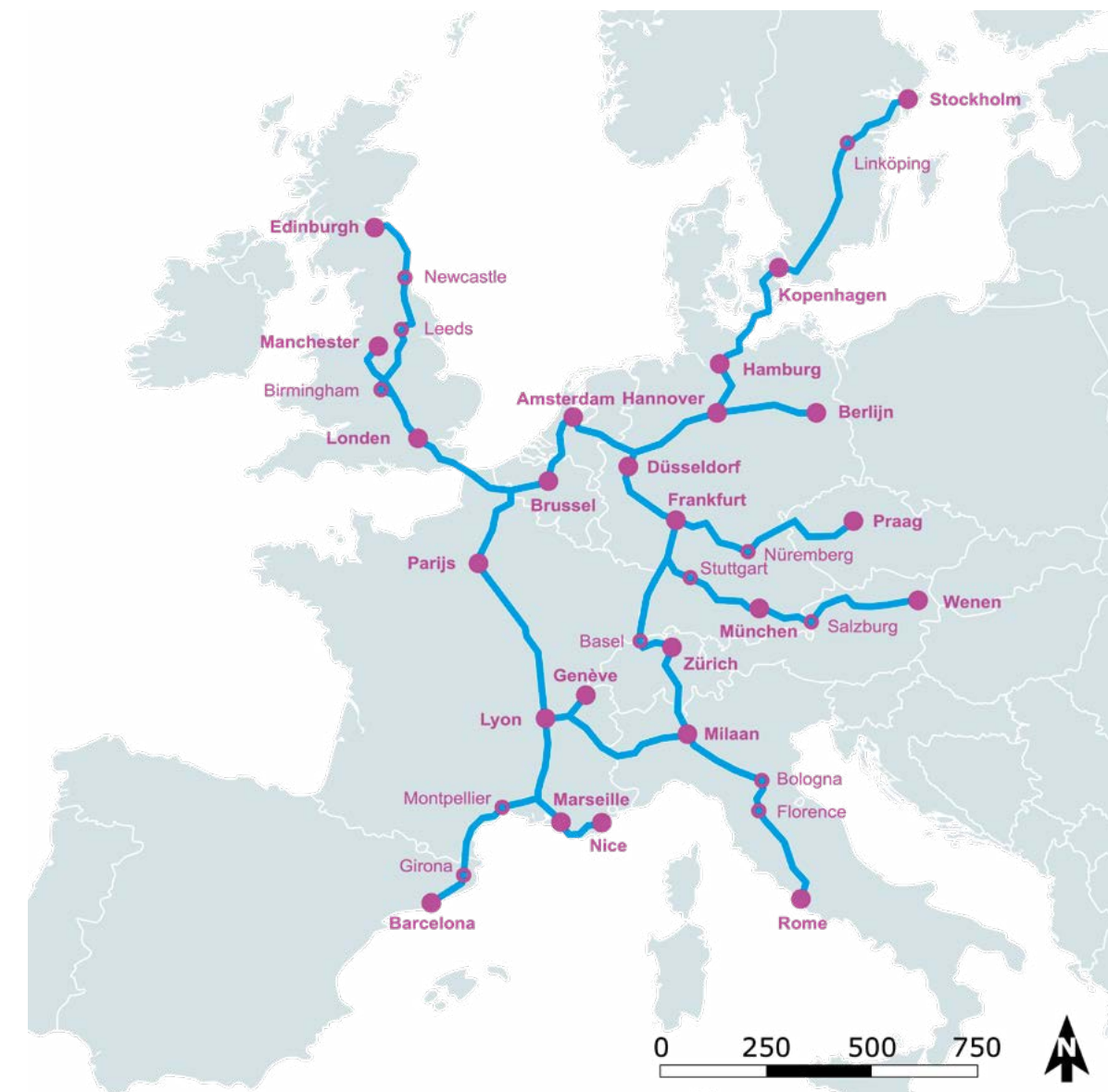
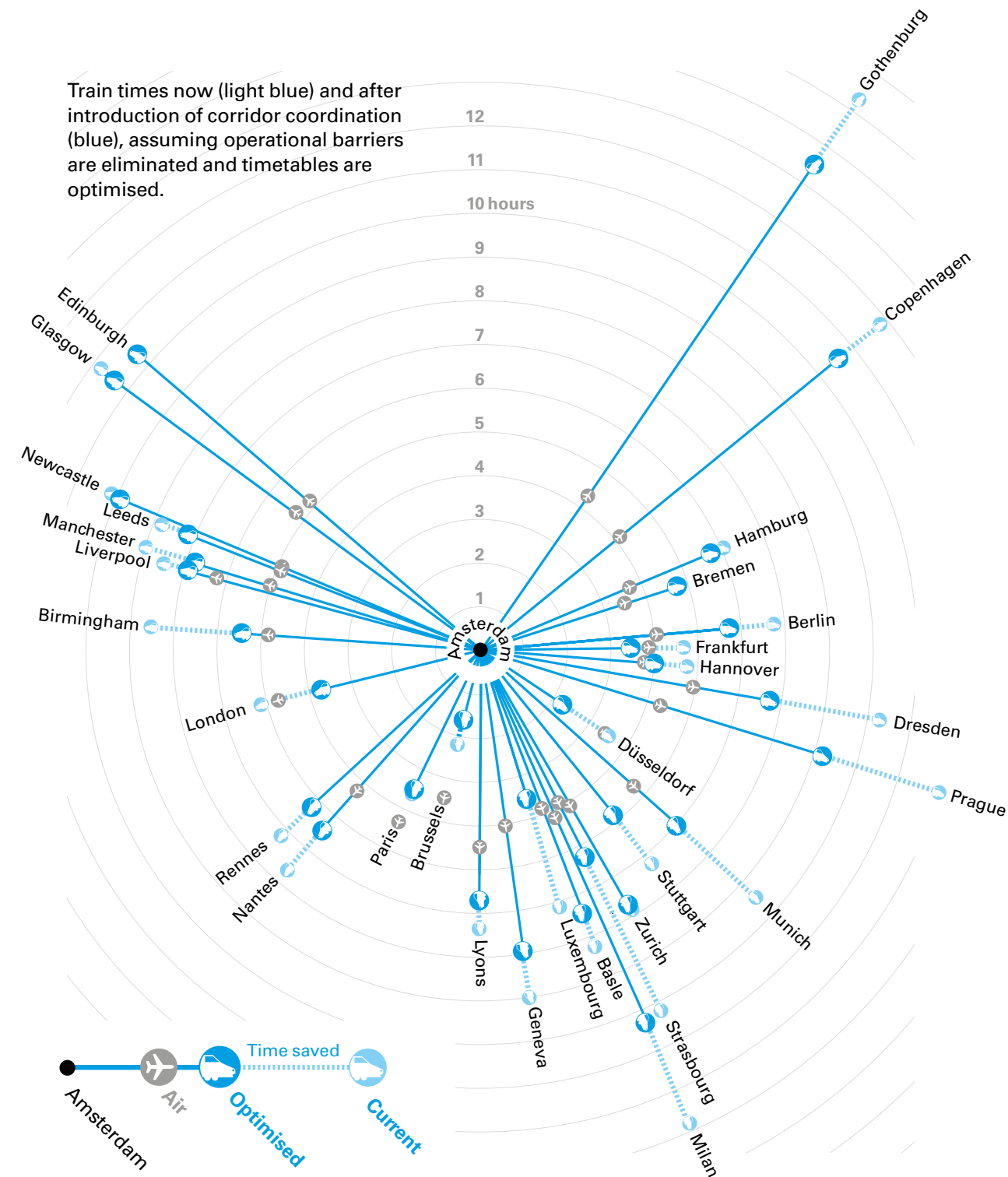


Figure 6: Comparison of journey times by rail and air, assuming operational barriers are eliminated and timetables are optimised



Source: Donners et al., 2018

Coordination on important corridors

As a first step, a start can be made with coordination on the most important passenger corridors within Europe (see Figure 5, which shows the main corridors from the perspective of the Netherlands). Where the railway is also used for freight transport, this coordination should include the Rail Freight Corridors. Figure 6 illustrates the journey time savings that can be made by adopting a corridor approach that eliminates operational barriers and optimises timetables for a number of main destinations from the Netherlands (adapted from Donners et al., 2018). These time savings will improve the competitiveness of international train services compared with flying.

The Council expects that experiences with corridor coordination will eventually lead to demand for a corridor authority. As the transport authority within a corridor, it could ensure that all stakeholders know what service level is required on each specific section of the corridor (quality of rolling stock, frequency of services and desired speeds). The Council expects that in time a need will arise to amalgamate the corridor authorities into a single European rail traffic control and a European capacity management system for transboundary services.

Encourage international train connections

The market for international trains has proved to be a difficult market to develop. If the open access policy does not lead to the introduction of the desired international transport services, the corridor coordinator should be able to put new supranational public service obligations (see box) for

major routes out to tender. Eventually this could be performed by the new corridor authority. Even better services will be possible if the corridor coordinator is later given the task of increasing the operating speed of the services by resolving technical problems and removing bottlenecks in the infrastructure. European funds can be called upon to provide all or some of the necessary financing. The experiences of the Rhine Commission (see box) can be of benefit when deciding on the exact tasks and powers of the corridor authority.

What is a public service obligation?

A public service obligation (PSO) ensures that a public service, in this case a train service of a certain quality (speed, frequency and comfort) is provided where the service cannot be run commercially by the market. A PSO therefore removes the barriers to the operation of a train service. In most cases a concession is granted to an operator, which therefore has a monopoly, but only under certain conditions.

The Rhine Commission as inspiration for the coordination of international rail transport

The International Commission for the Protection of the Rhine against Pollution (ICPR, z.d.) was founded in 1950. The Commission was set up to serve as a platform to resolve issues of pollution and coordinate and harmonise monitoring of the Rhine. The agreements on the administrative responsibilities and supervisory tasks of the

Rhine Commission can be an inspiration for the form of international cooperation on rail transport.

International cooperation on the Rhine is currently based on the Convention on the Protection of the Rhine (Bondsrepubliek Duitsland et al., 1999). Bringing the European Community (later the EU) into the Commission proved to be a useful step towards embedding the agreements in Europe-wide rules. Provisions for the settlement of disputes are included in the Convention. If a dispute cannot be resolved through negotiation, the Convention provides for an arbitration procedure. The claimant and the defendant appoint one arbitrator each and these two arbitrators designate by common consent a third arbitrator, who chairs the tribunal. If the three cannot come to a decision, the matter is handed over to the International Court of Justice. Decisions are made on the basis of the rules of international law and in particular on the basis of the provisions of the Convention. Further, arbitral decisions are made by majority vote.

International consultation for a major boost to passenger transport

On 2 June 2020, at the initiative of the Netherlands, 25 European countries signed a political statement (Nederland et al., 2020). This statement is in part a follow-up to the Dutch position paper on international rail passenger transport of 30 January 2020 (see Part 2, Chapter 2) in which the Minister of Infrastructure and Water Management drew attention to idea of international corridor coordination for passenger transport by rail. The statement calls



for a European agenda for international rail passenger transport as part of the European Green Deal and announces the establishment of a platform of Member States for cooperation on improving international rail passenger services. The Council supports this statement and in the letter to the European Commission mentioned above indicates how this idea can be put into practice (see Appendix). There is a need for a major boost from Europe for improving international rail passenger transport.

3.2 Mobility services: Improve information provision, ticketing and passenger rights

Recommendation 2: Make it easier to find and book international train journeys

European policy for rail transport must ensure that the rail market is opened up for various transport services and that trains run faster. The train passenger should benefit from this. However, if the desired train connection cannot be found or booked, much of the benefit is lost. Much remains to be done on this score. In concrete terms, travel and passenger information must be more accessible and international journeys must be much easier to book. International rail passengers want an easy-to-use booking procedure in which the services and prices of all the train operators on a route (former public operators and new entrants to the market)⁹ are combined in a single,

⁹ Former public operators that offer train services are also called incumbents. Non-incumbents is the name for new, independent entrants to the market and the new regional concession holders. Most of these latter companies are owned by the incumbents. Incumbents often have a monopoly on travel information and ticketing.

clear and comprehensive format. Because passengers do not travel from station to station, but from door to door, they want integrated travel advice and ticketing.¹⁰ An option that should also be considered is AirRail tickets (a combination of air and rail tickets).

A number of apps are already under development that will provide integrated travel information and ticketing services. However, app builders face the problem of inadequate access to travel information, passenger data and ticketing because operators do not make these available. Operators must make these data publicly available as soon as possible, the Council feels. In its advice to the European Commission, the Council therefore indicated that a new EU regulation should be prepared that makes the provision of travel and passenger information a requirement and a standard condition for operators to gain access to the rail infrastructure. In anticipation of this, the Netherlands can lead the way and include this condition in public transport contracts and when granting railway undertakings access to the Dutch rail network. Making this information available should be a firm condition in all new public service obligations.

In the Council's view, all operators should permit third parties (not just former public operators) to sell tickets. This also applies to the NS Travel Planner and NS International, which should include the services provided by all operators. The aim should be to standardise the format of ticket information and conditions, similar to the situation for the airlines. This

¹⁰ The development of Mobility as a Service (MaaS), a project currently being developed by the Ministry of Infrastructure and Water Management, will help to fill this gap in future.



will make it easier, more attractive and economically feasible for all train companies, online ticket platforms and travel agencies to sell third party tickets. None of the individual national undertakings has sufficient financial or other interest in dismantling the status quo and so a cooperative approach is needed. The Netherlands should therefore argue for European standardisation of ticket information (APIs¹¹) similar to the way this has been done for air travel.

Recommendation 3: Ensure that train tickets are available to buy at least nine months in advance

International train tickets are usually only available from three months before the date of travel. This rules out the train for travellers who want to book their journey much further in advance. The Council considers that the new EU regulation argued for in section 3.2 should also require operators to make international train tickets available for purchase earlier than the current three months before the date of travel. The Council feels that a period of at least nine months should be feasible (see Part 2, Chapter 5). When tendering and granting concessions and PSOs, the Dutch transport authorities should raise this with operators and hold them responsible as far as possible.

The Council sees no reason why the Netherlands cannot already work towards introducing a simplified ticketing system for rail travel without waiting for European legislation.

¹¹ API stands for Application Programming Interface, which makes it possible to exchange information between different programs.

Recommendation 4: Improve passenger rights

In the letter to the European Commission mentioned above the Council and other advisory councils have drawn attention to the ongoing recast of the Rail Passenger Rights Regulation, which presents an opportunity to improve the rights of international rail passengers. The Council would stress that this regulation should put the passenger first, not the rail transport system.

Like airlines, rail operators should make mutual agreements on taking over each other's passengers in the event of delays or flight cancellations (through ticketing). The European Commission can make binding agreements on this in the Rail Passenger Rights Regulation, which is currently being recast. Unfortunately, various Member States (under the influence of their railway companies) are watering down the agreements to the point where the interests of the railway sector threaten to dominate yet again (see Part 2, Chapter 5). The Council feels the Netherlands should continue to press for better passenger rights for international train passengers and push for rights that are at least comparable with those enjoyed by air passengers. The Dutch transport authorities can require operators to make mutual agreements on through ticketing when granting concessions and PSOs. It is not up to the passengers, but the operators to work out how to resolve the issue of costs incurred as a result of missed connections. For the short term an option could be to institute a guarantee fund for costs incurred by passengers due to missed connections (see Part 2, section 5.4).



Here too, the Netherlands could take appropriate steps in anticipation of European legislation. After all, many of the international European rights advocated by the Council are at the moment insufficiently safeguarded in the Dutch system. The Netherlands could therefore take steps now to guarantee better passenger rights for *domestic* rail travel. A simplified Dutch system is also preferable with a view to the European coordination proposed by the Council.

3.3 Transport services: New international services and the train as an attractive option

Recommendation 5: Encourage the introduction of new international transport services

In the expert meetings held by the Council it emerged that some rail capacity for international services is not being filled at the moment. The EU's open access policy is intended to stimulate this market, but it has only led to the entry of a few new operators, most of which operate in regional markets and are in fact subsidiaries of the national operators (Abellio is a subsidiary of NS, Arriva is a subsidiary of Deutsche Bahn, etc.). The reasons are that launching a new transport company requires a considerable investment and that there is little rolling stock available for new operators. The European Commission is currently investigating how to make more rolling stock available for new companies. The Council supports this.

Successful new entrants to the rail market are active in Italy, Austria and Czechia: NTV/Italo, Westbahn and Regiojet. These and other new operators united in ALLRAIL (Alliance of Rail New Entrants) point out that the national operators, as former state-owned enterprises, enjoy much more market protection. National governments – in defiance of EU policy – do tend to protect their national operators from competition. In the Netherlands, existing international connections are included as an integral part of the current concession. New international connections are often added to current concessions held by the national operators and the Netherlands intends to do this for the planned reintroduction of the night train between Amsterdam and Vienna. The Ministry of Infrastructure and Water Management has already promised to award a subsidy to the NS/ÖBB consortium to operate this night train.¹² This strategy leaves little free market left for new entrants. Moreover, entrants have insufficient long-term perspective on the availability of national and international train paths (Berenschot, 2020). The proposed market organisation after 2024 may improve this situation.

The parliamentary inquiry into the Fyra case (2013–2016) revealed how complex it is for the Netherlands to launch an international transport service onto the market. The Ministry of Infrastructure and Water Management is highly dependent on the cooperation of the train operators, such as NS, and of international partners, including public authorities, operators and infrastructure managers. This made it impossible for Dutch stakeholders

¹² ALLRAIL has filed an objection to this, arguing that the service should have been put out to public tender and that if that had been the case there may have been no need for a subsidy.



to introduce the desired high-speed services or have Dutch intercity trains continue to the first major station over the border. The reasons for this were that providing transboundary services like these would have too much of a negative effect on the smooth operation of domestic services. The cost and complexity of interoperable rolling stock was a further argument. This is the case, for example, for the Eindhoven–Venlo–Düsseldorf and Eindhoven–Heerlen–Aachen connections and the introduction dates for these services are being pushed further into the future. In the opinion of the Council the ministry should be pressing harder to resolve these issues.

Given the lack of international services under the current concession, the Council supports the ministry's decision to focus more on international connections after 2024. Furthermore, the Council recommends that even before that date the ministry should actively seek out operators who are willing to run transboundary services and establish the conditions under which they would do so. The entry of new international operators should be actively encouraged. In extreme cases, the ministry could take a complete corridor out of the main network concession and put it out to tender with the aim of generating added value to society by providing an international connection. This would require more leadership and insight into the rail sector from the ministry, in line with the no-regret recommendation in the report 'Kiezen voor een goed spoor' (ABDTOPConsult, 2017).

Recommendation 6: Make international trains an attractive option

Many international travellers still do not see the train as an attractive form of transport. Opening up the market has apparently not provided enough incentive for train operators to meet the needs of international travellers. A question that arises is what can be done to make train journeys more attractive to travellers. Of course, the operators have a major part to play in marketing their products.

Because greening transport is an important government objective, it is conceivable that the national government could provide (partial) funding for a public information campaign to promote international rail travel to the public. Moreover, the government could use a flanking policy to bring about a shift in passenger numbers towards more sustainable modes of transport. An example is the French government making their support for Air France conditional on a ban on short-haul domestic flights. Businesses and government can give a boost to the rail market by banning such short-haul flights within Europe for their staff (such as the 'Anders Reizen' coalition argues for and has put into practice). Consideration can also be given to end tax relief for business travel by short-haul flights.

Pricing

Travellers base their choice of transport mode partly on the perceived price. As discussed above, train journeys are by no means always more expensive than flying. Nevertheless, attractive pricing would help to tempt travellers to take the train. The Council argues that the Netherlands should examine the possibility of reducing the VAT rate on train tickets at the



European level, which would also contribute towards the objectives of the European Green Deal. This also applies to the frequently heard suggestion of lowering the track access charges for long-distance international trains. Long-distance connections in Europe could be charged a degressive tariff: the longer the distance the lower the charge per unit distance.

3.4 Traffic services: More efficient capacity allocation and more use of information technology

Recommendation 7: Improve coordination of train paths for international passengers

Rail capacity management is based on a decades old system that has continually been adapted and expanded in a series of incremental improvements. This system does not make it easy to make more space available for international trains. The Council is of the opinion that more intelligent use can be made of the existing capacity. An example is the 'basic hour pattern' scheduling system in which a fixed train schedule is repeated every hour. Within this timetable there is room to increase the frequency of international services on all international routes to once an hour or once every half hour.

If there are questions about the division of capacity between freight and passenger transport and/or between national and international connections, the Council believes these are not operational but political considerations.

If there is a scarcity of capacity, the decision on the allocation of priorities is a political one.

Time savings can be made on many international services if the time paths allocated by the various infrastructure managers were better coordinated. According to Eurostar, just a small variation in the hourly planning could cut 16 minutes off the journey time (see section 2.3). This is important for the Netherlands, because shorter journey times make all the difference for travellers when choosing between flying or taking the train. In such cases, the coordination authority proposed by the Council would be in a better position to weigh up the national and international interests when allocating capacity.

Recommendation 8: Encourage use of information technology applications to optimise use of rail capacity

Capacity on the rail network can be increased considerably if better use were made of information technology, which can make rail transport safer and more reliable. Speeds can also be increased, which would facilitate transboundary rail traffic. Introducing 3 kV can also help to make more intensive use of the rail network.

The EU has chosen to introduce the ERTMS train control and safety management system across Europe. But the issues involved are complex and hard to fathom, and many stakeholders are concerned about the slow progress being made with its introduction and about the rising costs. Here the Council wishes merely to observe that the application and



harmonisation of information technology as a priority on the main rail links will provide a major stimulus to international rail transport.

3.5 Infrastructure: Invest in connections to the east

Recommendation 9: Invest in transboundary rail infrastructure

As stated in section 3.4, the Council advises that wherever possible rail capacity should be increased through the use of smart safety systems such as ERTMS (capacity utilisation). On some stretches of track, though, physical expansion may be needed. For example, investments in infrastructure are needed to improve several transboundary rail links, particularly the Eindhoven–Düsseldorf, Heerlen–Aachen/Maastricht–Liège and Groningen–Bremen routes, which link the Netherlands into the high-speed networks in Germany and Belgium. A decision will soon be taken (summer 2020) on a Covid-19 recovery fund and it is crucial that these investments are included in the mix. This obviously also applies to the decision-making on MIRT (the multi-year programme for infrastructure, spatial planning and transport).

Recommendation 10: Invest in an eastern corridor

The construction of the HSL-Zuid high-speed line (Amsterdam to the Belgian border) has given the Netherlands a good infrastructure link to Belgium, France and the United Kingdom. However, there is no such high-speed link to Germany, because in 2001 there was too little political support for the construction of the proposed HSL-Oost line. Against the background

of problems encountered with the construction of the HSL-Zuid and local protests by environmental organisations, it was concluded that the journey time savings between Amsterdam and the German border would not be sufficient to justify the required investment.

Nonetheless, this does not alter the fact that creating a single eastern corridor to Germany would make substantial time savings, for example by increasing speeds in the corridor to 160–200 km/hr for services to Berlin and to the Ruhr region and Frankfurt. Moreover, time savings should not be viewed just from a national perspective, but from an international point of view. In Germany a third line between Emmerich and Oberhausen is under construction to improve the speed (200 km/hr) and capacity to Duisburg/Düsseldorf. The Council recommends linking the Dutch network into this line. The Ministry of Infrastructure and Water Management also recognises the need for a better link to the east, as expressed in the policy document ‘Public Transport in 2040: Outlines of a vision for the future’ which argues for one high-speed transboundary link for each national border (Ministerie van Infrastructuur en Waterstaat, 2019). The Council urges the ministry to make haste with the selection of a route.

Recommendation 11: Unbundle regional, national and international rail transport

Unbundling regional, national and international rail transport on some routes will ease traffic flows and permit faster operating speeds. An example is the situation in the Amsterdam region (see box).



Unbundling in the Amsterdam region

The resolution of several problematic rail transport issues in the Amsterdam region will have significant implications for improving international access to the Netherlands. Several station and routes to the western and southern flanks of Amsterdam have capacity problems. These are being addressed in rail-related development proposals in and around Amsterdam.



PART 2 | ANALYSIS





1 CONNECTIONS LINKING THE NETHERLANDS INTO THE EUROPEAN RAIL NETWORK

In this chapter the Council gives a brief description of the main international rail links between the Netherlands and the rest of Europe, including plans for the future expansion of the network.

1.1 International rail access to and from the Netherlands

The Netherlands is linked into both the conventional and the high-speed European rail networks. Figure 7 shows the main existing, planned and possible future international rail passenger links.

Figure 7: Map of international rail passenger links



Source: Tweede Kamer, 2019a



High-speed network (transboundary links of international importance)

The Netherlands has one single high-speed line that links into the European high-speed network: the HSL-Zuid, which runs from Amsterdam to Brussels. The line carries a high frequency of services amounting to no fewer than 269 trains per day (NS.nl, 2020). Both Eurostar and Thalys run on the line at a maximum speed of 300 km/hr. The IC Brussels, domestic InterCity direct and The Hague–Eindhoven Intercity services run on this line at a maximum speed of 160 km/hr.

Thalys now carries more than 7.5 million passenger per year (see Thalys, 2019). Around two million passengers a year use the Thalys network to travel from the Netherlands to Belgium and France. To accommodate the growing number of passengers, plans were made (before the outbreak of the Covid-19 pandemic) to increase the number of seats in summer 2020 by adding an extra trainset to several of the trains. This would at times double the capacity in the weekend. In addition, Thalys intended to increase the frequency of their services on Saturdays and Sundays from the reduced weekend service timetable, which still applies, by adding one extra train to Amsterdam. Eight to nine trains would then run on Saturdays and eleven to twelve on Sundays.

In the past there have been major problems with the tendering for the construction of the HSL high-speed line and the granting of concessions, which have prevented the realisation of the original ambitions. In 2001 agreements were made to run 32 high-speed trains per day, but in the period to November 2013 this number was adjusted downwards several

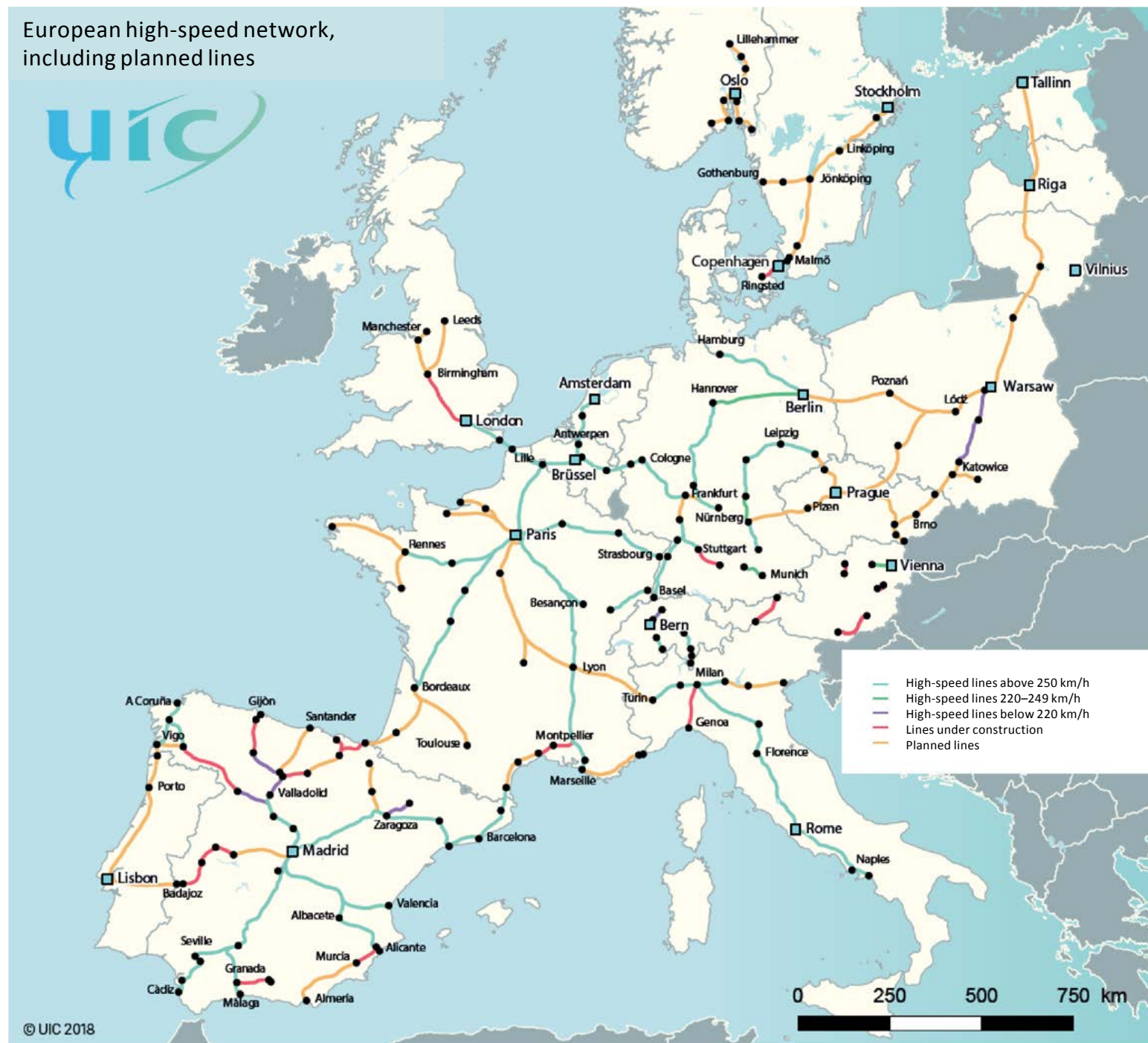
times (Algemene Rekenkamer, 2014). These new political agreements on an alternative growth model for the HSL high-speed service were implemented and the objectives met. Use of the line is now gradually increasing.

Amsterdam-London through service

Since 2018 the Netherlands has also been connected to the high-speed line from London to Brussels and Paris with services provided by Eurostar. There were plans to introduce through services to and from Rotterdam/Amsterdam in spring 2020, which would obviate the need to change at Brussels. The frequency of services would be increased from three to four per day in autumn 2020. In the current Covid-19 pandemic it will have to be seen how much of this can be realised.



Figure 8: European high-speed network, including planned lines



Source: International Union of Railways UIC, as reproduced by the European Court of Auditors in Europese Rekenkamer, 2018

Conventional rail network (transboundary links of subnational importance)

The main conventional connections that link the Netherlands to the international rail network are Liège–Maastricht–Heerlen–Aachen (the planned ‘three country train’), Eindhoven–Düsseldorf (2025), Arnhem–Frankfurt, Amsterdam–Berlin and Groningen–Bremen (*Wunderlinien*). In addition, there are regional transboundary connections, both existing and under development, such as Ghent–Terneuzen, Roosendaal–Antwerp, Weert–Hamont, Enschede–Münster/Dortmund, Hengelo–Bielefeld and Emmen–Coevorden–Rheine.

In the policy document ‘Public Transport in 2040: Outlines of a vision for the future’ (Ministerie van Infrastructuur en Waterstaat, 2019), the Dutch government, the regions, the transport operators and ProRail (the Dutch rail infrastructure authority) set out a vision for international rail links. (See also § 2.2.1.)

1.2 Technical differences between rails systems in Europe

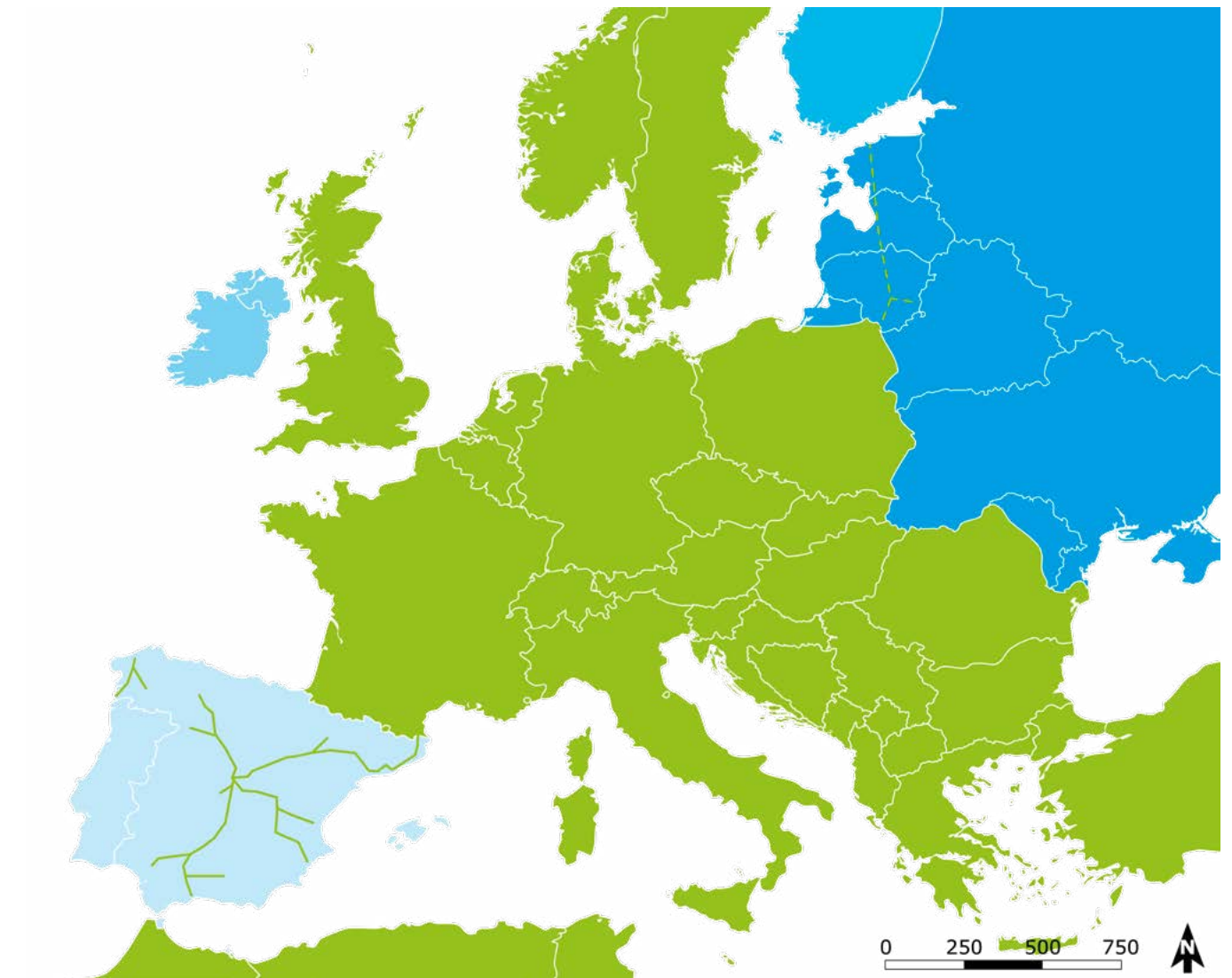
A problem that is often raised in connection with international rail links are the technical differences between railway systems in Europe in terms of track gauge, platform heights, electrical power supply and train control and protection systems. These differences do indeed exist, but there are many technical solutions for getting around them, such as multi-voltage trains which can run on different systems. This section describes the main technical differences between railway systems in Europe.



Track gauge

Track gauges are the same throughout most of Europe. Almost all countries have the *normal gauge* (1435 mm). In the former Soviet Union almost all lines are *Russian gauge* (1520 mm). In Finland the lines are built to *Old Russian gauge* or *Finnish gauge* (1524 mm). Exceptions in Western Europe are the island of Ireland, where the gauge is 5 foot 3 inches (*Irish gauge*, 1600 mm) and the Iberian peninsula where the lines are 5 foot 6 inches apart (*Iberian gauge*, 1688 mm). This means that France and Spain have different track gauges, but all high-speed lines in Spain are built to normal gauge to allow direct services between France and Spain. There are services each day between Madrid and Marseilles and between Barcelona and Paris.

Figure 9: Map of track gauges in Europe



- Normal gauge
- Russian gauge
- Finnish gauge
- Irish gauge
- Iberian gauge



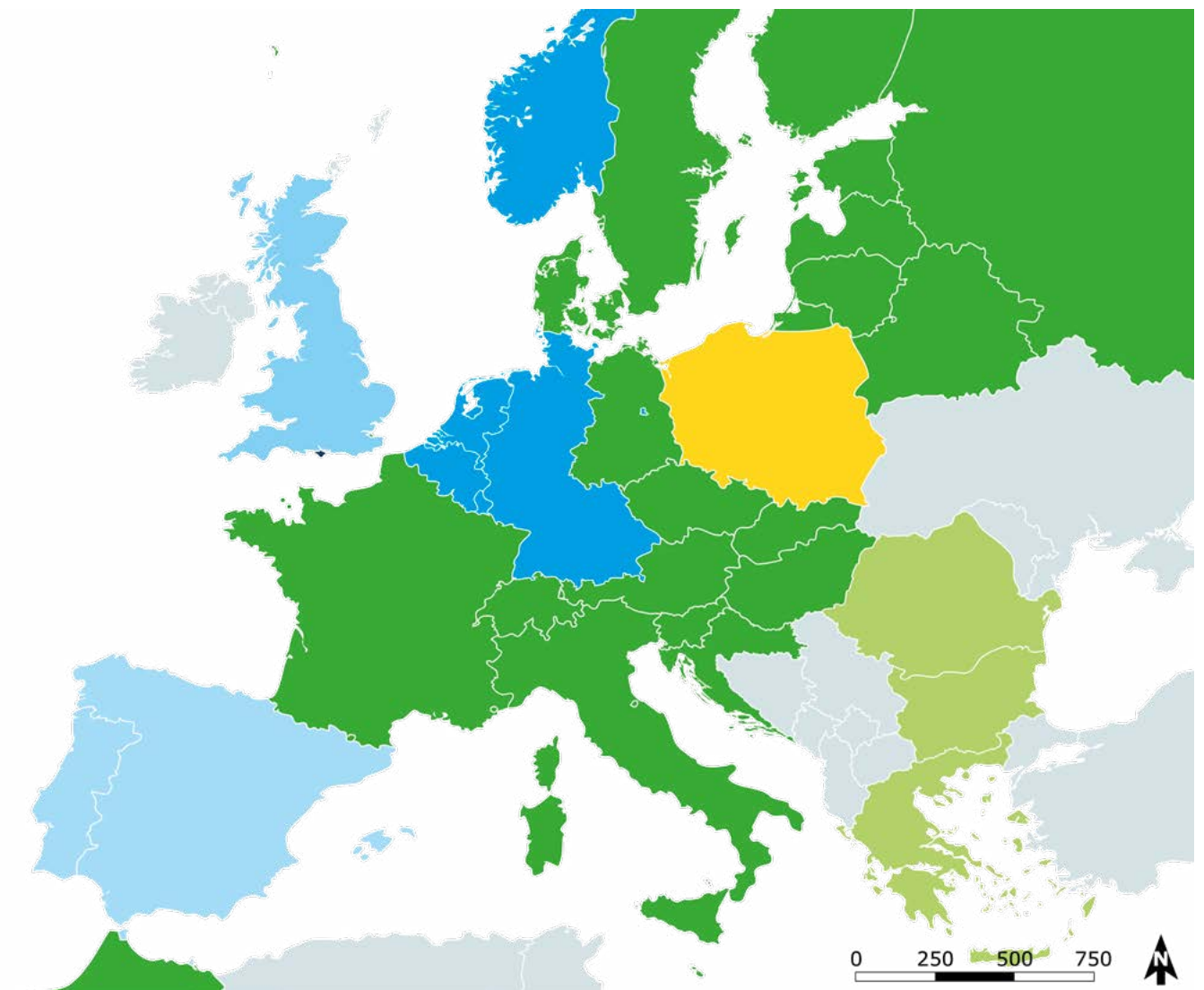
Platform heights

EU legislation on the integration of the European railway network contains a technical specification that permits just two standard platform heights: 55 and 76 cm (measured from the top of the rail) (Europese Commissie, 2002). This standard makes it possible to introduce level access from platform to train throughout Europe. Stations on rail systems that do not interact with international services, such as suburban trains and the S-bahn, may deviate from the standard platform heights. A number of European countries apply the EU specifications only to the construction of new track and platforms. The Netherlands has lowered the platforms in many stations and on many lines from 96 cm to 76 cm in order to meet the European standard. In East Germany, the former GDR, most platforms were built at a height of 55 cm, which is why there are now two standard heights in Germany.

Electric traction power

In some parts of Europe the electrical power supply is in the form of direct current (DC) and in other parts of Europe it is alternating current (AC). There are five systems in total: 750 V DC, 1500 V DC, 3000 V DC, 15 kV AC and 25 kV AC. The 750 V system is not supplied through a catenary (overhead line), but through a third rail next to the track and a contact shoe on the train. This system is common in metro systems and is sometimes also used on trains (for example in the south of England and on Merseyrail in the Liverpool area). The other systems work with an overhead catenary and pantograph (a hinged current collector) on top of the train.

Figure 10: Map of standard platform heights in Europe



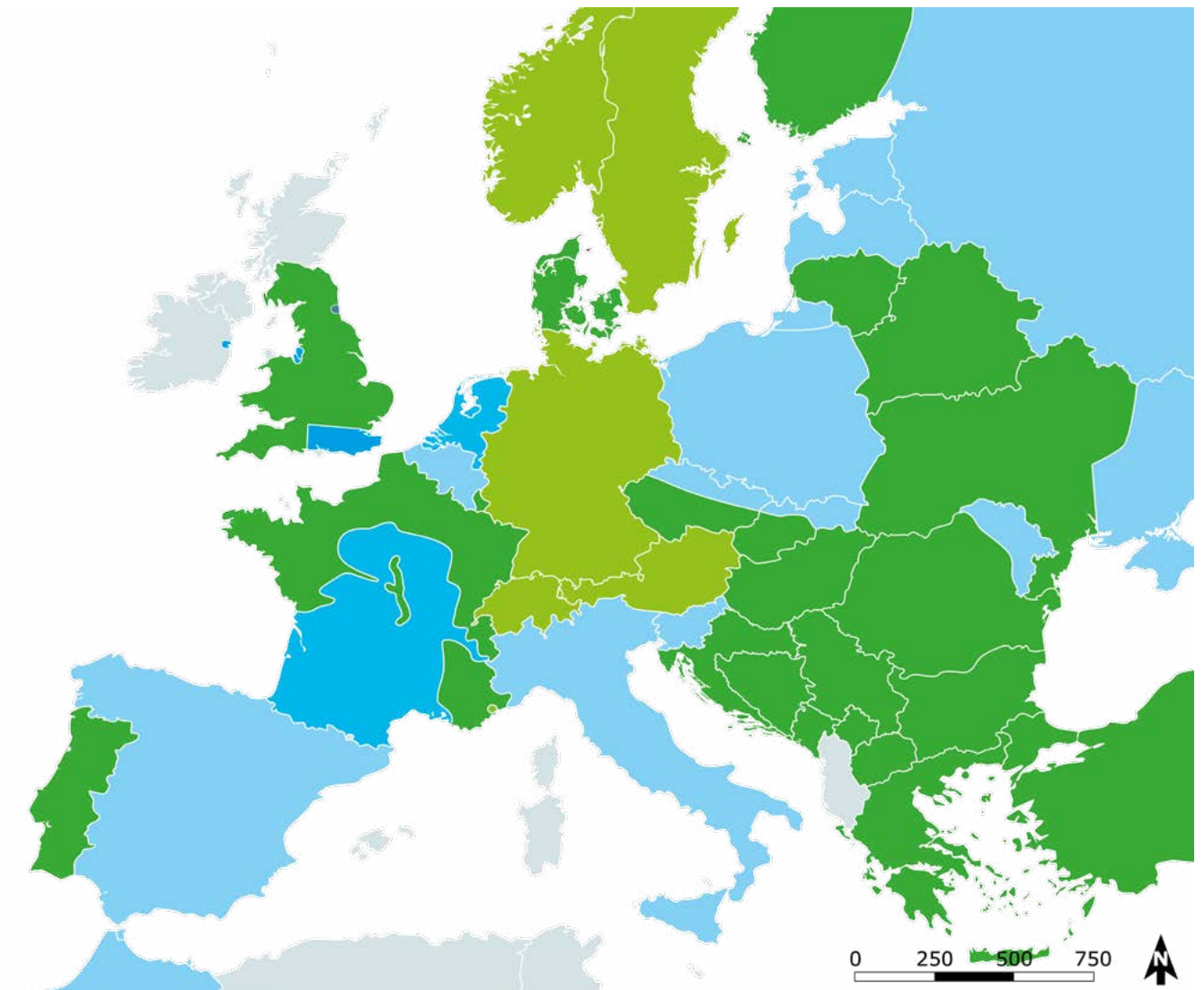
- 55 cm
- 76 cm
- both 55 and 76 cm
- / ■ countries where standard platform heights are only applied to new build



The 15 kV AC system was developed in Germany and uses a different frequency of $16 \frac{2}{3}$ Hz, exactly a third of the national standard (50 Hz) for AC current. In countries that use this frequency separate high voltage systems are needed to supply it. The German high-speed lines are also fitted with this system.

In France two systems arose in the past and both are still in use: 1500 V in the south of the country and 25 kV in the north. In parts of central France both voltages are used, but on different lines. Many trains in France are therefore fitted with multi-voltage motors so that they can run on both voltages. During the development of the TGV high-speed train, the 1500 V DC system – standard in the south of France – proved to be unsuitable for high speeds. The 25 kV AC system in use in the north of the country was therefore chosen instead. This is now the standard power supply for high-speed lines and it is used on all high-speed lines in the Netherlands, Belgium, France, Spain and the United Kingdom. The first high-speed lines in Italy were fitted with a 3000 V DC power supply (including the Florence–Rome and Padua–Venice lines). Later extensions to the network use the 25 kV AC international standard.

Figure 11: Map of railway power supply systems in Europe



- 750V =DC
- 1.500V =DC
- 3.000V =DC
- 15kV ~AC
- 25kV ~AC

The high-speed lines in the Netherlands, Belgium, France, Spain, the United Kingdom and some of the lines in Italy are fitted with the 25 kV ~AC power supply.



Train control and protection systems

Train control and protection systems ensure that drivers comply with commands or warnings transmitted by trackside signals. They are therefore a backup option to avoid dangerous situations from arising should the driver not respond properly to a signal. Dutch train control systems are fed by low currents through the rails which convey information about the signal positions to the train. However, the rails also carry the return current to the power supply, which makes the system sensitive to external interference. Modern systems work with balises or Eurobalises (transponders positioned between the rails) which send packets of information to the trains by radio frequencies.

Before the introduction of the European Rail Traffic Management System (ERTMS) there were nineteen different train control and protection systems operating in the EU. At the moment there are still five different safety systems in operation in the Netherlands: ATB-EG, ATB-Vv, ATB-NG and ETCS (level 1 / level 2). Each system has its own set of equipment, both trackside and on-board. When replacing systems the guiding principle is that the overall safety level must be at least the same or better.

The European Train Control System (ETCS) is a signalling system developed by the EU to introduce a uniform system throughout Europe. The specification was written in 1996 and implements one of the interoperability requirements of EU Directive 96/48/EC. ETCS is a component of the ERTMS and has been tested by various railway companies since 1999. All new high-speed lines and core rail freight lines financed in part by the EU are required

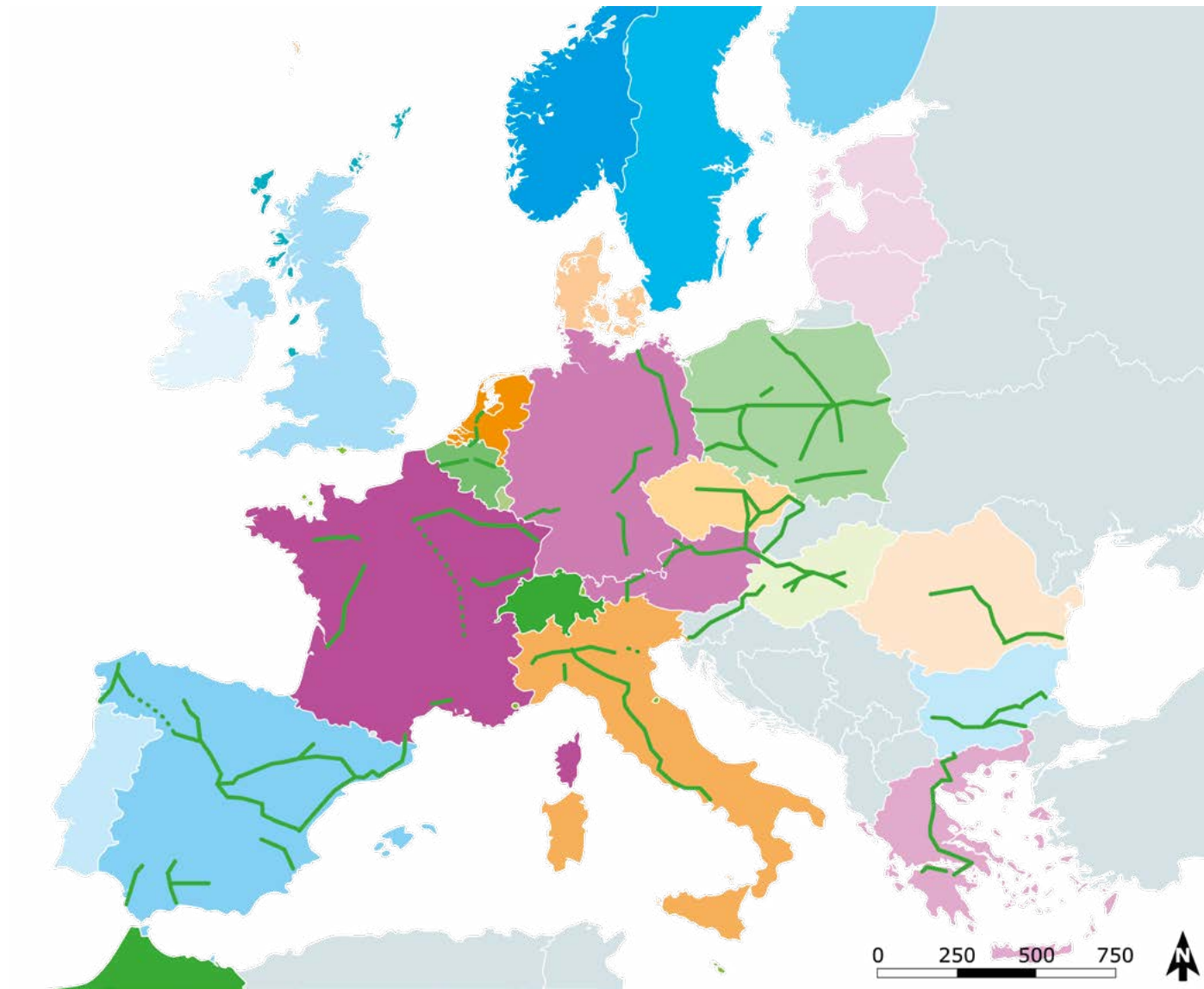
to use level 1 or level 2 ETCS signalling. As a result of the delays in the implementation of ETCS throughout the Netherlands, the interconnection between the train control and protection systems in the Netherlands and across Europe remains a concern. In particular, the transition from the German voltage to Dutch safety systems causes electromagnetic interference (which hinders the operation of the train system).

The aim of the technical pillar of the EU's Fourth Railway Package (and the preceding legislation) is to introduce a uniform train control and protection system throughout the whole of the EU. According to the available information, the entire Swiss railway system has been operating signalling and control systems to at least ERTMS level 1 standard since 2019.

Under its current policy, Belgium will have brought all its signalling and control systems up to at least ERTMS level 1 standard by 2022. The EU's financing conditions mean that at the moment the introduction of ERTMS has resulted in patchwork coverage, particularly in Eastern and Southern Europe.



Figure 12: Map of train control and protection systems in Europe



Source: ERTMS.net and others, z.d.

The green (■) lines are equipped with ERTMS level 1 and/or level 2. New lines in Europe, part financed by the EU, must be equipped with at least ERTMS level 1 and/or level 2. Rail freight lines are not included.

One of the major challenges in the Dutch ERTMS programme is fitting ERTMS level 2 systems in railway yards, some of which are located in the areas leading to and from stations. This presents quite a puzzle for the Netherlands due to capacity limitations which have to be resolved. Further, it should be noted that there is no uniform version of ERTMS available (even within the levels). For example, a train with ERTMS level 2 for the Betuwe Route rail freight line cannot run under ERTMS level 2 for the HSL-Zuid high-speed line and vice versa.

Consequences of different systems

Technically, the differences between systems (safety, electricity, platforms, track gauges, etc.) can all be overcome. However, it does make things much more complex for the rolling stock. The consequences are higher costs for the whole system, longer lead times for rolling stock and greater complexity (with the risks for obtaining certification).





2 DUTCH AND EU POLICY FOR INTERNATIONAL RAIL TRANSPORT

In this chapter the Council discusses the policies, policy proposals and policy instruments of the European Commission and the Dutch government concerning international rail transport.

2.1 European policy for international rail transport

2.1.1 White Paper, Green Deal and four Railway Packages

White Paper (2011)

In the 2011 White Paper 'Roadmap to a Single European Transport Area – Towards a competitive and resource-efficient transport system' the European Commission formulated goals for considerably increasing the share of rail transport in the modal split. In other words, the aim is for many more people to travel by train instead of by car or plane.

The roadmap set out a strategy for building a competitive transport system to stimulate mobility, remove obstacles in key areas, drive economic growth and boost employment, while drastically reducing Europe's dependency

on imported oil and considerably cutting back CO₂ emissions (Europese Commissie, 2011). Among the goals set for 2050 were:

- a 50% shift in medium-distance transport from road to rail and water (passengers and freight);
- a 60% reduction in CO₂ emissions from transport.

European Green Deal (2019)

In December 2019 the European Commission presented its European Green Deal (a 'roadmap to a sustainable European economy'), which tightens up the goals in the White Paper (Europese Commissie, 2019). For example, it states that a 90% reduction in transport emissions must be made by 2050, it gives greater emphasis to making the shift to sustainable transport, and it includes plans to stimulate smart mobility. In 2020 the Commission's Directorate-General for Mobility and Transport will present a more detailed strategy for sustainable transport and smart mobility, paying particular attention to the possibilities in urban areas. In addition, a boost will be given to multimodal transport, including a bigger role for inland waterways in the transport chain, with the aim of better utilising and expanding the available transport capacity. Measures to put this into practice will be proposed by the European Commission in 2021.

Railway Packages

The EU is seeking to gradually open the market for rail transport. The aim is that European rail transport is no longer obstructed by national borders or incompatible technical specifications, safety requirements and procedures. To this end a number of Railway Packages have been introduced since 2001. The latest and provisionally the last is the Fourth Railway Package, which consists of six legislative texts, divided between a market pillar and a technical pillar (see also the text box in § 1.2 of Part 1).

Market pillar policy is to increase access for rail operators to the domestic markets for passenger transport in the Member States, with the aim of delivering more choice and increasing the quality and efficiency of rail passenger transport. The direct award of public service contracts for rail passenger transport remains permitted, but from 2023 will be subject to certain conditions.

Technical pillar policy is contained in the recast of the Rail Interoperability Directive and the Railway Safety Directive. These recasts are needed in connection with the new tasks of the European Union Agency for Railways, with a legal basis in the Regulation on the EU Agency for Railways. The new tasks are vehicle authorisation within the EU and safety certification of railway undertakings operating in several Member States (Tweede Kamer, 2018a).



In 2019 the Fourth Railway Package was transposed into Dutch railway legislation by amending the Railways Act, the Passenger Transport Act 2000, the Local Railways and Tramways Act and the statutory instruments under these Acts. The Package contains European legislative measures to improve the quality, competitiveness and efficiency of the European rail sector. The measures also aim to make travelling by train more attractive relative to other transport modes and increase rail's share of the total transport market (Eerste Kamer, 2019).

2.1.2 Trans-European Transport Network (TEN-T)

The European Commission's policy for the Trans-European Transport Network (TEN-T) addresses the implementation and development of a Europe-wide network of roads, inland waterways, ports, airports and railway lines. Particular attention is given to (a) serving all European regions, and (b) strengthening the most crucial connections – the corridors.

The ultimate goal of the TEN-T is to break down the transport barriers between the Member States of the EU and create a shared European network. Gaps in the network must be closed and technical barriers and bottlenecks overcome. A further goal is strengthening the social, economic and territorial cohesion in the EU. To this end, TEN-T supports the construction of new infrastructure, the modernisation and upgrading of existing infrastructure, the application of new digital technologies, and the introduction of alternative fuels and universal standards. Current TEN-T policy is based on Regulation (EU) 1315/2013. The European Commission is reviewing and evaluating the TEN-T Regulations in 2020 with a view to

revising the legislation. Proposals for a revision are not expected before 2021 (Tweede Kamer, 2019b).

The TEN-T comprises two network layers: the *core network* and the *comprehensive network* (Europese Commissie, z.d.-b):

- The core network includes the most important connections between the most important nodes. Policy is to complete this network by 2030.
- The comprehensive network covers all European regions and is to be completed by 2050.

The backbone of the core network consists of nine 'core network corridors':

- Atlantic;
- Baltic – Adriatic;
- Mediterranean;
- North Sea – Baltic;
- North Sea – Mediterranean;
- Orient/East – Med (Eastern/Central Europe to the Eastern Mediterranean Sea);
- Rhine – Alpine;
- Rhine – Danube;
- Scandinavian – Mediterranean.

The nine TEN-T corridors were designated to streamline and facilitate the coordinated development of the core network (see Figure 13). They are



complemented by two horizontal priorities, the implementation of the ERTMS and the 'Motorways of the Sea'.¹³

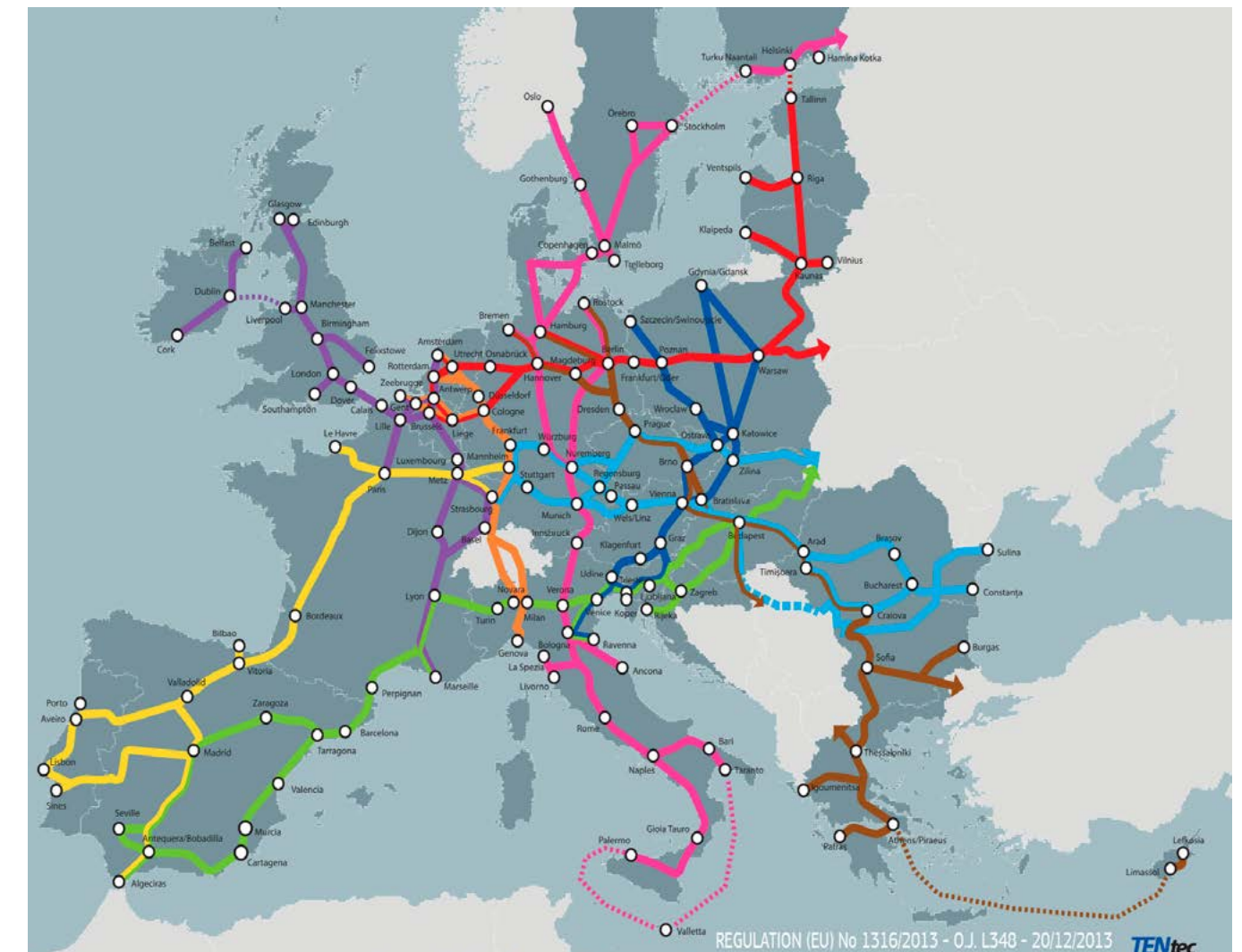
Oversight of the corridors and the two horizontal priorities lies with coordinators appointed by the European Commission. The core network comprises different modes and routes. The Member States have generally added more than one route or border crossing to the network in order to create a robust network.

The Netherlands and the other Member States are required to contribute to the development of the trans-European networks under Articles 171–173 of the Treaty on the Functioning of the European Union (EU, 2012).

European policy requires the transformation of national networks into a single European network, without causing damage to the environment. Subnational authorities can contribute to the TEN-T by aligning their transport policies with those of the EU or by carrying out infrastructure projects (for which grants can be requested). In the Netherlands the Betuwe Route rail freight line, the HSL high-speed line and the Meuse Works, among others, are part of the TEN-T.

¹³ 'Motorways of the Sea' is a concept in the EU's transport policy and underscores the importance of maritime transport.

Figure 13: The nine TENT-T corridors



Source: Europese Commissie, z.d.

International Rail Freight Corridors

In November 2010 EU Regulation 913/2010 concerning a European rail network for competitive freight entered into force (Europees Parlement & de Raad van de Europese Unie, 2010). This Regulation is one of the measures taken by the EU to make transport greener and reduce greenhouse gas



emissions. Rail freight has a key role to play in the transport system of the future. The Regulation lays down rules for setting up international Rail Freight Corridors (RFCs) for competitive freight transport in Europe and encourages cooperation between the main parties in the rail freight sector (national authorities, infrastructure managers, railway undertakings and terminal operators) (RailNetEurope, z.d.). The Regulation promotes coordination of the provision of capacity, rail traffic management, infrastructure works and investment planning.

During the TEN-T Days in Rotterdam in 2016, the transport ministers of the EU, Switzerland and Norway agreed on further measures to stimulate the growth of the RFCs (Rotterdam Ministerial Declaration, Council of Ministers, 2016). The European Commission is evaluating the RFCs in 2020 with a view to improving the performance of the corridors in the period from 2020 to 2030 (Ministerie van Infrastructuur en Waterstaat, 2020a).

Part of European freight transport will be regulated via the international RFCs, which will permit the coordination of train paths and infrastructure works. The corridors are managed by consortia of infrastructure managers, which regulate traffic flows. Most of the RFCs follow routes of the TEN-T network, but not all.

In terms of governance, the Regulation provides for a combination of intergovernmental and sectoral cooperation that enables the parties concerned to do more than is permitted under their basic tasks and powers.

In practical terms, transboundary RFCs are integrated operational structures that can be used for different, often complementary purposes:

- as a *marketing instrument* they can provide high-quality and competitive services to direct customers and end users;
- as an *instrument of policy or cooperation* they can contribute to the coordination/harmonisation of national practices in numerous areas and to the removal of diverse obstacles to freight transport, such as transboundary difficulties and interoperability problems.

The extent to which either of these approaches is chosen differs between corridors. Experience shows that the success of the RFCs depends first and foremost on the level of ambition of the Member States and infrastructure managers, particularly at a high political level (Europese Commissie, 2018a).

2.1.3 EU policy instruments

TEN-T projects are financed via the Connecting Europe Facility (CEF) and other sources. The CEF budget is earmarked for infrastructure projects within the EU and is a key funding programme for TEN-T policy. The CEF seeks to promote economic growth by investing in infrastructure. It supports the development of a high-performance, sustainable and efficiently interconnected European network of transport, energy and digital services. In the period 2014–2019 the CEF invested €23.3 billion in the co-financing of projects. Of this, €11.3 billion was transferred from the EU Cohesion Fund. About 70% of the CEF budget goes to rail projects, among them the international routes from Eindhoven to Düsseldorf and Ghent



to Terneuzen and the track doubling between Heerlen and Landgraaf. In addition to providing finance, the CEF provides support to projects in the form of innovative financial instruments such as guarantees and project bonds. These instruments act as flywheels to attract further investment from the private sector. Since January 2014 the CEF budget has been allocated via the Innovation and Networks Executive Agency (INEA).

Besides the CEF, other European funding and financing programmes also provide support to TEN-T policy:

- the *European Fund for Strategic Investments (EFSI)* – an EU fund supporting investments in key sectors with budget guarantees to a total sum of €500 billion;
- *Horizon 2020* – a major EU investment and innovation programme with nearly €80 billion of funding available for the period 2014–2020 (in addition to the private investment that it attracts);
- the *Cohesion Fund* – an EU structural fund that supports projects to reduce economic and social disparities and promote sustainable development in Member States where the average net income is below 90% of the EU average; it has spent a total of €63.4 billion on the TEN-T and environment policy;
- the *European Regional Development Fund (ERDF)* – an EU structural fund which supports projects that strengthen economic and social cohesion in the EU by correcting imbalances between regions.

Although the amounts involved are considerable, EU co-financing represents just a small proportion of the funds invested in high-speed

rail infrastructure in the EU. In the period 2014–2020, for example, the co-financing percentage varied from 2% (in Italy) to 26% (in Spain), depending on the financing instruments used. On average, EU co-financing covers about 11% of the total construction costs (Europese Rekenkamer, 2018).

European Court of Auditors (2018): European high-speed network ‘an ineffective patchwork of lines’

EU Member States involved in TEN-T projects are obliged to align investments in their national infrastructure with Europe-wide priorities. A report by the European Court of Auditors published in 2018 contains a withering criticism of the degree to which this is actually being done. According to the European Court of Auditors, the key question is whether it will be possible to transform TEN-T policy from a subsidy for major national projects into a policy for European integration. The Court says that high-speed rail projects in Europe often end in disaster. The railways are extremely expensive and the delays interminable, the trains ultimately run much slower than intended and passengers hardly make use of them.

According to the European Court of Auditors, the European high-speed network is a patchwork of national lines without proper coordination across borders. Because Member States often plan and build the lines independently of each other, the connections between them are poor.

The Court analysed the expenditure on more than five thousand kilometres of high-speed lines and found that total co-financing since 2000 has



amounted to €23.7 billion. The conclusion was that the EU target of tripling the length of high-speed rail lines to 30,000 kilometres by 2030 will not be reached (Europese Rekenkamer, 2018). ‘An ineffective patchwork of poorly connected national lines has been constructed,’ said Oskar Herics of the European Court of Auditors. ‘High-speed lines crossing national borders do not rank among national priorities for construction and the Commission has no power to enforce them. This means the added value of EU co-funding is low’ (Van Gompel, 2018).

The European Court of Auditors notes that the decision to build high-speed lines is generally based on political considerations and that the cost-benefit analyses are often not used as a tool to support cost-efficient policy decisions. The reason why construction costs are so high is because the lines are designed to carry trains travelling at 300 km/hr. In practice, though, they hardly ever achieve these speeds and many trains travel at only half that speed. This raises questions about financial management. High-speed rail is expensive and costs on average €25 million per kilometre or €90 million for each minute of travel time gained. Upgrading conventional lines to carry trains at higher speeds could represent a better balance of costs and benefits and save billions of euros.

Table 1: Costs of high-speed line per kilometre and per minute saved

Audited line	Length (km)	Total cost (million euro)	Travel time saved (minutes)	Cost per minute saved (million euro)
Berlin–Munich	671	14.682	140	104,87
Stuttgart–Munich	267	13.273	36	368,69
Rhine–Rhône	138	2.588	75	34,51
LGV Est Européenne	406	6.712	130	51,63
Madrid–Barcelona–French border	797	12.109	305	39,70
Eje Atlántico	165	2.596	75	34,61
Madrid–Galicia	549	7.684*	110	69,85
Madrid–León	345	5.415	95	57,00
Milan–Venice	273	11.856	49	241,96
Turin–Salerno	1.007	32.169	192	167,55
Total/average	4618**	109.084	1207	90,38

Source: Europese Rekenkamer, 2018, p. 53

* The analysis of the estimated costs of the entire line and of the travel times include the overlapping 133 km of Madrid–León HSL (excluding the Guadarrama tunnel).

** The Munich–Verona stretch, at 445 km long, brings the total km of lines audited to 5063 km.



2.2 National policy for international rail transport

The government's policy proposals for international rail transport are set out in the above-mentioned policy document 'Public Transport in 2040: Outlines of a vision for the future' (Ministerie van Infrastructuur en Waterstaat, 2019) and in the letters on international rail transport sent to the House of Representatives in recent years by the responsible ministers.

2.2.1 Public Transport in 2040

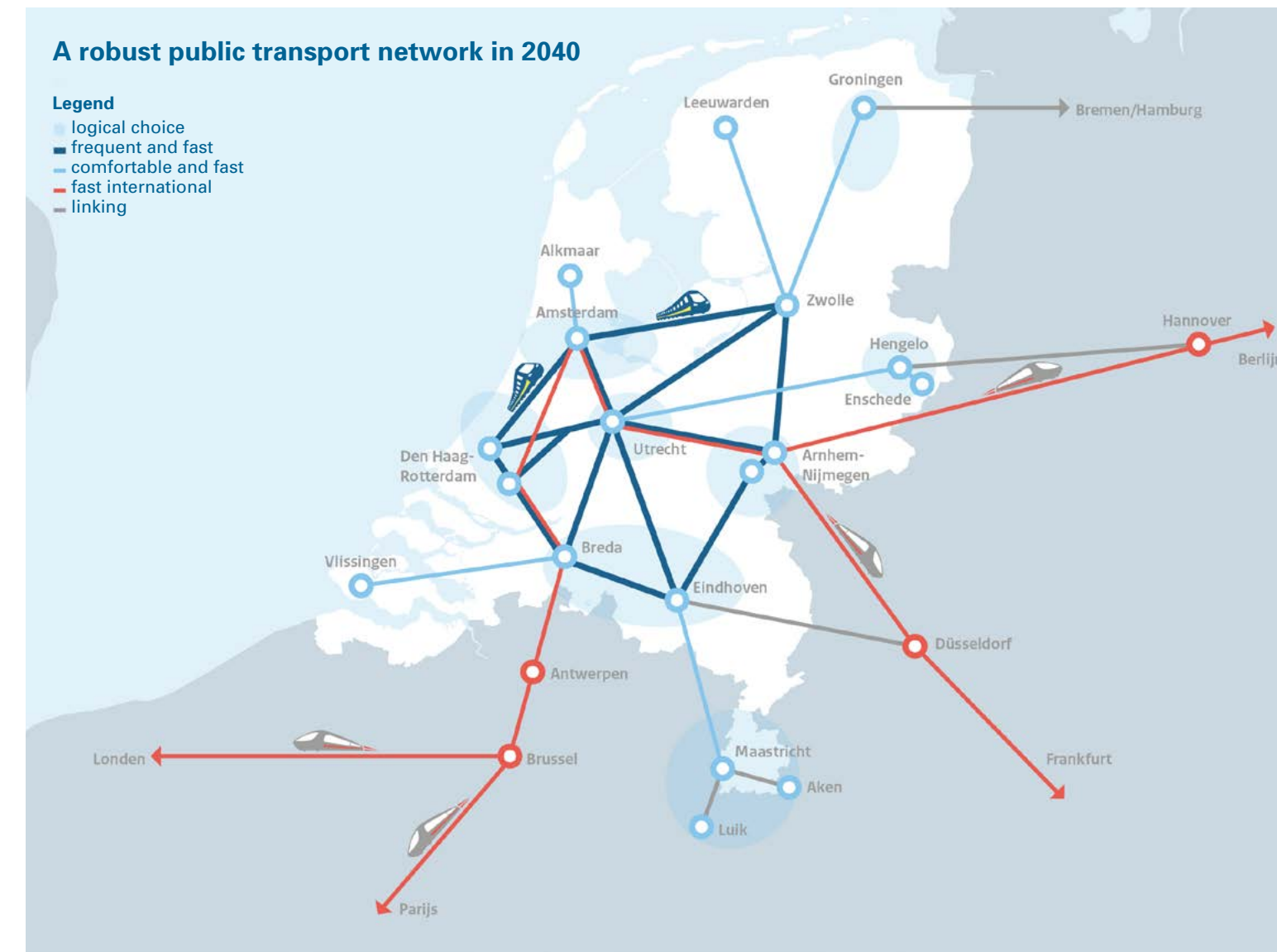
'Public Transport in 2040' sets out a way forward on the basis of the stated joint agenda. The parties working together in the programme are:

- the Ministry of Infrastructure and Water Management;
- the twelve provinces and the metropolitan regions of Amsterdam and Rotterdam–The Hague;
- the NS, the Federatie Mobiliteitsbedrijven Nederland (federation of regional transport providers) and municipal transport companies GVB, RET and HTM;
- ProRail infrastructure manager.

According to the partners, the vision for 2040 rests on three pillars:

1. a focus on the strength of public transport;
2. barrier-free door-to-door transport;
3. safe, sustainable and efficient public transport.

Figure 14: A robust public transport network in 2040



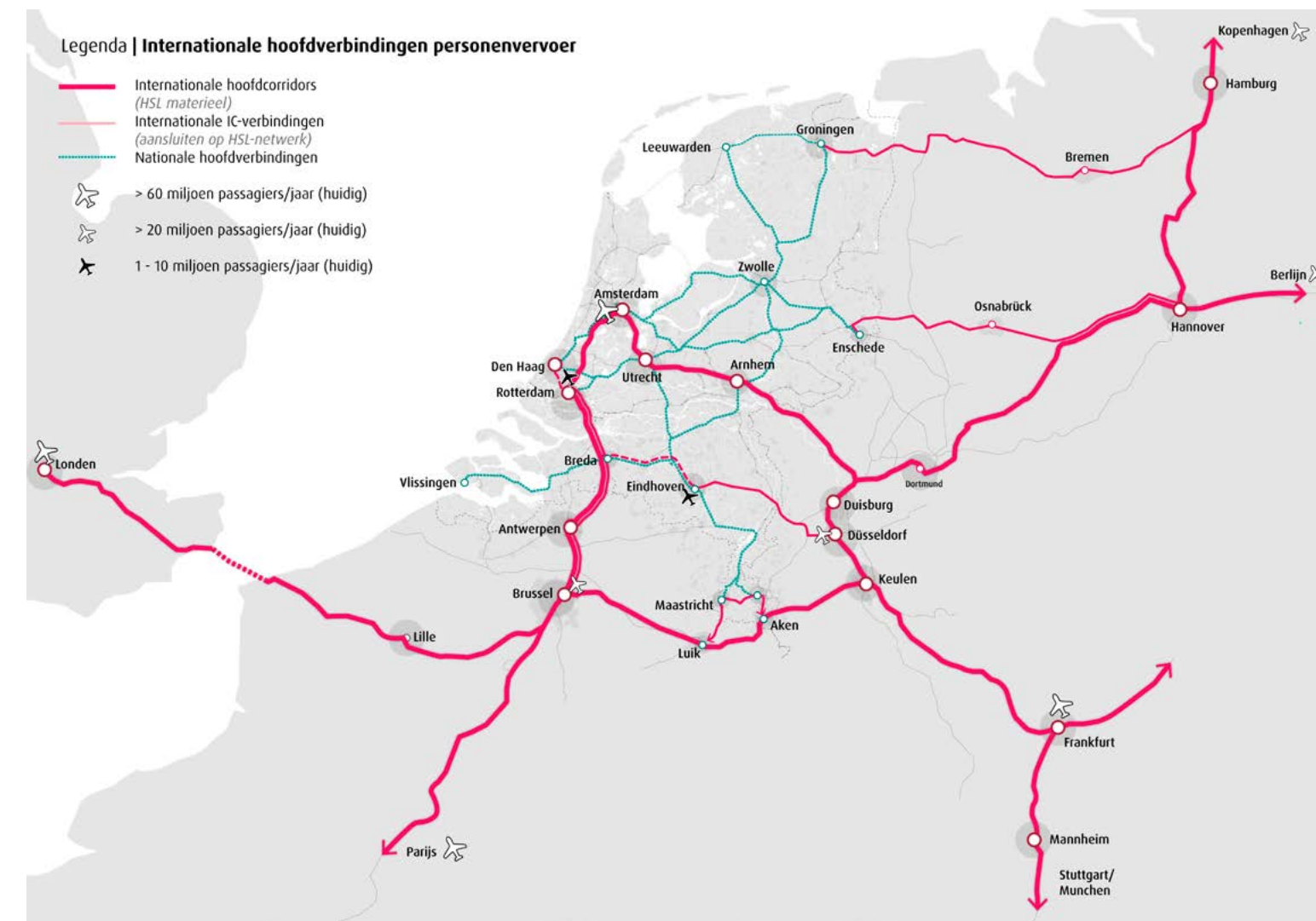
Source: Public Transport in 2040 (Ministerie van Infrastructuur en Waterstaat, 2019)



The international component of the public transport strategy addresses two scales: connecting border regions and establishing sustainable connections between the Netherlands and the main economic hubs in the surrounding countries by linking into the European high-speed network. The possibility of extending intercity services across the border is also being investigated. One idea is an international service from The Hague via Eindhoven to Germany (Düsseldorf) and from the Randstad via Groningen to Bremen and Hamburg.

To strengthen the connections between the Netherlands and economic centres in Germany, Belgium, France and England, the journey time by train should offer a more attractive alternative to the car and the plane. To provide this alternative, the idea is to create one bundled cross-border connection with each neighbouring country. This means improving the HSL-Zuid high-speed line and developing an eastern corridor from Utrecht via Arnhem to Düsseldorf.

Figure 15: Main international rail connections for passenger transport



Source: Public Transport in 2040 (Ministerie van Infrastructuur en Waterstaat, 2019)

A problem with this is that the combination of freight and passenger transport leads to conflicts on the busy sections of the network. Accommodating both forms of transport on these parts of the network in future will mean increasing the capacity of the infrastructure. Greater flexibility in the distribution of capacity between freight and passenger



transport will be needed to realise the growth ambitions of both sectors. In addition, it will be important to link up freight flows. The policy document also argues for optimum utilisation of the Betuwe Route dedicated rail freight line in combination with the provision of sufficient capacity for freight on the Oldenzaal–Bentheim, Venlo–Kaldenkirchen and Roosendaal–Essen lines. In 2020 a study will be carried out to identify a route for the eastern corridor.

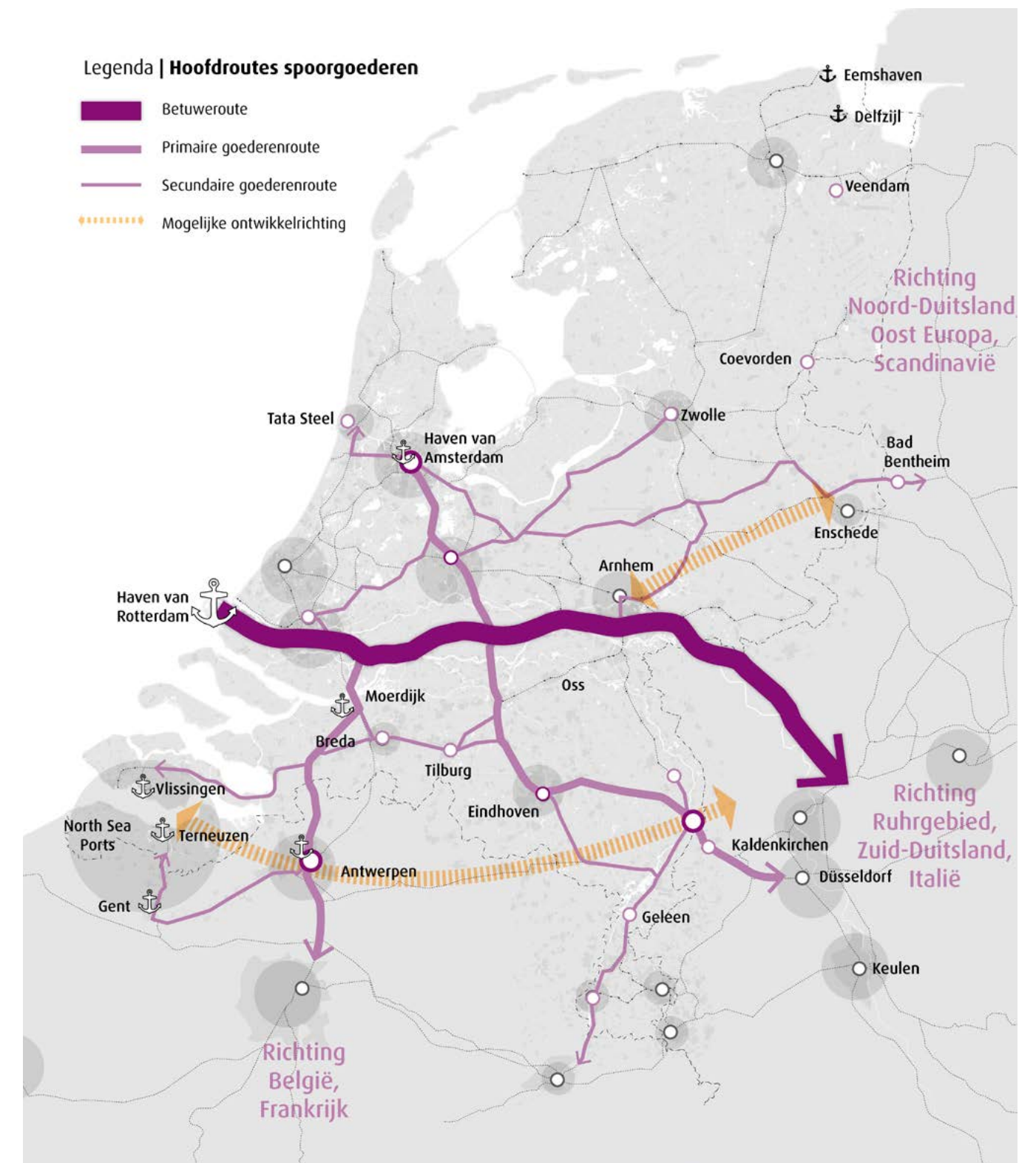
2.2.2 Letter to the House of Representatives from the Ministry of Infrastructure and Water Management, 21 June 2018

On 21 June 2018 the state secretary for infrastructure and water management sent a letter to the House of Representatives further to the debate that had arisen about the possibility of replacing short-haul flights in Europe with international train services (Tweede Kamer, 2018b). This issue had been raised in various motions put before the House of Representatives. In the letter the state secretary describes (a) the international rail passenger offer in 2018, (b) within this, the potential for replacing short-haul flights with train services ('substitution potential'), and (c) the steps she wants to take with the parties involved.

Qualification of the effects of substitution

The state secretary points out that although travelling by train is more sustainable than flying, it is not at all clear what the consequences of any substitution on carbon emissions will be. Fewer short-haul passengers does not necessarily mean an automatic reduction in the number of these flights. Faced with a drop in passenger numbers, airlines could decide to

Figure 16: Core rail freight network



Source: Public Transport in 2040 (Ministerie van Infrastructuur en Waterstaat, 2019)

use smaller aircraft or fly with fewer passenger per aircraft. Also, given the pressure on the civil aviation sector, airports could decide to use the freed up slots for other, longer distance flights. However, substitutions could lead to a reduction in the pressure for further growth at airports. (See also the next chapter, § 3.3.2.)

Improve competitiveness of the train against the plane

In 2018 the Netherlands Institute for Transport Policy Analysis (KiM) updated and expanded an earlier study of the substitution potential of the train (Savelberg & De Lange, 2018). In line with the outcome of that study, the letter from the state secretary mentions London, Paris, Frankfurt, Düsseldorf and Brussels as destinations for which substituting the train for the plane is possible. For this substitution to be successful, KiM identified three main factors in passengers' decision-making that need to be addressed: journey time/frequency, price and comfort.

a. *Reducing journey time and/or increasing service frequency.* The study by KiM shows that the measures to be taken on the rail network in the Netherlands and neighbouring countries may lead to a shift from air to rail amounting to 1.3 million journeys per year. If the frequency of the international rail services is also increased slightly, this number could theoretically be raised to almost 2 million air journeys shifting to rail by 2030, or 11% of the number of journeys to the thirteen most important destinations within a radius of 800 kilometres from Amsterdam.

b. *Changing the price differential.* According to KiM, if train ticket prices fell by 20% to around the cost of air tickets, this would attract a million extra train passengers. It is also possible to reduce the difference in cost between flying and the train by changing the prices of air tickets.

c. *Improving comfort levels.* The KiM study shows that there are opportunities to combine the air and rail travel products to provide an alternative to travellers who now transfer to a connecting flight at Schiphol or other European airport. They could travel further by train instead, on the condition that the right facilities are made available in the baggage handling area. Smooth cooperation between rail and air companies and the airports will be needed to overcome the barriers to combining rail and air journeys. The substitution potential would then be substantial, definitely for airports such as Schiphol that are well-connected to the rail network.

To encourage people to take the train the following factors are significant: comfort levels in the train during the journey, the ease of finding and booking international train journeys, either on its own or in combination with a European or intercontinental flight, the real-time provision of information, communication, service in the event of delays, passenger rights, smooth check-in, security checks and baggage handling. For international train services this often requires international agreements.

Plans for substitution policy for long and short distances

Based on the KiM study, the state secretary identified five destinations that qualify for the substitution policy: London, Paris, Frankfurt, Brussels and Düsseldorf. Berlin was added in view of its iconic status. In her vision



for the future the state secretary describes her ambitions for the Brussels Intercity (improving comfort levels), Eurostar (increasing frequency and a direct service between Amsterdam and London from 2020) and Thalys (a new stop at Paris Charles de Gaulle and increasing comfort levels). For the lines to Germany, the state secretary wants to focus on improving the connections into the German rail network. Negotiations are being held on the Amsterdam to Berlin line, specifically on the use of dual-current locomotives, higher comfort levels, fewer stops and possibly one faster service each day. The ambition for the Amsterdam–Frankfurt service is greater comfort (renovation of the trains) and, in time, an increase in the frequency of the service. This line has a large substitution potential because both cities have an airport with a railway station.

For shorter transboundary connections, the state secretary is working with stakeholders to optimise the current rail offer. The letter elaborates on the ambition for a number of short cross-border services (Groningen–Bremen, Weert–Hamont, the Liège–Maastricht–Heerlen–Aachen ‘three country train’, Roosendaal–Antwerp). The state secretary is consulting with the Verkehrsbund Rhein Ruhr on the conditions for the Eindhoven–Düsseldorf service.

Plans for pricing policy

According to the state secretary, national governments have little leverage over the prices of train tickets. Operators are bound by the rules of their concessions and have to include the costs they incur and track access charges in the ticket price. Government intervention to adjust the track access charge is a possibility which would be effective if the neighbouring countries (where the distances are considerably longer) did the same. Governments would not be able to lower VAT on ticket prices without first amending the EU VAT Directive.

The state secretary has announced that she will investigate the possibilities for influencing the price of international tickets and will discuss this internationally. Cost increases in the civil aviation sector may also reduce the price differential with the train and contribute towards a shift from air to rail. Examples of government measures that will result in higher costs of air travel are the EU Emissions Trading System (ETS), the global CO₂ offsetting and reduction system (CORSIA) that takes effect from 2021 and the airline ticket tax proposed in the coalition agreement from 2021. The state secretary points out that the EU Commissioner for Transport (at that time Violeta Bulc) is conducting research into the possibility of levying charges on air traffic and internalising the external costs of transport.

Plans for AirRail tickets

Substituting rail for air can also be encouraged by introducing an integrated train/air booking system. The Netherlands and Belgium are already served by BeNe AirRail, a joint venture by NS, KLM/Thalys and IC Brussels/



Brussels Airlines, which offers combined tickets (KLM, 2019a; 2019b). The state secretary has invited all parties involved to make concrete plans for substitution.

2.2.3 Letter to the House of Representatives from the Ministry of Infrastructure and Water Management, 31 January 2019

On 31 January 2019 the state secretary sent a letter to the House of Representatives in which she discusses progress made on various topics since the letter of July 2018 (Tweede Kamer, 2019b). She also discusses the results of the 'quick scan' study of the Berlin Intercity service, in which the Dutch and German governments performed the role of pacesetter. In this letter the state secretary also mentions that she has plans to reintroduce international night trains. (A few months after the publication of the letter, in summer 2019, KiM published a study on this; see § 2.3 below.)

The state secretary reiterates her ambitions for improving the journey times, frequency and comfort levels of international trains wherever possible in order to make international rail travel more attractive. Her aim is an additional 2 million international train passengers by 2025.¹⁴

The state secretary is committed to a Europe-wide coordinated approach, with the following elements:

- priorities for CEF financing (see part 2, § 2.1.3);
- innovation via Shift2Rail (see § 6.2) and the EU's innovation programme;

¹⁴ In the letter the state secretary does not mention what her benchmark year is.

- encouraging sector initiatives;
- possible regulatory action to integrate travel information, ticketing systems and passenger rights for the multimodal traveller.

2.2.4 Letter to the House of Representatives from the Ministry of Infrastructure and Water Management, 11 July 2019

Since the letter to the House of Representatives of 31 January 2019, the Democrats 66 parliamentary party (Schonis, 2019)¹⁵ published an action plan. In a letter to the House of Representatives of 11 July 2019, the state secretary writes that she considers that this initiative lends support to the current policy (Tweede Kamer, 2019c). The letter from the state secretary also provides an update on the latest developments. Several previously announced steps have been taken, such as the introduction from 2026 of an hourly service between Eindhoven and Düsseldorf. A joint plan for reintroducing night trains has been submitted by the NS and the Austrian operator ÖBB.

Growth in international bus transport

In the letter of 11 July 2019 the state secretary also discusses the strong growth in international bus transport reported in the KiM study of June 2019. International bus services are slower and less frequent than train services, but they are cheaper and offer more direct services. Between 2017 and 2018 passenger numbers on international bus services increased from 2 million to 3.5 million (Savelberg & Kansen, 2019). The state secretary sees

¹⁵ In addition, in September 2019 Suzanne Kröger, member of parliament for GroenLinks (GreenLeft), published her own proposal called 'Aviation on the rails' (Kröger, 2019).



international (long-distance) bus transport as a valuable addition to the existing public transport offer.

Lower track access charges for rail freight

In summer 2019 the track access charge for rail freight operators in the Netherlands were adjusted downwards, bringing it into line with the charge levied in Germany as promised in the coalition agreement. The subsidy scheme used to reduce the track access charge was approved by the European Commission on 8 July 2019 following a review against the state aid rules (RailGood, 2019). The subsidy scheme will enable rail freight transport to compete more effectively with road and inland waterways.

2.2.5 Position paper on international passenger rail (20 January 2020)

In January 2020 the Ministry of Infrastructure and Water Management drew up a position paper that sought to move international rail passenger transport higher up the European political agenda (Ministerie van Infrastructuur en Waterstaat, 2020b). The aim was to give greater priority to this topic in the further elaboration of the European Green Deal. The minister submitted the paper to EU Commissioner for Transport Adina Vălean and Vice-President of the European Commission Frans Timmermans.

The position paper opens with a brief review of EU policy on rail passenger transport and then argues the need for new action. A key element in the recommendations in the position paper concerns the development of international rail corridors for passengers. The Dutch proposal draws heavily on the current governance structure for the Rail Freight Corridors.

It proposes that each corridor has an executive board with representatives from the Member States plus a management board consisting of infrastructure managers. A plan for regulating the capacity of each corridor would be drawn up through the development of a corridor implementation plan. This should also make it possible to draw up transboundary concessions (PSOs).¹⁶

The accompanying letter (Tweede Kamer, 2020a) states that the minister of infrastructure and water management will inform the House of Representatives on progress with this international proposal by letter in spring 2020. The Covid-19 pandemic has delayed the preparation of this letter, which had not yet been issued when this report was being finalised for publication.

2.2.6 Political statement supporting a European agenda for international rail passenger transport (2 June 2020)

Due to the measures put in place to combat the Covid-19 pandemic, the EU Transport Council of June 2020 was held in the form of an informal, digital meeting. In the run-up to this meeting the state secretary submitted a political declaration on international rail passenger transport to the European Commission. It is an elaboration of the position paper discussed above and was signed by 25 European countries; others may join at a later date. The signatories call for a European agenda for international rail passenger transport as part of the European Green Deal and announce the

¹⁶ PSO stands for 'public service obligation'. For an explanation of this term, see Part 1, § 3.1.



establishment of a platform of Member States for cooperation on improving international rail passenger services (Nederland et al., 2020).

2.3 Reintroduction of night trains

International night train services have been gradually phased out over the past decade. This is explained by the increasingly strong competition from flights, the introduction of high-speed daytime services (Thalys, ICE), the liberalisation of the long-distance bus market and the increased cost of using rail infrastructure in a number of countries. The last service from and to the Netherlands (Amsterdam to Munich/Zurich and vice versa) was discontinued at the end of 2016.

Study into opportunities for reintroduction

Against the background of government efforts to make the train more attractive as an alternative to flying, in 2019 KiM investigated the circumstances in which the reintroduction of international night trains in the Netherlands could be an interesting proposition (Savelberg, 2019). The peripheral location of the Netherlands in Europe limits the number of promising night train connections to and from destinations in the Netherlands. In total, KiM found eight destinations that could have potential for the operation of a night train service: Copenhagen, Warsaw, Prague, Munich, Vienna, Zurich, Milan and Turin. If obstacles in the form of government charges, infrastructure capacity and a level playing field for all operators are resolved, in the long run these eight services could account for in the order of 0.7 to 1.0 million journeys per year. People

choose international night trains mainly because it saves them time while they enjoy a night's sleep. The higher cost of sleeping accommodation on a night train often outweighs the savings that would be made on hotel accommodation.

Night trains operation by ÖBB

In 2017 the Austrian railway company ÖBB took over the most profitable lines from Deutsche Bahn. Since then the network has been expanded, with Vienna as a hub serving a large number of destinations in Europe, and ÖBB has invested in improving the quality of the rolling stock and the on-train service. By providing different types of accommodation, the services cater to the needs of different target groups. The commercial operation has been optimised by combining various destinations in a single train.

Night trains are expensive services to run: the costs of the rolling stock are high because of the specific requirements, personnel costs are high because the trains need more personnel on-board and they work mainly at night, and there are relatively few places on each train. Moreover, the infrastructure charges operators have to pay to use the track are relatively high because of the long distances involved and the surcharges on top of the basic tariff. Many domestic connections, for example in Sweden, the United Kingdom and France, do not cover their costs. Even the ÖBB network of night trains does not fully cover its costs and is subsidised by the Austrian government through a direct award contract in view of the domestic significance of some of the services.



Opportunities and bottlenecks elsewhere in Europe

At current speeds, night trains are generally only attractive for journeys over distances of from 800 to 1200 kilometres, on the assumption that much of the journey time can be spent sleeping and that in the perception of the traveller this time 'doesn't count'. If night trains could use high-speed lines their range could be considerably extended, but the technical difficulties involved make this idea unrealistic for the time being.

The rail market, including the night train market, does not enjoy a level playing field with air transport. Flights are not subject to VAT and airlines do not have to pay excise duty on the kerosene fuel used by their aircraft, while rail operators find the charges they have to pay for the use of the rail infrastructure too high. Nevertheless, these track access charges, in contrast to aviation charges,¹⁷ cover just a fraction of the cost of construction, maintenance and management of the rail infrastructure.

Amsterdam–Vienna night train (subsidised)

The night train service between Amsterdam and Vienna will start again in 2021, with a subsidy from the Dutch Ministry of Infrastructure and Water Management. The connection (more precisely, the extension of the existing night train from Vienna/Innsbruck–Düsseldorf to Amsterdam) will be included in the current concession (Tweede Kamer, 2019c). According to ÖBB and NS, this extension would not be possible without a subsidy

because of the high costs involved. However, private rail operators who are members of ALLRAIL have objected to the provision of this subsidy (Van Gompel, 2019), claiming that granting an operating subsidy to a single operator contravenes the open market policy of the EU and is not compatible with competition and state aid rules. Moreover, a similar extension, the reintroduction of the ÖBB night train between Brussels and Vienna (since 2019), has proved possible to operate without any subsidy.

¹⁷ The main charges that the Dutch airline companies pay are a noise charge (to pay for insulation measures in the area around Schiphol) and a planning compensation charge (to pay for land use planning measures around Schiphol). Airport taxes and air traffic control charges are also levied.





3 REASONS FOR IMPROVING INTERNATIONAL RAIL ACCESS

According to the Council, better international rail access will help to: (a) improve the economic competitiveness of the Netherlands, (b) increase international tourism and European cohesion, and (c) reduce CO₂ emissions from transport by increasing the offer of a relatively clean and safe mode of transport. These three reasons for the government to encourage international rail transport are discussed in this chapter.

3.1 Economic competitiveness

Accessibility is ultimately about the number of activities that people can do within a certain period of time and within a certain area (Rli, 2017). Good accessibility therefore contributes to economic competitiveness and ensures that people can participate fully in society.

The Netherlands Environmental Assessment Agency (PBL) (Snellen et al., 2014) identifies four pillars of accessibility policy:

1. *Proximity.* The more nearby destinations there are, the better the accessibility. Clustering development and mixed use developments lead to shorter distances.
2. *Speed.* The faster you can travel, the more destinations come within reach. Speed is not just important on the core networks, but in the cities as well.
3. *Coordination.* The better the connections between a location and the transport infrastructure, the better the accessibility. It is therefore a question of making better use of easily accessible places and making intensively used places more accessible.
4. *Cost, information and comfort.* These three aspects are important to travellers. Accessibility policies should therefore go further than simply making major additions to the physical infrastructure.

An important word of caution on improving accessibility is that it usually generates extra demand. The more accessible a place is by different modes of transport, the more use will be made of it. Of course, this may not necessarily always be desirable.

Improvements in accessibility can help to make a region or country more competitive, because reducing journey times and increasing the reliability of services have a direct effect on business productivity. Good accessibility also affects the business climate.¹⁸ In addition, mobility is a necessary element in virtually all modern economic activities. Under certain

¹⁸ Besides the available infrastructure, location and situation also play a part in this.

circumstances, improvements in accessibility can provide an additional boost to competitiveness through the operation of the markets for goods, services and labour and through agglomeration effects (KiM, 2015).

In a joint 2016 study, the Netherlands Bureau for Economic Policy Analysis (CPB) and the Netherlands Environmental Assessment Agency (PBL) state that expanding the rail network would only improve accessibility to a limited extent and only at a high cost (CPB & PBL, 2016). This may be a reason to look for ways to improve accessibility by rail without building new infrastructure.

3.2 International tourism and European cohesion

Better international access by rail will increase the possibilities available to the Dutch to travel abroad for short visits (city trips) or longer periods (holidays). Conversely, better accessibility will lead to greater numbers of foreign tourists visiting the Netherlands by train. This aspect of rail accessibility cannot be seen in isolation from the economic benefits, since tourism and business travel in the Netherlands generated about €29.9 billion in revenue in 2017 (Centraal Bureau voor de Statistiek, 2018). Tourism also has a social and cultural component; it enables people to learn about other countries and cultures.

A better connected Europe is also one of the objectives of the EU's cohesion policy. This policy focuses on economic development, regional competitiveness, regional and social cohesion and environmental



sustainability. The EU's cohesion policy 2014–2020 provides financial support to transport infrastructure (see also Chapter 2, § 2.1.3). For the EU's long-term budget for the period 2021–2027, the European Commission proposes a modernisation of cohesion policy (Europese Commissie, 2018b) in which a better connected Europe is again one of the priorities. An important aim is to reduce carbon emissions from the economy and transport. 'There is no doubt that railway transport means huge benefits in most areas: sustainability, safety, even speed, once it's organised and engineered according to 21st century principles,' said Transport Commissioner Adina Vălean in March 2020. 'But there's also something more profound about railways: they connect the EU together not only in physical terms. Setting up a coherent and functional network across all Europe is an exercise in political cohesion' (Van den Boogaard, 2020).

3.3 Substituting rail for road and air

A third reason for promoting international rail transport (in addition to economic competitiveness and better connections within Europe) is that it is a relatively clean and safe form of transport and so increasing rail transport at the expense of road and air will help to green the transport sector. In the Netherlands the national operator NS uses 100% green electricity.

However, substituting rail for road and air is still proving to be difficult in practice as the 'intermodal competitiveness' of rail is weak. Choosing to travel by air rather than taking the train appears to be an easy choice for

travellers because the airline business model puts the customer first (in terms of price, convenience and comfort). In contrast, the rail business model is built around the operation of the railway undertakings in their domestic transport markets (Europese Rekenkamer, 2018).

A 2019 study by KiM compares the infrastructure costs and external costs to society of air, rail and road transport. The train emerged as a mode with low social costs in terms of climate impact compared with the car (and plane) and with a good safety record (Huibregtse et al., 2019).

The public debate on substitution is mainly about substitutes for flying and less about substitutes for road transport. But for long distances there are clear possibilities for substitution.

3.3.1 A substitute for road transport

What distinguishes the train from the car is that it is a clean and safe form of transport. However, developments in the car industry, such as the growth in the numbers of electric cars and the emergence of driverless vehicles, are narrowing the gap on this score. Nevertheless, there are still several reasons why the train is preferable to the car as a sustainable transport mode.

- First, for the time being electric cars will not be within the financial reach of the wider public. The purchase costs are high, despite the availability of subsidies. The train is therefore much more widely *accessible* for longer journeys.



- Second, it is questionable how sustainable the production and disposal of electric car batteries really is. The train has the advantage that virtually no *batteries* are needed because most lines have been electrified.
- Third, trains can reach *speeds* that are impossible for cars on public roads. Speeds of more than 200 km/hr and sometimes even 300 km/hr are not unusual for high-speed trains. This illustrates all the more the potential of the train for longer distances: a much larger area is within reach within a limited journey time of a few hours.
- Fourth, cars as a mode of transport use up a *large area of land*. Not just the roads, but also the parking spaces and garages (particularly in urban areas) make the car a prominent and highly visible feature in the urban and rural landscape.

3.3.2 A substitute for air transport

It is well-known that the climate impact of flying is greater than that of the train, because travelling by train leads to lower carbon emissions than travelling by plane. But what does this difference look like in more detail? Below we discuss the various aspects that are important when comparing air and rail transport, we look at the aviation sector's action plan to make the industry more sustainable, and conclude with a few qualifying remarks on the debate about substitution.

Six points to consider when comparing the environmental impacts of air and rail transport

Comparing the environmental impacts of air and rail transport is more complex than it might appear. Six questions need to be addressed when making this comparison.

1. Fuel consumption per passenger per kilometre or based on a life cycle assessment?

The first question concerns whether to include the energy consumption of transport only or the energy consumption during the full life cycle. A life cycle assessment (LCA) calculates the emissions released during the manufacture, maintenance and decommissioning of vehicles. These emissions are often not included in comparisons, but are becoming increasingly significant with the use of new types of batteries and high-pressure tanks. However, comparisons based on LCAs are not easy to make. Although the International Standards Organisation (ISO) has drawn up a standard for LCAs, which is updated every few years, assumptions – for example about maintenance costs – remain an implicit part of LCAs and can lead to significant differences in the calculated CO₂ emissions per transport mode.

2. Well-to-wheel or tank-to-wheel?

The CO₂ emissions from train and plane can be calculated on a well-to-wheel or a tank-to-wheel basis. The well-to-wheel approach includes not only the CO₂ emissions from the combustion process in the vehicle (wheel), but also the CO₂ released at the source of the energy used (well) and



during the production and transport of the fuel. From an environmental point of view, a well-to-wheel approach gives a complete picture of the environmental performance of a fuel or drive technology.

Well-to-wheel calculations consist of two parts, the well-to-tank part and the tank-to-wheel part:

- *well-to-tank*: emissions released during the extraction, transport and refining of fuels or during the generation and transmission of electricity;
- *tank-to-wheel*: emissions arising from the combustion of fuel during the use of the vehicle, often including wear and tear emissions (particulate matter) during the operation of the vehicle.¹⁹

3. What types of aircraft, train and fuel should be compared?

Environmental performance also differs within transport modes. One train is not the same as another, and the same goes for aircraft. For example, a diesel locomotive or train running on a standard track has significantly higher emissions than an electric train on a high-speed track. As the NS uses only 100% wind-generated electricity, its tank-to-wheel CO₂ emissions are zero. Trains abroad often have higher emissions.

Developments in aviation are moving fast and much is being done to make aircraft more energy efficient. Each new type of aircraft is 15% to 20% cleaner and quieter than its predecessor. Aircraft manufacturers Boeing and

¹⁹ Under the IPCC agreements, tank-to-wheel emissions from biofuels are zero. The net life-cycle emissions of biofuels are calculated as well-to-tank emissions.

Airbus are investing billions in the development of more efficient engines, lighter materials and better aerodynamics. Both manufacturers now have medium- and long-haul models on the market that will replace many older aircraft in the years to come. However, planes last for several decades so the next, more efficient models will only come onto the market many years later. If the aim is low emission flying, then electric aircraft seem to be the most appealing option. However, the huge batteries that would be needed has so far restricted this innovation to small aircraft such as those made by the Slovenian company Pipistrel. Airbus's head of electrification predicts that sometime between 2030 and 2040 an electric plane will be able to carry a hundred passengers. Competitor Boeing does not mention a year, but commercial-scale electric-powered flights are not expected until after 2040 (Duursma, 2018a). Electric-powered aircraft are not expected to be introduced across the board for short-haul flights before 2060 and for long-haul flights not before 2080 (Peeters & Melkert, 2018, p. 12).

The type of fuel used also influences the environmental performance of aircraft. Scientists are working hard to find an environmentally friendly alternative to kerosene (Duursma, 2018). With a potential reduction of 80%, sustainable fuel, either bio-based or synthetic, is the most effective way to reduce CO₂ emissions from aircraft. But there are two major obstacles: (a) sustainable fuel is two to three times more expensive than fossil fuel and (b) too little of it is available. Government measures are needed to scale up production and bring prices down. In addition, sustainable fuels should not be produced at the expense of agricultural or forestry land, but made from frying fat or forestry and agricultural residues such as wood



chips. Synthetic kerosene may be a more promising option, an example being power-to-liquid fuel made from CO₂ and hydrogen – but only on the condition that the electricity used to produce the fuel comes from renewable sources. A disadvantage of hydrogen is that it requires a lot of storage space. The Council has previously pointed out that due to the slow pace of technological development, blending sustainable synthetic fuel and/or biofuel with the fossil fuel is the most promising option for achieving CO₂ reduction targets for aviation for 2030 and 2050 (Rli, 2019).

4. National or international data?

In the Netherlands comparisons of the environmental performance of transport modes are often calculated using data from the multiyear STREAM study by CE Delft²⁰ on emissions from transport within the Netherlands. According to Milieu Centraal, CO₂ emissions per kilometre from high-speed trains differ considerably across Europe, depending on the emissions from electricity generation in the countries through which the trains travel (Milieu Centraal, z.d.). Other factors are the occupancy rate of the train and high-speed versus ordinary international trains.

The carbon emissions of a train journey can vary by a factor of three depending on the destination. A train to Eastern Europe, for example, runs on electricity with high CO₂ emissions and in the Ruhr region of Germany the trains run on energy generated from lignite (brown coal). In contrast, in

²⁰ STREAM stands for Study on TRansport Emissions of All Modes. CE Delft's STREAM series describes the environmental impacts of freight and passenger transport and provides forecasts.

France the trains run on electricity from nuclear power and in Switzerland on hydroelectric power (with much lower carbon emissions).

In its STREAM calculations, CE Delft uses the average electricity mix in the Netherlands. According to Matthijs Otten of CE Delft, the same index numbers can be applied to the average in Europe. Calculations based on these numbers show that the TGV emissions are four times lower than the direct emissions of a Boeing 737 on a medium-haul flight. If the additional climate impacts of flying are also taken into account (see point 5 below), the emissions are eight times those of the TGV.

5. Compare all climate impacts or just those of energy use?

Many comparisons of the environmental impacts of different transport modes are limited to the CO₂ emissions of energy use. However, condensation trails, NO_x emissions and the contribution to cloud formation make the climate impacts of flying much greater than just those arising from the use of energy.

6. Also include impacts on quality of the living environment?

A final qualifying remark on the comparison of the climate impacts of transport modes concerns the question of whether or not the environmental impact and degradation of the quality of the living environment should be included in the calculation. It is well-known that the level of disturbance people experience from airports is high, but this is very localised nuisance. During the construction and use of a railway line the impact is linear and causes a high level of nuisance, especially if the line runs through an urban



area. During the construction of the HSL-Zuid high-speed line this became clear at various places in the Netherlands during the discussions about its integration into the landscape. The perceived nuisance levels were also higher than expected once the line became operational.

3.3.3 Aviation sector Action Plan ‘Smart and Sustainable’ (2018)

In response to the National Climate Agreement, the aviation sector submitted its action plan ‘Smart and Sustainable’ (Schiphol Group et al., 2018) to the minister of infrastructure and water management. The plan of action was produced by twenty transport organisations and knowledge institutions who want to accelerate existing developments to make aviation more sustainable. The aim is to reduce CO₂ emissions from the Dutch aviation industry by 35% from the expected trend in emissions by 2030. The airline industry has calculated that the use of trains and other sustainable modes of transport can contribute 3.8% of the emission targets for 2030. Trains can be a good alternative to air travel on certain routes up to a distance of 700 km.

To make trains more attractive, the authors say they should be faster, it must be easier to buy integrated AirRail tickets and there must be better connections to Schiphol. Their ambition is that rail passengers will be able to alight within the airport’s security area for a seamless transfer. Among initiatives to further develop Schiphol as a multimodal hub is the possible extension of the North–South metro line above ground and the expansion of Schiphol railway station. This will create space for international trains in the Schiphol tunnel. Regional airports will also have to be made more

accessible by public transport. At the moment Eindhoven Airport, for example, is only accessible by road.

Research and consultancy organisation CE Delft audited the plan of action and concluded that the stated goals are feasible, but that greater efforts will be required if growth turns out to be higher than the moderate rate assumed in the model. The ambitious targets require a concerted effort by various parties and supportive government policy (Faber & Van Velzen, 2018).

3.3.4 Draft Aviation Policy Document 2020–2050

The draft Aviation Policy Document sets out the government’s framework for the future development of aviation in the Netherlands. The focus is on safety, a robust network of international connections, less nuisance and less impact on the environment. Dutch airports will only be able to grow when their environmental impact has demonstratively decreased.

The policy adopts the objectives for reducing carbon emissions contained in the draft agreement on sustainable aviation (jointly prepared by the airline industry and the government). In concrete terms, this means that within ten years the ground operations at the airports must be completely climate neutral and that CO₂ emissions have been brought down to 2005 levels. Carbon emissions from aviation must be halved from 2005 levels by 2050 and reduced to zero by 2070 (Tweede Kamer, 2020b). The consultation procedure has begun and the government’s aim is to formally adopt the policy at the end of 2020.



3.3.5 The substitution paradox: more trains but still more carbon emissions

When it comes to bringing about a modal shift from air to rail, it should be noted that the calculated impacts in studies (e.g. Donners, 2018) do not take account of policy or how airports and airlines will respond to decreasing demand for short-haul flights. Airlines may still continue to operate their flights, but with a lower occupancy rate or with smaller aircraft (research in Asia and Europe provides some support for this), in which case CO₂ emissions will remain more or less the same.

It is also conceivable that a decreasing demand for short-haul trips will lead to fewer flights, but that the freed up slots will be used by the airports to accommodate new long-haul flights to existing and new destinations. This will have a counterproductive effect on CO₂ emissions.

This last effect is not unlikely, as the WLO forecasts reveal a latent demand for flights (CPB & PBL, 2015): in 2030 there will still be 3 to 25 million passengers not catered for because of the limited capacity at airports. In this scenario, substitution leads to the paradoxical outcome in which CO₂ emissions do not fall, but rise. If the government really wants to reduce CO₂ emissions, substitution policy will have to be accompanied by a downward adjustment of the number of flight movements at national airports.

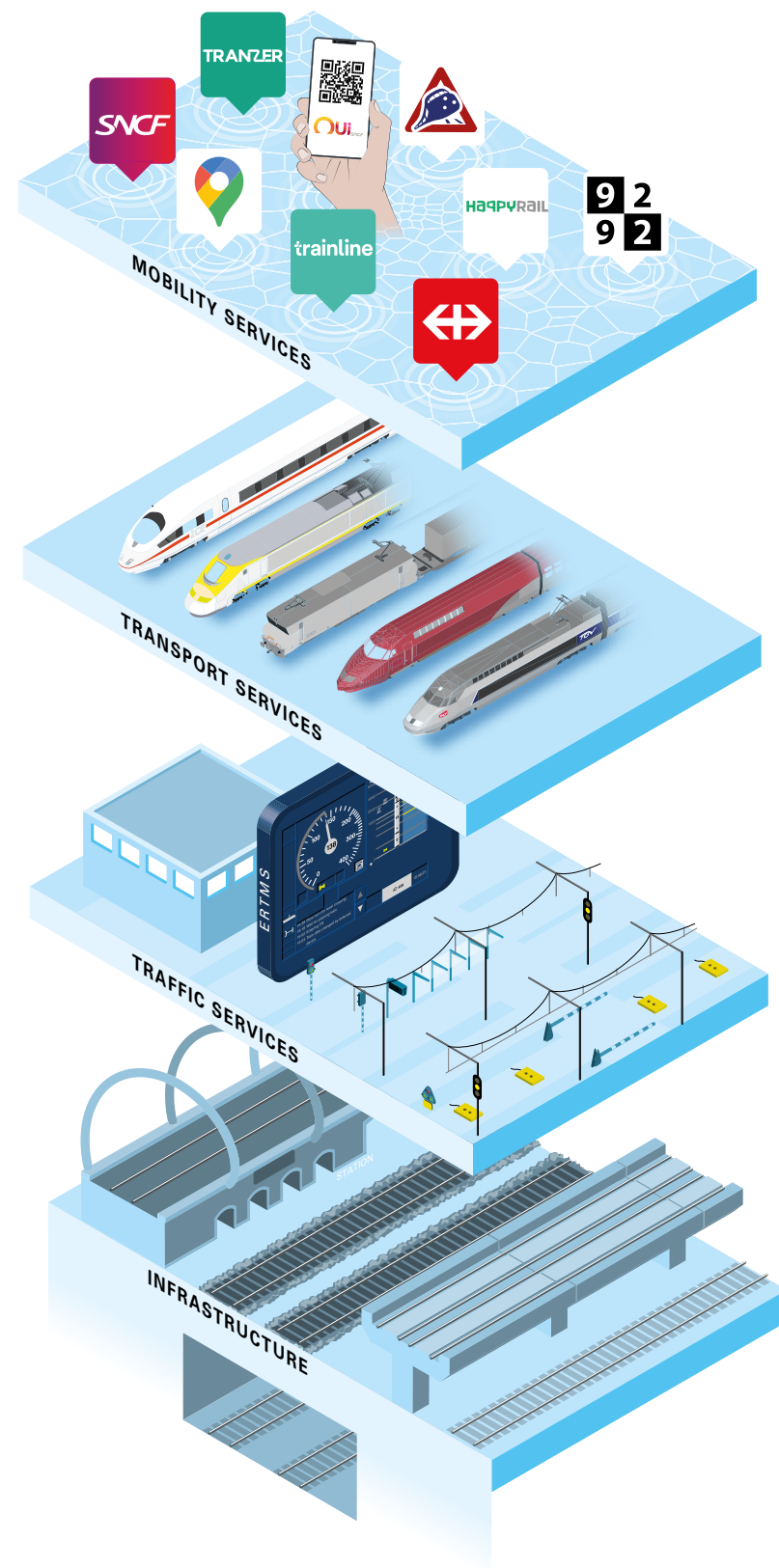




4 BOTTLENECKS IN THE INTERNATIONAL RAIL SYSTEM

From the expert meetings, the interviews and the document analysis the Council has identified and described the main bottlenecks standing in the way of better international access to and from the Netherlands. As in Part 1 of this advice, these bottlenecks are broken down according to the four organisational layers of the rail transport system: mobility services, transport services, traffic services and the infrastructure.

Figure 17: The four layers of the rail transport system



4.1 Bottlenecks in mobility services

Lack of passenger friendly access to information and tickets

Booking international train journeys is a difficult business because there is no easy and transparent system for finding and booking international train tickets. Obtaining tickets for the main destinations and direct services (from the Netherlands) is reasonably easy, but buying tickets for indirect services or more distant destinations is considerably more complicated. The ticket information landscape is fragmented and technically complex and the benefit to cost ratio of developing a traveller friendly platform has so far proved unattractive to potential providers. In Europe there are hardly any independent travel information and ticketing providers (which is the gap in the market the Dutch *Treinreiswinkel* aims to fill) (Van Ammelrooy, 2019). People who want to plan and book a journey get bogged down in a confusing morass of rules and information. Railway undertakings generally only offer tickets for their own trains; tickets for trains run by other companies, even for connecting trains, are only offered in a limited number of cases (e.g. for services run by partner companies). Also, each railway undertaking has its own sales channels and digital systems, which means that some tickets can only be purchased online, by telephone or from a ticket office.

Finding and buying air tickets is a much easier business altogether, as booking one or more flights is made easy by platforms such as *skyscanner.nl*, *cheaptickets.nl*, *tix.nl* and *google.com/flights*. When choosing how to travel, people are influenced by the ease of finding and booking a journey.

When finding a ticket proves to be a tortuous business, they are likely to choose a different travel option for which they can easily obtain a ticket.

Train journey with multiple rail operators difficult to book

Airline companies work together internationally in broad alliances; rail operators take a different approach. For example, NS is not allowed to sell the cheap tickets for Ouigo, a subsidiary of SNCF. NS International does sell tickets to London and Kent, but not to any onward UK destinations (NS International, z.d.-a). The national transport operators generally do not sell tickets for services run by newcomers on the rail market and vice versa.²¹ Some foreign railway companies do not sell any tickets at all in the Netherlands (Van Ammelrooy, 2019), one reason being that they want to keep control over sales of their own tickets, but system constraints also play a part (such as differences between ticketing systems).

As a result, international train journeys often have to be broken down into a series of shorter sections. This is not only inconvenient to book, but it also affects passengers' rights in the event of delays or missed connections (see below). At one of the expert meetings it was stated that, all things considered, it is easier to book a flight from Amsterdam to South Bolivia online – consisting of three to four flights operated by two or three airlines – than to book a train ticket from Amsterdam to Stockholm.

Tijdens een van de expertbijeenkomsten werd gesteld dat het al met al eenvoudiger is om online een vliegreis te boeken van Amsterdam naar

²¹ Former state-owned enterprises that offer train services are also called 'incumbents'. Non-incumbents is the name for new, independent entrants to the market and the new regional concession holders.

Zuid-Bolivia, samengesteld uit drie tot vier vluchten van twee of drie luchtvaartmaatschappijen, dan een treinkaartje van Amsterdam naar Stockholm.

No uniform European booking system for train journeys

There is no uniform European booking system for train journeys. In Europe there are two main systems for making train reservations:

1. In one system the traveller buys a ticket for a specific route on a specific day, during which use may be made of different trains (often referred to as the 'German system'). This is beneficial for travellers who miss a connection.
2. In the other system the traveller buys a ticket to travel on a specific train on a specific day (often referred to as the 'French system'). In this system, the journey must be made at a specified time and seat reservation is compulsory (NS International, z.d.-b).

In practice it is difficult to combine these two booking systems. When travellers change from a French to a German reservation they cannot be sure whether a seat will be available for them in the connecting train, and if so, in which carriage they will be able to find it. And when changing from a German to a French reservation, passengers who miss their connection are not permitted to board the next train (because they do not have a seat reserved on it). None of the providers of tickets for journeys within their own operational area are confronted by this structural flaw in the system. Passengers just have to sort it out for themselves. There is no direct incentive for ticket providers to come to an overarching system. However,



a uniform public friendly booking system for international trains would encourage more people to travel by train. As such, this situation presents an indirect but so far unacknowledged incentive for more coordination and cooperation. Greater uniformity in data and data systems across Europe would make access to ticket information and ticketing much simpler. It could lead to a similar system as that used by the airlines, which works on the basis of alliances and code sharing. At the moment, though, it is not in the interests of any of the individual ticket providers to initiate the creation of such a uniform system: the necessary investments are too big and the prospects of recouping the benefits and of third parties joining the system are too uncertain. An overarching system can therefore only be established by all parties working together.

Not clear when discount subscriptions are applicable

The discounts given by NS subscription products sometimes apply to the domestic parts of international train journeys and sometimes they do not (NS International, z.d.-c). For many travellers it is not clear when they can make use of their discounts; travel planners usually give the most expensive options. This problem is also found when travelling abroad, such as on the route through France, Belgium and Germany: the BahnCard (a Deutsche Bahn discount rail card) can be used for the ICE, but not for the Thalys on the exact same route (Europees Parlement, 2009a; 2009b).

This discrepancy is due in part to the fact that railway undertakings only have access to their 'own' cheap tickets. A uniform booking system (see above) would solve this problem. Another situation that encourages this

uneven access to discounts is that it is often not possible for travellers to purchase discount cards without a postal address in the country in question, which makes most reduced prices unavailable to international passengers.

Timetables not available on time

Timetables are usually only available to passengers three months in advance and most tickets can also only be booked from three months in advance. There are two exceptions: Eurostar offers tickets four months in advance and night trains can often be booked up to six months before the date of travel. As many international train passengers want to book their tickets earlier than is currently possible, certainly for holidays, this makes the train a less attractive option. And when the scarce cheap tickets do finally become available for purchase, there is often a rush to snap them up.

Train operators neglect the 'last mile'

Train operators pay too little attention to the 'last mile'. Having arrived at the railway station, how do you get to your final destination by metro or bus, or by bicycle or on foot? It is up to the passenger to look this up, which may be difficult if the required information is in a foreign language the traveller does not understand. Paris metro tickets can be bought on Thalys trains as a service (Thalys, 2018) and Eurostar offers a similar service for Brussels and London (Eurostar, z.d.), but international passengers travelling to the Netherlands cannot buy a Dutch public transport smart card. It should be noted, though, that the last mile presents less of an obstacle when travelling by train than when flying.



Inadequate passenger rights

The rights of air passengers are better regulated than those of train passengers. Train operators provide inadequate assistance to passengers in the event of delays or missed connections. If there is a delay on a journey involving several changes (with separate tickets for each part of the journey), passengers are only compensated for the initial delay on that particular part of the journey and not for the delay incurred on the remainder of the journey (Europees Parlement & de Raad, 2007) (For more information see § 5.4 below).

4.2 Bottlenecks in transport services

Dominance of national operators focusing on the domestic market

Although some of the first railway lines in Europe were built for cross-border transport, over the past century the rail passenger transport sector has concentrated on transport within the national borders.

Despite the European open borders policy, national borders still throw up hidden barriers (such as language, traditions and practices) that keep the vast majority of train passengers in their own countries. It is therefore not surprising that the requirements in the current concession for the core network held by NS mostly concern its performance in providing services for this target group. During the Council's expert sessions it emerged that the rigidity of these agreements could induce the train operators to adopt risk avoidance strategies. They build extra time into their service

schedule to ensure they can meet the requirements and avoid anything that could disrupt domestic performance, such as making improvements to international connections.

National operators have a solid position. They have a large market share and/or are the only providers of train services in their country. This gives them access to a large, interconnected rail network on which they run well-connected train services at high frequencies. On an average working day about one million people in the Netherlands use the rail services provided by the NS railway company (NS.nl, z.d.). New entrants onto the market cannot come close to that level of service provision.

The rail transport systems of many other EU Member States are also dominated by the national operator, which benefits from control over the commercial operation of stations (possibilities for sales of additional products), property management (possibilities for additional income), ticket offices, service personnel, etc. New entrants are sometimes 'squeezed out' of the national market by the national operators, who offer special promotions and better services provision. For example, SNCF is resisting the entry of Thello and Flixtrain onto the French rail market by expanding its budget TGV operator Ouigo (McWhirter, 2019). Although this is a logical consequence of market competition, moves like this make it difficult for new operators to enter the market. The Council regrets this, because new operators could give priority to international rail services, particularly if this was their core business.



Of course, a well-run and comprehensive national rail transport system is essential to meet today's high demand for domestic rail services. But the prevailing view that there is no room for additional international connections on the busy rail network is not always based on a correct representation of the facts (see § 4.3 and 4.4). Various participants at the expert meetings held by the Council indicated that a smarter management of the Dutch rail transport system could give more priority to international trains and improve service provision without affecting the domestic timetable.

Few concessions for international connections

At the moment not all international transport links can be run profitably while at the same time providing an attractive service to passengers. This explains why there is little choice of services on these routes and no new services are being introduced. One solution, in view of the public interest at stake, could be to put the operation of transboundary rail services out to tender. Unfortunately, almost all concessions (PSOs) are awarded for domestic transport. International concessions are rare because countries do not cooperate sufficiently on international transport links and European regulations offer limited scope for awarding international concessions. Coordinating transport services between countries is a complex business and little experience has been gained with it so far. Nevertheless, working with international concessions did emerge as a promising option during the expert sessions and interviews.

Barriers to new entrants

Despite the EU's open access policy, the rules for providing international train services are complex and demanding. For example, an operator from each country on the route has to be party to applications for train paths. In addition, the infrastructure and safety systems vary from country to country and local authorities have a voice in determining how international transport is integrated into national public transport schedules. All this makes it difficult to attract new entrants into the market and create competition. But it is precisely new entrants that can make a difference to the international traveller as a more diverse offer will give the traveller more choice. Competition on the rail network in Italy, for example, has brought prices down on some routes while increasing choice and improving service (Desmaris, 2016). Competition between the national operator and newcomer Italo on the high-speed line between Rome and Milan has led to a clear shift in people's choice of transport mode: the rail share in passenger transport rose sharply (from 6% in 2008 to 74% in 2016) and the air share in passenger transport fell considerably (from 50% in 2008 to 15% in 2016) (Bergantino, 2016). In 2015, three years after the first Italo train went into operation, Ryanair even stopped its flights between Rome and Milan.

Apart from the complexity of the rules, another hindrance, mentioned above, is the dominant position of national transport companies. In theory, international rail transport is open to all operators, but the interests of the national operators dominate on all the major corridors of the core rail network. Member States sometimes interpret EU legislation in ways that favour their own operator over new entrants to the rail market. Also, EU



rules are not always introduced on time; Member States prevaricate and play for time to the advantage of the national operator. The European Commission has noted that there were 'strong suspicions' that national operators made use of EU rules to covertly discriminate against newcomers (Europese Commissie, 2013).

In the Netherlands this was the case in the direct award of the core railway network to NS. During the expert meetings organised by the Council, various parties complained about the way in which new international connections were included within the existing national PSO, as is the case for the new night train between Amsterdam and Vienna. There are also still many exceptions to the rules. For example, the core network within the Netherlands has been excluded from open access for domestic services until 2025 under the EU's transitional measure. In practical terms there is very little competition and this is not likely to change in the near future (at least for the core network). Based on the mid-term review, the state secretary intends to directly award the concession for the core network to NS again after 2024, but this will be accompanied by more room for competition on regional lines and international connections, as confirmed by the state secretary in a letter to the House of Representatives (Tweede Kamer, 2020c).

Newcomers wanting to enter the rail market are also not helped by the political ambiguity concerning competition in the rail sector. On the one hand, there is a desire for rail transport to compete with other modes of transport and become more competitive over time, but on the other hand

there are concerns about the desirability of more competition because of a possible worsening of working conditions and/or quality of service. As a result, newcomers are not convinced that they will be given a fair chance to enter the rail market.

No lease market for rolling stock

Another major obstacle to new operators entering the market is the lack of rolling stock. There is next to no lease market for passenger trains, and the rolling stock that is available is often extremely old and unsuitable for high-speed lines. If the rolling stock is owned by the national operator, this presents an additional barrier to new entrants (Nash et al., 2019). In the civil aviation sector the privileged position of national carriers has been broken by the rise of the low cost carriers. They were able to enter the market not just because of the EU's Single European Sky policy, but also because of the ready and relatively risk free availability of aircraft from leasing companies.

Not sharing data

Rail operators consider much of their data to be confidential information and do not share this information with potential new entrants or third parties who want to sell tickets. This makes it particularly difficult for public authorities and new entrants to the market to develop a strategy for international rail transport. They are not able to make a reliable assessment of the rail transport market and are therefore unable to plan services that accurately match the needs of travellers.



No coherent vision for international timetables

Although there is much discussion in the Netherlands about transboundary rail transport, there is surprisingly little discussion with neighbouring countries on a strategic level. As a result there is no overarching vision for an international timetable and the operators in each country are themselves responsible for planning the services and the capacity of the trains. There is a lack of coordination. The setting of border times is dominated by the traditional national operators.

No level playing field with other transport modes

Government objectives and ambitions should not lead to unequal treatment of transport modes. All measures and support packages (such as subsidies and incentives) that are available to one transport mode should therefore be available to others as well to ensure a level playing field. At the moment there is no such level playing at all in the Netherlands. Air tickets are zero rated for VAT, but the VAT on rail tickets was raised from 6% to 9% (for comparison, in 2019 the German government reduced VAT on train tickets, although it is still higher than in the Netherlands).

The Council believes that environmental costs should also be included in the prices of tickets. If the social costs of the various transport modes were passed on to the customer, environmental impact would automatically be included in the choices people make on how to travel. The Council's opinion is that the continuing exemption of air transport is problematic. Both Germany and France have recently introduced an air transport tax. In the Netherlands the idea of an equivalent air passenger tax has had a troubled

history, but in 2019 the government did present plans for a national (although preferably European) flight tax and the feasibility of a kerosene duty at the EU level is being explored (rijksoverheid.nl, z.d.).

Infrastructure charge too high

At the moment international rail transport can hardly compete with other transport modes and so there is clearly a need to make the price of travelling by train much 'fairer' in comparison with travelling by bus, plane or car. The current infrastructure charge is too high – certainly for international long-distance train journeys. Degressive tariffs, in which the price per kilometre is reduced as the distance increases, would stimulate international rail transport. Governments have the ability to do this because the charge consists of mandatory and non-mandatory components (Autoriteit Consument & Markt [ACM], 2019). ProRail passes this charge on to the operators. From 2020 the charge consists of the following components:

- *Minimum access package.* This consists of the direct costs of use, which must be passed on to the operator under EU law.
- *Services.* The costs and reasonable return on investment for the use of railway yards, stabling areas and fuelling systems.
- *Price incentives.* Price incentives coupled with a performance scheme can add positive or negative financial consequences to actual performance.
- *Additional charges.* These can be used to recover some of the costs of investments.



Night trains could be subject to a lower rate to stimulate their use. In view of the open access policy it would be preferable to encourage the use of international trains by reducing infrastructure charges than by providing subsidies to an established operator.

4.3 Bottlenecks in traffic services

Technical and protection & control systems incompatible

Optimal use cannot yet be made of the available capacity on the existing infrastructure in Europe, in part because of insufficient harmonisation of safety systems, safety regulations, capacity allocation procedures, etc. The disparate mix of systems and rules can be made to work through the use of interoperable rolling stock, but unfortunately this is more expensive and more complex than standard rolling stock. It is not a long-term solution. More structural adjustments will be necessary to make the railway network fit for the future. Changes will be needed in the infrastructure and traffic services, such as the introduction of information technology (e.g. ERTMS). A third point requiring attention is the lack of a common language for train drivers and rail managers on international links.

Introduction of ERTMS costly and time-consuming

The introduction of ERTMS is proceeding at a slow pace and there are doubts about some of the choices that are being made in this megaproject. Implementing the systems is proving to be more complex than was originally thought, partly because several suppliers are being used

(Ton, 2018). Moreover, as the work is behind schedule, the available EU funds are not all being used.

The benefits of ERTMS for international rail transport have been too long in coming. During the expert sessions held by the Council, the introduction of information technology (such as ERTMS) was mentioned as an attractive way to create more capacity on the existing rail network. This safety system allows trains to run closer together, enabling more intensive use of the existing infrastructure.

Unnecessary cost increases and restrictions from imposing air traffic safety requirements on international trains

The current terrorist threat in Europe has an impact on international mobility. In their fight against terrorism, security services are calling for international travellers to give up more personal data. A majority of the EU Member States have indicated their willingness to apply the Passenger Name Record (PNR) Directive,²² which now applies only to international flights, to other modes of transport as well (Teffer, 2019). This could mean that the current security arrangements for flights would apply to international rail services, even though these measures are too stringent in relation to the risks, incur additional costs and lead to delays. In addition, they take away one of the attractive aspects of travelling by train: the flexibility of last minute booking.

²² Directive on the use of passenger name record (PNR) data for the prevention, detection, investigation and prosecution of terrorist offences and serious crime (Directive (EU) 2016/681).



4.4 Bottlenecks in the infrastructure

No fully interconnected international high-speed network, limited access to the high-speed infrastructure

Due to the fact that for many years the development of the railway infrastructure in European countries has concentrated on the domestic networks, no fully interconnected international high-speed network has been created. For one thing, there is no high-speed line between Antwerp and Brussels. Neither is there a rapid link from Randstad Holland to Germany connecting into the German high-speed ICE network. Speeds on the Amsterdam–Utrecht–Arnhem–Duisburg–Düsseldorf service are currently well below the desired 160 to 200 km/hour.

Station capacities too limited

The stations in the Netherlands where international trains stop are not growing in step with the increasing and expected demand (Verlaan, 2019). Not only the limited number of tracks, but also the platforms, stabling areas and station locations form bottlenecks to the growth in demand for international transport.

Schiphol station currently does not have sufficient capacity to accommodate all the required international trains for transfer passengers, particularly in combination with security checks and passport control (Eurostar), or for baggage handling if passengers' luggage is already checked in on the train. This makes it difficult to offer AirRail products. For

smoother transfer between air and rail it is crucial that passengers with an intercontinental onward connection can travel further by train from Schiphol station and that there are good arrangements in place for their luggage. Schiphol station should therefore be equipped with facilities to meet all security requirements, such as partitioned platform sections for non-Schengen destinations. This last point is important for shortening the transfer time from train to plane and increasing the level of comfort for passengers. If these arrangements are not made in the Netherlands, it will not be possible to offer attractive combination travel products. Travellers with onward connections will then choose another route, replacing the part of the journey they would have travelled by train with a flight.

Cost-benefit analyses overemphasise domestic benefits

The cost-benefit analyses prepared for the planned international trains have so far placed an unbalanced emphasis on domestic benefits and only touched upon the benefits of international trains that are enjoyed abroad. This means that decisions about transboundary infrastructure are taken on the basis of a limited financial assessment in which the costs weigh more heavily than the benefits.

The balance of costs and benefits would be more favourable if the scope of the analysis covered the whole region served by the rail connection. Decisions based on that perspective could well be different. An example is the analysis of the reactivation of the 'Iron Rhine' rail link. In this analysis the prime considerations were the consequences for the Netherlands, with



an 'international window' limited to qualitative remarks because a full international monetary comparison was deemed impossible (De Vries et al., 2007, p. 145). A more recent example is the Groningen–Bremen link, for which three CBAs were carried out: a Dutch, a German and a joint/European analysis.





5 MODAL CHOICE, TRAVEL INFORMATION, TICKETING AND PASSENGER RIGHTS

The Council considers that a number of things are needed to promote international rail travel: (a) the traveller's *choice of transport mode* should be steered by a competitive journey time and price and a higher comfort level compared to car and plane; (b) the traveller should be able to easily find all relevant *travel information*; (c) the traveller should be able to easily book *tickets* well in advance; (d) the traveller should be assured of guaranteed *passenger rights*. These are discussed in turn in this chapter.

5.1 Traveller's choice of transport mode

Someone who is considering going on a journey has to make a number of choices. Below we describe a basic model that can be used to describe the choice behaviour of the would-be traveller.

Four steps

The choices to be made by a traveller are often described by means of a 'four step model' (Ortúzar & Willumsen, 2011). Such a model starts with the question 'Am I going to travel?' (trip decision). The next question is 'Where am I going to travel to?' (destination choice). The third question is 'How

am I going to get there?’ (modal choice). The final question is ‘What route should I take?’ (route choice).

This basic model can be adapted to achieve a more accurate representation of choice behaviour in specific situations. A frequent addition to the model is a fifth step: ‘When am I going to travel?’ (time-of-travel choice). This makes the model suitable for describing choices made by both business and recreational travellers (Bhat, 1998). In other variations, certain steps are combined into a single step, such as a simultaneous trip decision and destination choice or a simultaneous destination choice and modal choice.

The model is of course a representation of a decision process that in reality is usually not as systematic as this. In practice, travellers often reverse the order of the steps, for example first choosing the means of transport and then a destination that can be reached by that means of transport.

To get large groups of travellers to change their choice of transport mode from the car or plane to the train, insight is needed into the factors that determine their modal choice. These factors are discussed below.

Factors influencing modal choice

Little or no research has been done into the choice behaviour of travellers who decide to go on long-distance journeys (more than 100 kilometres). The discussion below builds on insights from research into the choice behaviour of travellers who go on local and regional journeys. The major

factors influencing this choice behaviour are (aggregated): journey time (from door to door), travel costs and comfort.

- *Journey time.* The time the journey takes is one of the most important factors in determining the mode of transport. This is considered to be always a negative factor: the longer the journey time the lower the chance that the mode of transport will be chosen. Journey time from door to door always consists of the time to get to the means of transport, the waiting time, the actual travel time and the time taken to get to the final destination. Each part of the journey is experienced or perceived differently by the traveller as a result of stress or ‘disutility’. Travellers often experience a minute waiting as irritating or annoying and therefore it ‘counts’ as more than a minute of actual travel time. Combining the perception of the journey time with the actual journey time gives the perceived journey time. This is the time that is taken into account when coming to a travel decision. Paradoxically, when weighing up the option of travelling by train the door-to-door time is usually taken into account, but when flying often only the flight time is considered. This makes flying seem more attractive than it really is.
- *Travel costs.* Besides journey time, travel costs are an important factor when determining the mode of transport to use. These costs comprise several components (which differ according to the mode of transport), such as parking and maintenance costs (for travel by car), ticket price and the costs of travel to and from the station or airport (for travel by train or plane). Travel costs are also considered to be always a negative factor: the higher the costs the lower the chance that the mode of transport will be chosen. As for the journey time, the various component costs



are perceived differently by the traveller, but little is known about this perception of costs for long-distance journeys. A key consideration is whether or not the traveller takes all the costs into account when coming to a decision about which mode of transport to use. It is not uncommon for the cost of petrol to be compared one-on-one with the cost of a ticket by public transport, which ignores parking and car maintenance costs.

- *Comfort.* The comfort level of a mode of transport is rarely included in studies of modal choice. The reason for this may be that it is difficult to make an objective assessment of travel comfort. Studies that do take this factor into account show that it is a significant factor in the choice of transport mode and that, for example, the higher comfort level of a night train weighs heavily in its favour (among others, Román et al., 2010). There is a relationship between comfort level and the perception of journey time: at higher comfort levels the journey time becomes less important.

The traveller's choice behaviour is not black and white; all the factors discussed above play a part. If one mode of transport has a shorter perceived journey time than another, this does not automatically mean that all travellers will base their decision on this factor alone. Empirical data show that travellers are much more sensitive to the whole range of differences between transport modes for long-distance trips than for local or regional trips (see e.g. Eurostar, 2004).

A general assumption is that for distances up to 750 kilometres or a travel time of four hours (door to door) the train is competitive with flying.

Within these limits the train is often faster and most (but not all) people choose the train. For longer distances and for longer journeys, the train remains an option. Although fewer people choose the train for these longer journeys, the numbers are not insignificant. With an eye to reducing carbon emissions it is therefore important and sensible to promote a modal shift from air to rail for these longer distances.

To promote international rail passenger transport it is important to focus on competitive travel times and ticket prices, coupled with the higher comfort levels compared with driving or flying as a distinguishing factor.

5.2 Travel and passenger information

International train passengers need easy access to simple and clear travel information. First, passengers need information before they travel – *pre-journey* information – such as travel times, the number of changes and the availability of tickets ('travel information'). Second, they need information *during* the journey, such as the platform the train will arrive at and information about delays and other disruptions ('passenger information').

Pre-journey information (travel information)

Decisions on whether or not to travel by train are based to a large extent on how the door-to-door journey time compares with other available transport modes. To make this comparison, people need to have this information at their fingertips. If not, they will not consider the train as an option or they



will have to base their decision on incomplete, inaccurate or out-of-date information.

This information could be made more readily available by an easy-to-use booking procedure in which the services and prices of all the train operators on a route (established operators and new entrants to the market) are combined in a single, clear and comprehensive format. Moreover, because passengers do not travel from station to station, but from door to door, they want integrated travel advice and ticketing. The development of Mobility as a Service (MaaS) will go a long way to providing such an information service in future.

When choosing between transport modes, people want definite information about as many aspects of their journey as possible. Their information needs are not limited to 'hard' details such as price and travel time, but extend to information about convenience and comfort. If the option of travelling by train involves the need to change trains, whether or not this can be made cross-platform and with a guaranteed connection is relevant information for making a decision. App builders should therefore give due consideration to the specific advantages of transport modes, such as easy transfers and the fact that travelling by train does not entail any check-in procedures.

Various apps and digital platforms offering integrated travel information and ticketing are already available or under development. However, app builders are dependent on the information provided by transport operators – and there lies the problem, because operators give third parties little or

no access to travel information and ticketing rights. Despite European data sharing agreements, operators only share data to a very limited extent, claiming their data are commercially sensitive. The Council is of the opinion that operators should be required to make this data publicly available as soon as possible, particularly for new tenders.

Information during the journey and in the event of disruptions (passenger information)

Once travellers have set off, they need easy access to simple and clear real-time information during their journey: passenger information. Unlike domestic trips, travellers on long-distance journeys are often unfamiliar with the route, the surroundings and the language. Commuters who travel regularly on a particular route know all about the alternatives should something go wrong, and so they need much less support during the journey. As much of this experience is lacking when travelling long distances (whether by train, bus or plane), there is greater need for correct and clear passenger information during the journey.

To start with, travellers need information to allow them to complete the normal (undisrupted) journey. This can be provided in the form of clear (multilingual) signage, relevant announcements (at the station or platform and in the train) and station layouts that support intuitive wayfinding. In addition, travellers need practical information and support in the event of delays or disruptions to services. Train passengers often have difficulty interpreting this type of information when travelling abroad. Lack of knowledge of the system and the route also makes it difficult for them to



find an alternative route or another or later train on their own. The most important information in these situations is real-time travel information about delays or disruptions. In addition, ticket providers and transport operators should take prompt action to inform travellers (for example via text messaging or WhatsApp) about any disruptions.

One of the ways in which the rail system offers passengers added value compared to flying is its flexibility, particularly if arrangements have been made for the smooth transfer of reservations and information. As discussed in part 2, § 4.1 many long-distance train tickets are currently for a specific seat or train reservation.²³ In the event of a disruption to the service, passengers are often unable to use their reservation. Agreements have been made between rail operators that give passengers the possibility of taking a later train without a seat reservation, but the exchange of information between operators and information provision to passengers can be inadequate. This is less of a problem in systems without seat reservations. It is usually sufficient to get a stamp on the ticket should the reserved service be disrupted, but the introduction of digital tickets has made working with stamps on tickets obsolete. In the event of a disruption, travellers should be given straightforward and clear information about (a) whether or not their reservation has been cancelled, (b) what the consequences of this are, and (c) how the resulting problems will be solved.

²³ This is characteristic of the French ticket system. In the Dutch and German systems tickets are specific only for a date and a route.

5.3 Ticketing

International train passengers want clear information on the availability and findability of attractively priced tickets.

Availability of tickets

Train tickets are usually only available three months in advance, a period that does not match the booking behaviour of many international travellers. Many people in the Netherlands book their summer holiday in January when the Vakantiebeurs tourism and leisure fair in Utrecht takes place. Moreover, the short sales period for international train tickets means that cheap tickets are quickly snapped up. This makes it difficult for people to estimate what the costs of their tickets will be.

Rail operators do not guarantee tickets more than three months in advance because they say the uncertainties related to possible maintenance works are too great. Nevertheless, the Council sees real possibilities for extending this period. Under EU railway policy, track maintenance works that require a 'train free period' have to be requested two years in advance, while requests for capacity allocation must be submitted no later than the April before the timetable year. In April, therefore, rail operators know with almost 100% certainty that a train will be able to run on a certain route during the entire timetable year.

An EU regulation is needed that requires international train tickets to be made available for purchase longer in advance. The Council feels that a period of a least nine months should be feasible. Introducing such a



nine-month period would demand a little more flexibility from travellers when making plans, because there could be minor changes to their booking at a later date. In such cases, train operators should guarantee connections or offer a similar alternative. It is not unusual for airlines to change flight times by a few hours earlier or later than the originally booked times. Good communication with the passengers is then essential. Providing information on departure times and seat numbers subject to possible change, to be finalised shortly before departure, would increase the flexibility available to train operators, making it possible for them to respond better to demand.

As described in Chapter 4 (§ 4.1), in Europe there are various booking systems for international train tickets that differ considerably on certain points, which prevents uniform agreements on international ticketing. Ticket vendors should have the option of selling through tickets.

Price of tickets

When people go on an international journey they generally want to take the fastest option at the lowest price. Although the general perception is that travelling by train is much more expensive than flying, studies show that on certain routes the average price of a train ticket is only slightly higher or even much lower than the cost of an air ticket.²⁴

²⁴ In their sample study, Savelberg & De Lange (2018) found that for a particular journey the train was 20% more expensive than flying. Another study using a different sample found that the train was 85% cheaper than flying (Trainreiziger.nl, 2018).

The price of a train ticket is the outcome of the commercial calculations of the provider. According to the Council, passengers may expect clear and accurate information on which prices are valid at what times and the conditions that apply to the prices being offered – the *findability* and *bookability* of the tickets on offer. Air travel is often cited as a good example of ticket findability and bookability. Airline tickets are easy to find and book because of the existence of various platforms and apps provided by third parties (skyscanner.com, cheaptickets.com, google.com/flights, etc.) as well as the airlines themselves. Even so, the conditions that apply to air tickets at different prices are still obscure. Tickets may be offered in 15 to 26 different price classes, whereas most aircraft have no more than two or three physical classes. In some cases, one-way tickets can be more expensive than a return ticket.

Airlines usually offer only a limited number of very cheap tickets and average prices are roughly comparable with that of a train ticket. Nevertheless, people are perfectly capable of finding cheap tickets for a flight and even deciding whether or not the conditions that apply to those tickets (such as departing in the middle of the night or not being able to take any luggage) are acceptable for their journey. Only relevant information is given to the customer during the booking process. By comparison, the booking process and price structure of train journeys are complicated and unclear (particularly when the journey involves travelling on trains run by different operators).



Given the conditions attached to ticket prices, both air and rail passengers' organisations have developed tactics for getting lower prices, including 'split ticketing' (buying separate tickets for different parts of the journey because this is cheaper) and 'hidden city ticketing' (buying a cheaper ticket for a more distant destination and then alighting at the desired destination earlier on the route). These tricks are used, for example, by treinreiziger.nl when finding the lowest price (see Figure 18).

Figure 18: Sample ticket prices by air and rail (one-way)

	Air tickets via SkyScanner**	Cheapest Train ticket	Ticket provider	Comments
Amsterdam–Prague	€ 51	€ 39,00	NS Int+CD***	Split ticket (in Bad Bentheim)
Amsterdam–Berlin	€ 62	€ 39,90	DB/NS/TL*/HR*	
Amsterdam–Hannover	€ 182	€ 29,90	DB/NS/TL*/HR*	
Amsterdam–Hamburg	€ 50	€ 34,90	DB/NS/TL*/HR*	
Amsterdam–Munich	€ 55	€ 69,00	ÖBB	Buy ticket at Innsbruck!!!
Amsterdam–Vienna	€ 99	€ 69,00	ÖBB	
Amsterdam–Brussels	€ 114	€ 25,00	NS/HR*	
Amsterdam–Paris	€ 35	€ 65,00	NS/TL/HR/SNCF	
Amsterdam–Basle	€ 35	€ 79,90	DB/NS/TL*/HR*	
London–Amsterdam	€ 35	€ 40,00	NS/TL*/HR*/SNCF	
Amsterdam–Frankfurt	€ 112	€ 69,00	ÖBB	Buy ticket to Vienna!!!

* TL = TrainLine, HR = HappyRail

** Air ticket tariffs are exclusive transfer and baggage cost

*** Non split ticket is €20 more expensive. Ticket A'dam–Bad Bentheim can also be bought from DB/HR/TL.

Date accessed: 29 October; travel date, 29 November. Tariffs apply only at the time of offer.

Source: treinreiziger.nl, 2018

5.4 Passenger rights

Rail passenger rights are regulated at the European level by Regulation (EC) 1371/2007 (Europees Parlement & De Raad van de Europese Unie, 2007). The main purpose of this Regulation is to establish and safeguard passengers' rights in the event of disruptions/interruptions to a service. This Regulation is currently (spring 2020) being recast. A brief summary of the recasting process is given below, followed by a brief analysis of the revised rights, including the improvements for the passenger.

Recast of the Regulation on rail passengers' rights and obligations

The recast of Regulation 1371/2007 was begun in September 2017. The basis of the process is a 2013 evaluation report which highlighted certain issues, based on which the European Commission subsequently published interpretive guidelines (Europese Commissie, 2015).

The text of the original Regulation did not provide sufficient clarity on a number of points. It was not clear whether or not passengers are entitled to compensation for the whole journey in the event of a delay on part of the journey. Also, the definitions made a distinction between a 'transport contract' and a 'through ticket' (a ticket for a journey involving successive services operated by several railway undertakings). Further, because the provisions of Chapter IV apply only to a single 'transport contract' and a single ticket, all the rights of the passenger can be considered nullified for situations in which they hold several consecutive tickets, as is usual in long-distance journeys. Another ambiguity concerns the use of the term 'final destination', which was not included in the definitions. It is not



clear whether this refers to the passenger's final destination or the final destination stated on the ticket or through ticket.

The problems identified in the Regulation were confirmed in an impact study published in 2017. This study included an online consultation process open to the public and organisations from across the whole EU. The NS also participated in this process.

In the second half of 2017 the Commission published a 'proposal for a recast' (Europese Commissie, 2017), which was then put forward to various European institutions and bodies. A number of these responded, including the European Economic and Social Committee (EESC) and two committees of the European Parliament, the Committee for Internal Market and Consumer Protection (IMCP) and the Committee for Transport and Tourism (TRAN). The two parliamentary committees hold clearly differing opinions on the rights and obligations of passengers. Whereas the IMCP committee puts the consumer (the passenger) first and proposed imposing certain responsibilities on railway undertakings, the TRAN committee appears to be concerned primarily about the interests of the rail sector. On the basis of the representations and advice received, a reading in the European Parliament and various working group discussions, a new version of the proposal for a recast was adopted unanimously by the Council of the European Union in December 2019 (Europese Commissie, 2020c).

The further planning of the decision-making process is not yet clear. The plans of the Croatian EU presidency (the first half of 2020) did state that

priority should be given to the revision of the rights of train passengers. When approved by the European Council the new regulation can come into force. In principle the whole recasting procedure has been gone through and no further amendments can be made to it.

Rights and obligations of train passengers

The Rail Passengers' Rights Regulation applies to all train journeys in the EU provided by one or more licensed railway undertakings (as laid down in Directive 2012/34/EU) (Europees Parlement & De Raad van de Europese Unie, 2012). Member States can choose to make exceptions and exempt urban, suburban and regional rail passenger services. Long-distance services can be exempt for five years, which may be extended twice (to no later than December 2024).

The term 'through ticket' is no longer included in any of the provisions of the current text of the recast regulation. The issue of lack of clarity was addressed in the proposal and subsequent review process, among others by the EESC and the EP Committee for IMCP. Based on the views of the IMCP, TRAN drew up its own vision in which the interests of the sector take precedence over those of the passenger. The TRAN committee takes a more market-oriented approach in which conditions are set for market competition rather than developing a market that serves the interests of consumers. The committee argues that airline companies are not forced to work together, which is a valid point. Market competition has indeed led the airline companies to cooperate (code sharing and alliances), and without cooperation between airline companies and the resulting through



tickets, air passengers with separate tickets would also have very few rights. But the EP committee ignores the fact that airlines can fly over countries, whereas railway undertakings are always dependent on ground infrastructure. Moreover, it is often not profitable to offer specific services only to international passengers, which makes it necessary for a positive business case for international rail services to include domestic transport, cabotage and therefore 'roofing tile transport' (overlapping short journeys by different passengers on a single service). The Fourth Railway Package provides for open access to the market and protection for concessions (and other PSOs) to prevent cherry-picking. This combination makes it much more difficult and less attractive for railway undertakings to offer through tickets than it is for the airlines. In the text of the regulation, which is expected to be adopted in 2020, the application of the term 'final destination' has been expanded. Unfortunately, no further definition has been included and it is still not clear whether this refers to the passenger's final destination or the destination on the ticket. The other amendments would seem to suggest that in the spirit of the regulation the final destination is the one that is stated on the ticket.

It is the Council's opinion that when booking a train journey passengers should be informed that their purchase is either a through ticket or consists of a series of separate tickets. In the current version of the recast regulation, train operators are only required to 'make efforts' to offer through tickets. The only obligation is that all tickets issued by a single undertaking must be through tickets. This leaves open the possibility of offering a train journey from Amsterdam to Bordeaux, for example, in the form of several

tickets, even though in the perception of the consumer both the Thalys and TGV high-speed trains belong to SNCF. The upshot is that the rights of passengers without a through ticket are not improved at all. Journeys involving changes between services run by different train operators for which through tickets are unavailable will remain particularly risky for consumers.

Alternatively, the European Commission could choose to withdraw the 'proposal for a recast' and introduce binding agreements for through ticketing to oblige rail operators, like airlines, to make agreements among themselves on taking over each other's passengers in the event of delays and cancellations. This would be in line with the views of the IMCP committee of the European Parliament.

The Council is of the opinion that the Netherlands should continue to press for better passenger rights and advocate for rights that are at least comparable with those enjoyed by air passengers. A provision stating that compensation for delays and cancellation of trains applies not just to the part of the journey that is subject to delay, but to the whole journey should also be included. Operators would then be encouraged to take more account of each other's activities in the event of delays or cancellations (which would be in the interests of the passengers). Guaranteeing passenger rights reduces the need for through services, which in turn may obviate the need for investments in other layers of the mobility system.



Passenger guarantee fund

The current lack of protection for passengers without a through ticket could be resolved by setting up a guarantee fund. Such a fund would offer passengers holding separate tickets for sections of their journey the choice of taking out insurance, at an additional cost, to cover the consequences of missing a connection. The fund would bear the costs incurred by the passenger to reach their final destination. The fund could be set up privately (commercial) or publicly (European) without infringing the Rail Passengers' Rights Regulation. Similar guarantee funds exist for air travel.





6 OVERVIEW OF EU INSTITUTIONS AND BODIES CONCERNED WITH RAIL TRANSPORT

In this chapter the Council gives an overview of the main European bodies involved in the formulation of policy on international rail transport and/or its implementation.

6.1 EU executive and representative bodies

European Commission

The European Commission is the executive body of the EU. It is responsible for drafting and proposing new European legislation and implements the decisions of the European Parliament and of the Council of the European Union.²⁵ The work of the Commission is led by the commissioners, headed by the President of the Commission. The commissioners work on specific policy priorities set by the President of the Commission. The Commissioner

²⁵ See Europa.eu for more detailed information on the EU institutions and bodies.

for Transport heads the Directorate-General for Mobility and Transport (DG MOVE).

The European Council

The European Council is composed of the heads of state or government of the EU Member States and defines the EU's overall political direction and priorities. It is not one of the legislating institutions of the EU and is therefore not involved in negotiating and adopting EU laws.

Council of the European Union

The Council of the European Union is also called the Council of Ministers. The Council consists of one minister from each Member State, depending on the policy area under consideration. The Council of Ministers represents the governments of the Member States and negotiates and adopts legislation. Rail transport is dealt with by the Transport, Telecommunications and Energy Council configuration (TTE), which (depending on the items on the agenda) is composed of the relevant government ministers. The Council is responsible, among other things, for the adoption, together with the European Parliament, of legislation to support and advance a common transport policy, such as common rules for international transport, conditions for transport operators and measures to improve passenger rights and transport safety.

European Parliament

The European Parliament acts as a co-legislator and together with the Council of Ministers has the power to adopt and amend legislative proposals and to decide on the EU budget. Parliament's preparatory work is carried out by its committees, which draw up, amend and adopt legislative proposals and own-initiative reports. The committee that is most involved in policy in the area of international rail is the Transport and Tourism Committee (TRAN) (Europees Parlement, z.d.-b). Members of Parliament specialised in rail transport issues have set up an association called Rail Forum Europe (RFE) (www.rail-forum.eu).

Permanent Representation

The Permanent Representation of the Kingdom of the Netherlands to the European Union (NL PermRep) represents Dutch interests within the EU. The PermRep team consists of representatives from almost all government departments and other public authorities in a single organisation housed in one building in Brussels. NL PermRep negotiates and lobbies on behalf of the Netherlands. Various representatives have policy interests related to international rail transport. One attaché is responsible for rail transport, another is responsible for topics related to the Connecting Europe Facility (CEF), a third attaché focuses specifically on the Trans-European Transport Network (TEN-T) and yet another is responsible for the coordination of topics in the TTE Council (www.permanentevertegenwoordigen.nl).



6.2 EU agencies and other bodies

European Union Agency for Railways (ERA)

The ERA operates independently of the EU institutions, such as the Council of Ministers, the European Parliament and the European Commission. Its task is to promote a harmonised approach to railway safety, to devise a technical and legal framework for removing transport barriers and to improve accessibility and use of railway system information. In addition, the ERA is responsible for introducing the ERTMS and in that capacity is responsible under the Fourth Railway Package for rail vehicle and safety certification across Europe. The Management Board of the ERA is composed of one representative of each Member State and two representatives of the European Commission. There are also six representatives without a right to vote who represent a large number of stakeholders (railway undertakings, infrastructure managers, the railway industry, labour organisations, passengers and freight customers). (www.era.europa.eu).

Shift2Rail

Shift2Rail is a public-private partnership to stimulate research and innovation in rail transport. The European Commission and participating parties hope this initiative will help to bring about an integrated European rail network and encourage rail transport in general. (www.shift2rail.org)

6.3 European industry associations

Representative bodies

The European Union Agency for Railways (ERA) discussed above works with an approved list of representative bodies' (www.era.europa.eu).

The two biggest organisations involved in international rail passenger transport are described briefly below.

- The *Community of European Railway and Infrastructure Companies (CER)* is an important European rail industry association. It represents around 70 members and partners, consisting of railway undertakings, infrastructure managers and lease companies. Together they represent 71% of the length of the European rail network and 92% of rail passenger operations in Europe. The CER represents the interests of its members by influencing the EU policymaking process (www.cer.be).
- The *European Rail Infrastructure Managers (EIM)* association was established in 2002 following the liberalisation of the European railway market. The members manage 53% of the total length of the EU's railway lines and represent 58% of passenger services. They represent the interests of rail infrastructure managers through participation (for example in working groups) in the EU policymaking process (www.eimrail.org).

Non-representative bodies

There are also numerous organisations in Brussels active in international rail transport that do not have a representative function. The ERA works



closely with some of these non-representative bodies, such as the European Standardisation Organisations (ESO), the Organisation for Co-operation between Railways (OSJD) and the Intergovernmental Organisation for International Carriage by Rail (OTIF) (www.era.europa.eu). A few of the relevant parties are briefly described below.

- *RailNetEurope (RNE)* was established in 2004 at the initiative of a number of infrastructure managers and capacity allocation bodies. At the moment RNE has 35 members from 25 countries and 10 associated members (the Rail Freight Corridors; see below). As an umbrella organisation, RNE works mainly by participating in standing working groups and influencing other institutions with a European orientation. The European Commission finances parts of RNE's activities via TEN-T/INEA. RNE is also a member of the PRIME platform (see below) (www.rne.eu).
- The *Rail Freight Corridors (RFCs)* form a group within the RNE structure. In 2005 RNE adopted the corridor management approach to promote international freight transport by rail on the main routes in Europe.²⁶ The RNE has three goals (www.rne.eu):
 1. strengthening the cooperation between infrastructure managers on aspects such as allocating train paths, roll-out of interoperable systems and the development of infrastructure;
 2. finding a balance between freight and passenger transport on the corridors (particularly guaranteeing sufficient capacity for freight transport to ensure punctuality objectives for rail transport are met);
 3. promoting intermodal transport by including terminals in the corridor management process.

- The *Platform of Rail Infrastructure Managers in Europe (PRIME)* was set up by DG MOVE and infrastructure managers from various EU Member States in 2013. Its purpose is to improve cooperation between rail infrastructure managers from countries across Europe, support implementation of European rail policy and develop performance benchmarking for the exchange of best practice (ec.europa.eu). Among its activities are overcoming bottlenecks in cross-border operations, implementing the Single European Railway Area and implementing ERTMS. It is an informal forum, but is intended to be the forerunner of the formal network of rail infrastructure managers proposed in the Fourth Railway Package.
- The *European Passengers' Federation (EPF)* is active in the area of passengers' rights. It is an association of passenger organisations (currently 35). The Belgian passenger organisation *TreinTramBus* is its acting secretariat (www.epf.eu).

²⁶ Corridor management for freight transport is regulated by EU Regulation No. 913/2010.



REFERENCES

- ABDTOPConsult (2017). *Kiezen voor een goed spoor: scenario's voor ordening en sturing op het spoor na 2024*. Den Haag: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties.
- Algemene Rekenkamer (2014). *Hogesnelheidslijn-Zuid: een rapportage in beeld*. Den Haag.
- ALLRAIL (2020). *Legal & other objections to your ministry's intention to provide a directly awarded subsidy of €6.7m for the 2021-2024 period to a collaboration Netherlands Railways (NS) and Austrian Federal Railways (ÖBB)*. Brussel.
- Ammelrooy, P. van (2019). Spoorzoeken met het treinkaartje: waarom zijn internationale treinreizen toch zo duur? *De Volkskrant.nl*, 13 August 2019. Geraadpleegd via <https://www.volkskrant.nl/nieuws-achtergrond/spoorzoeken-met-het-treinkaartje-waarom-zijn-internationale-treinreizen-toch-zo-duur~bae1aad5/>
- Autoriteit Consument & Markt (2019). *Spoormonitor 2018: kansen en keuzes voor bedrijven en consumenten*.
- Berenschot (2020). *Onderzoek ordening HSL-Zuid: rapportage*. Utrecht.
- Bergantino, A.S. (2016). *Open access passenger rail competition: the case of Italy* [powerpoint]. Geraadpleegd via https://static1.squarespace.com/static/5447cf94e4b05eff23a5438e/t/5a6df3ad085229bac5118f0f/1517155248703/bergantino_2016.pdf
- Bhat, C.R. (1998). Analysis of travel mode and departure time choice for urban shopping trips. *Transportation Research Part B: Methodological*, 32 (6), 361-371.

Bogaard, P. van den (2020). *Europese Commissie roept 2021 uit tot Jaar van het Spoor*. Geraadpleegd via <https://www.spoorpro.nl/spoorbouw/2020/03/09/europese-commissie-roept-2021-uit-tot-jaar-van-het-spoor/>

Bondsrepubliek Duitsland, de Franse Republiek, het Groothertogdom Luxemburg, het Koninkrijk der Nederlanden, de Zwitserse Bondsstaat en de Europese Gemeenschap (1999). *Verdrag inzake de bescherming van de Rijn*. Bern.

Centraal Bureau voor de Statistiek (2018). *Groei toerismesector vooral dankzij buitenlandse toeristen*. Geraadpleegd via <https://www.cbs.nl/nl-nl/nieuws/2018/35/groei-toerismesector-vooral-dankzij-buitenlandse-toeristen>

Centraal Planbureau & Planbureau voor de Leefomgeving (2015). *Nederland in 2030 en 2050: twee referentiescenario's. Toekomstverkenning welvaart en leefomgeving*. Den Haag: PBL.

Centraal Planbureau & Planbureau voor de Leefomgeving (2016). *Kansrijk mobiliteitsbeleid*. Den Haag: PBL.

Consumentenbond (2019). Stedentrip: per trein of per vliegtuig? Kiezen tussen prijs, snelheid en milieu. *Consumentengids*, January 2019, p. 16.

Desmaris, C. (2016). *High speed rail competition in Italy: a major railway reform with a "win-win game"?* Parijs: International Transport Forum/OECD.

Donners, B. (2018). *Vergelijk vliegen met treinreizen voor korte afstanden: en hoe we vaker voor de trein kunnen kiezen*. Geraadpleegd via <https://www.natuurenmilieu.nl/wp-content/uploads/2018/05/Rapport-Royal-HaskoningDHV-trein-als-alternatief-voor-vliegen.pdf>

Duursma, M. (2018a). De grote vervuiler: hoe de luchtvaart wil blijven groeien. *NRC.nl*, 14 October 2018. Geraadpleegd via <https://www.nrc.nl/nieuws/2018/10/14/de-grote-vervuiler-hoe-de-luchtvaart-wil-blijven-groeien-a2523110>

Eerste Kamer (2019). *Wijziging van de Spoorwegwet, de Wet personenvervoer 2000 en enige andere wetten in verband met de implementatie van richtlijn (EU) [...], met betrekking tot de openstelling van de markt voor het binnenlands personenvervoer per spoor [...]. Brief van de staatssecretaris van Infrastructuur en Waterstaat aan de Tweede Kamer van 19 augustus 2019*. Vergaderjaar 2018–2019, 23645 (en 34914) A.

ERTMS.net (z.d.). *The European Rail Traffic Management System*. Accessed 15 June 2020 via http://www.ertms.net/?page_id=55

Eurekarail (2020). *Rapportage. Internationale treindienst Amsterdam/ Eindhoven – Aachen/Köln, Samenvatting onderzoek en bestuurlijke overeenstemming*.

Europese Commissie (2002). *Beschikking van de Commissie van 30 mei 2002 betreffende de technische specificatie inzake interoperabiliteit van het subsysteem. Rollend materieel. Van het trans-Europees hogesnelheidsspoorwegsysteem overeenkomstig artikel 6, lid 1, van Richtlijn 96/48/EG van de Raad*. Publicatieblad van de Europese Unie.

Europese Commissie (2011). *Witboek: stappenplan voor een interne Europese vervoersruimte. Werken aan een concurrerend en zuinig vervoerssysteem*. Publications Office of the European Union.

Europese Commissie (2013). *European rail: challenges ahead. The fourth rail package* [memo], 30 January 2013. Brussel.



Europese Commissie (2015). *Mededeling van de Commissie: interpretatieve richtsnoeren betreffende Verordening (EG) nr. 1371/2007 van het Europees Parlement en de Raad betreffende de rechten en verplichtingen van reizigers in het treinverkeer*. Publicatieblad van de Europese Unie.

Europese Commissie (2017). *Voorstel voor een verordening van het Europees Parlement en de Raad betreffende de rechten en verplichtingen van reizigers in het treinverkeer (herschikking)*. Brussel.

Europese Commissie (2018a). *Verslag van de Commissie aan het Europees Parlement en de Raad over de toepassing van Verordening (EU) nr. 913/2010, overeenkomstig artikel 23*. Brussel.

Europese Commissie (2018b). *EU-begroting: Regionale ontwikkeling en cohesiebeleid na 2020* [persbericht]. Straatsburg. Geraadpleegd via https://ec.europa.eu/commission/presscorner/detail/nl/IP_18_3885

Europese Commissie (2019). *De Europese Green Deal: mededeling van de Commissie aan het Europees Parlement, de Europese raad, de Raad, het Europees economisch en sociaal comité en het comité van de regio's*. Brussel.

Europese Commissie (2020a). *Promoting Sustainable Mobility: commission proposes 2021 to be the European year of rail* [persbericht]. 4 March 2020. Geraadpleegd via https://ec.europa.eu/commission/presscorner/detail/en/ip_20_364

Europese Commissie (2020b). Total length of railway lines [dataset]. Accessed 6 March 2020 via Eurostat databrowser <https://ec.europa.eu/eurostat/databrowser/view/ttr00003/default/table?lang=en>

Europese Commissie (2020c). *Proposal for a Regulation of the European Parliament and of the Council on rail passengers' rights and obligations:*

outcome of proceedings. Geraadpleegd via <https://data.consilium.europa.eu/doc/document/ST-5176-2020-INIT/en/pdf>

Europese Commissie (z.d.-a). *Het nieuwe cohesiebeleid*. Accessed 14 May 2020 via https://ec.europa.eu/regional_policy/nl/2021_2027/

Europese Commissie (z.d.-b). *Trans-European Transport Network (TEN-T)*. Geraadpleegd via https://ec.europa.eu/transport/themes/infrastructure/ten-t_en

Europees Parlement (2009a). *Parlementaire vragen. Betreft: toegang tot informatie en ticketverkoop in het Europese treinverkeer* [juridische mededeling]. Geraadpleegd via <https://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+WQ+E-2009-1389+0+DOC+XML+V0//NL>

Europees Parlement (2009b). *Parliamentary questions: answer given by Mr Tajani on behalf of the Commission*. Geraadpleegd via <https://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2009-1389&language=NL>

Europees Parlement (z.d.-a). *Spoorwegvervoer*. Accessed 6 May 2020 via <https://www.europarl.europa.eu/factsheets/nl/sheet/130/spoorwegvervoer>

Europees Parlement (z.d.-b). *Over de commissies: welkomstwoord*. Geraadpleegd via <https://www.europarl.europa.eu/committees/nl/tran/about>

Europees Parlement & de Raad van de Europese Unie (2007). *Verordening (EG) Nr. 1371/2007 van 23 oktober 2007 betreffende de rechten en verplichtingen van reizigers in het treinverkeer*. Publicatieblad van de Europese Unie.



- Europees Parlement & de Raad van de Europese Unie (2010). *Verordening (EU) nr. 913/2010 van 22 september 2010 inzake het Europese spoorwegnet voor concurrerend goederenvervoer*. Publicatieblad van de Europese Unie.
- Europees Parlement & de Raad van de Europese Unie (2012). *Richtlijn 2012/34/EU van 21 november 2012 tot instelling van één Europese spoorwegruimte (herschikking)*. Publicatieblad van de Europese Unie.
- Europese Rekenkamer (2018). *Een Europees hogesnelheidsnet: geen realiteit, maar een ondoeltreffende lappendeken*. Luxemburg.
- Europese Unie (2012). *Verdrag betreffende de werking van de Europese Unie (geconsolideerde versie)*. Richtlijn 96/48/EG. Publicatieblad van de Europese Unie.
- Eurostar (2004). *Eurostar achieves record market share (Press release)*. Eurostar. 14 September 2004. Geraadpleegd via https://web.archive.org/web/20090808084210/http://www.eurostar.com/UK/uk/leisure/about_eurostar/press_release/press_archive_2004/14_09_04.jsp
- Eurostar (z.d.). *Is mijn Eurostar-ticket ook geldig in de Brusselse metro en de Londense tube?* Geraadpleegd via <https://help.eurostar.com/faq/nl-nl/vraag/ls-mijn-Eurostar-ticket-ook-geldig-in-de-Brusselse-metro-en-de-Londense-tube>
- Faber, J. & Velzen, A. van (2018). *Beoordeling slim én duurzaam: actieplan luchtvaart Nederland: 35% minder CO₂ in 2030*. Delft: CE Delft.
- Gompel, M. van (2018). *Rapport: hogesnelheidsspoor Europa onder de maat*. Accessed via <https://www.spoorpro.nl/spoorbouw/2018/06/26/rapport-hogesnelheidsspoor-europa-onder-de-maat/>
- Gompel, M. van (2019). *'Government subsidies for night trains are counterproductive'*. Accessed 6 May 2019 via <https://www.railtech.com/policy/2019/07/22/government-subsidies-for-night-trains-are-counterproductive/?gdpr=accept>
- Hagen, M. van & De Bruyn, M. (2015). *Emoties tijdens een treinreis gekwantificeerd*. Antwerpen.
- Huibregtse, O., Moorman, S. & Savelberg, F. (2019). *Op reis met vliegtuig, trein, auto of bus: een vergelijking van de infrastructuurkosten voor de overheid en de externe kosten*. Den Haag: Kennisinstituut voor Mobiliteitsbeleid.
- Internationale Commissie ter Bescherming van de Rijn (z.d.). *Waarom samenwerken?* Accessed 6 May 2020 via <https://www.iksr.org/nl/icbr/over-ons/geschiedenis/waarom-samenwerken>
- Kennisinstituut voor Mobiliteitsbeleid (2015). *Bereikbaarheid en concurrentiekracht: twee kanten van dezelfde medaille*. Den Haag.
- KLM (2019a). *KLM wil samenwerken aan verduurzaming van de luchtvaart*. Accessed 26 July 2019 via <https://nieuws.klm.com/klm-wil-samenwerken-aan-verduurzaming-van-de-luchtvaart/>
- KLM (2019b). *Reizen per bus of trein met een KLM-ticket*. Accessed 26 July 2019 via https://www.klm.com/travel/nl_nl/plan_and_book/ticket_information/travel_by_train_or_bus_on_a_klm_ticket/index.htm
- Kröger, S. (2019). *Luchtvaart op de rails: initiatiefnota*. Den Haag: Groen-Links.
- McWhirter, A. (2019). *Flixtrein wants to compete with SNCF*. *Business Traveler*, 20 June 2019. Geraadpleegd via <https://www.businesstraveller.com/business-travel/2019/06/20/flixtrein-wants-to-compete-with-sncf/>



Milieu Centraal (z.d.). *Vliegen of ander vakantievervoer?* Accessed 6 May 2020 via <https://www.milieucentraal.nl/duurzaam-vervoer/vliegen-of-ander-vakantievervoer/>

Ministerie van Infrastructuur en Milieu (2014). *Concessie voor het hoofdrailnet 2015-2025*. Den Haag.

Ministerie van Infrastructuur en Waterstaat (2019). *Contouren toekomstbeeld ov 2040*. Den Haag.

Ministerie van Infrastructuur en Waterstaat (2020a). *EC evaluation rail freight corridors Regulation (EU) 913/2010*. Den Haag.

Ministerie van Infrastructuur en Waterstaat (2020b). *Position paper international rail passenger transport*. The Hague.

Nash, C., Smith, A., Crozet, Y., Link, H. & Nilsson, J.E. (2019). How to liberalise rail passenger services? Lessons from European experience. *Transport Policy*, 79. July 2019. 11-20.

Nederland, Oostenrijk, België, Bulgarije, Tsjechië, Denemarken, Finland, Frankrijk, Duitsland, Griekenland, Hongarije, Ierland, Italië, Litouwen, Letland, Luxemburg, Noorwegen, Polen, Portugal, Roemenië, Spanje, Zweden, Slowakije, Slovenië & Switzerland (2020). *International rail passengers platform: Political statement for coalition of the willing development international rail passenger transport*. Brussel. Geraadpleegd via <https://www.permanentrepresentations.nl/permanent-representations/pr-eu-brussels/documents/publications/2020/06/04/political-statement-for-coalition-of-the-willing-development-international-rail-passenger-transport>

NS International (z.d.-a). *Trein naar Engeland*. Geraadpleegd via <https://www.nsinternational.nl/nl/onze-bestemmingen/trein-engeland>

NS International (z.d.-b). *Ik heb al een ticket maar wil ook nog een zitplaats boeken. Kan dat?* Geraadpleegd via https://support.nsinternational.nl/app/answers/detail/a_id/9267/~/ik-heb-al-een-ticket-maar-wil-ook-nog-een-zitplaats-boeken.-kan-dat%3F

NS International (z.d.-c). *NS-abonnement en internationaal reizen*. Geraadpleegd via <https://www.nsinternational.nl/nl/tickets/ns-abonnement-en-internationaal-reizen>

NS.nl (2020). *Hogesnelheidslijn*. Accessed 12 March 2020 via <https://www.ns.nl/over-ns/dossier/hogesnelheidslijn>

NS.nl (z.d.). *Reizigersvervoer*. Geraadpleegd via <https://www.ns.nl/over-ns/activiteiten/reizigersvervoer.html>

Ortúzar, J. D. D., & Willumsen, L.G. (2011). *Modelling Transport: 4th ed.* Sussex/UK: John Wiley & Sons.

Otten, M.B.J, Hoen, M.J.J. 't & Boer, L.C. den (2015). *STREAM personenvervoer 2014: studie naar transportemissies van alle modaliteiten emissiekentallen 2011*. Delft: CE Delft.

Peeperkorn, M. (2020). Groot geld voor het groene normaal, maar hoe gaat dat eruit zien? Analyse conceptplan Europese Commissie. *De Volkskrant*, 1 May 2020. Geraadpleegd via <https://www.volkskrant.nl/nieuws-achtergrond/groot-geld-voor-het-groene-normaal-maar-hoe-gaat-dat-eruit-zien~bb0b0dc7/>

Peeters, P. & Melkert, J. (2018). *Parlement en Wetenschap: factsheet toekomst verduurzaming luchtvaart*. Den Haag: Tweede Kamer der Staten-Generaal.

Raad van Ministers (2016). *Ministerial declaration: rail freight corridors to boost international rail freight. TEN-T days 2016*. Rotterdam.



- Raad voor de leefomgeving en infrastructuur (2017). *Dichterbij en sneller: kansen voor betere bereikbaarheid in stedelijke regio's*. Den Haag.
- Raad voor de leefomgeving en infrastructuur (2018). *Van B naar Anders: investeren in mobiliteit voor de toekomst*. Den Haag.
- Raad voor de leefomgeving en infrastructuur (2019). *Luchtvaartbeleid: een nieuwe aanvliegroute*. Den Haag.
- RailGood (2019). *Verlaging Nederlandse gebruiksvergoeding voor spoorgoederenvervoer onder de politieke voorwaarde dat de sector investeert in efficiënte havenlogistiek en beperking van omgevingseffecten*. Accessed 25 July 2019 via <http://railgood.nl/news.php?id=4&n=346>
- RailNetEurope (z.d.). Rail freight corridors general information. Accessed 17 April 2020 via <http://rne.eu/rail-freight-corridors/>
- Rijksoverheid.nl (z.d.). *Plannen invoering nationale vliegbelasting*. Geraadpleegd via <https://www.rijksoverheid.nl/onderwerpen/milieubelastingen/vliegbelasting>
- Román, C., Espino, R., & Martín, J.C. (2010). Analyzing competition between the high speed train and alternative modes: the case of the Madrid-Zaragoza-Barcelona corridor. *Journal of Choice Modelling*, 3(1), 84–108.
- Savelberg, F. (2019). *Slapend onderweg: potentieel van de internationale nachttrein van en naar Nederland*. Den Haag: Kennisinstituut voor Mobiliteitsbeleid.
- Savelberg, F. & Kansen, M. (2019). *De bus over de grens: Grensoverschrijdende busverbindingen in Nederland*. Den Haag: Kennisinstituut voor Mobiliteitsbeleid.
- Savelberg, F. & Lange, M. de (2018). *Substitutiemogelijkheden van luchtvaart naar spoor*. Den Haag: Kennisinstituut voor Mobiliteitsbeleid.
- Schiphol Group, KLM, NLR, Rotterdam The Hague Airport, EindhovenAirport, [...] Dutch Aviation Group (2018). *Slim én duurzaam: actieplan luchtvaart Nederland: 35% minder CO₂ in 2030*. Accessed 6 May 2020 via <http://www.dutchaviation.nl/downloads/actieplan039slimenduurzaam039.pdf>
- Schonis, R. (2019). *2040: met de trein door Europa*. Den Haag: D66.
- Snellen, D., Nabielek, K., Hilbers, H. & Hamers, D. (2014). *Bereikbaarheid verbeeld: 14 infographics over mobiliteit, Infrastructuur en de stad*. Den Haag: Planbureau voor de Leefomgeving.
- Teffer, P. (2019). EU may extend 'passenger name records' to rail and sea. Geraadpleegd via <https://euobserver.com/justice/145602>
- Thalys (2018). *Kan ik vervoersbewijzen voor het openbaar vervoer kopen aan boord van Thalys?* Geraadpleegd via <https://www.thalys.com/nl/nl/hulp/kan-ik-vervoersbewijzen-voor-het-openbaar-vervoer-kopen-aan-boord-van-thalys>
- Thalys (2019). *Thalys breekt records in 2018: meer reizigers, meer omzet. Resultaten 2018* [persbericht]. Geraadpleegd via <https://www.thalys.com/sites/thalys.com/files/2019-04/NL-NL%20resultaten%202018.pdf>
- Ton, Y. (2018). Veel zorgen bij Kamer over invoering ERTMS. Geraadpleegd via <https://www.spoorpro.nl/spoorbouw/2018/12/05/veel-zorgen-bij-kamer-over-invoering-ertms/>
- Treinreiziger.nl (2018). *Kosten vliegtuig onderschat, trein regelmatig goedkoper*. Accessed 6 May 2020 via <https://www.treinreiziger.nl/kosten-vliegtuig-onderschat-trein-regelmatig-goedkoper/>



- Tweede Kamer (2018a). *Memorie van toelichting. Wijziging van de Spoorwegwet, de Wet personenvervoer 2000 en enige andere wetten met betrekking tot de openstelling van de markt voor het binnenlands personenvervoer per spoor (PbEU2016, L 354/22)*. Vergaderjaar 2017-2018, 34914, nr. 3.
- Tweede Kamer (2018b). *Spoor: vervoer- en beheerplan. Internationaal reizigersvervoer per spoor mede in relatie tot luchtvaart. Brief van de staatssecretaris van Infrastructuur en Waterstaat aan de Tweede Kamer van 21 juni 2018*. Vergaderjaar 2017-2018, 29 984, nr. 783.
- Tweede Kamer (2019a). *Internationale spoorkaart reizigers*. Vergaderjaar 2018-2019, 29984, nr. 854, blg-893800.
- Tweede Kamer (2019b). *Spoor: vervoer- en beheerplan. Ontwikkelingen internationaal personenvervoer per spoor. Brief van de staatssecretaris van Infrastructuur en Waterstaat aan de Tweede Kamer van 31 januari 2019*. Vergaderjaar 2018-2019, 29 984, nr. 813.
- Tweede Kamer (2019c). *Internationale nachttrein per dienstregeling 2021. Spoor: vervoer- en beheerplan. Brief van de staatssecretaris van Infrastructuur en Waterstaat aan de Tweede Kamer van 10 oktober 2019*. Vergaderjaar 2019-2020, 29984, nr. 868.
- UBS Investment Bank (2020). *"By train or by plane?" Traveller's dilemma after COVID-19, amid climate change concerns*. Accessed 15 May 2020 via <https://www.ubs.com/global/en/investment-bank/in-focus/2020/by-train-or-by-plane.html>
- Tweede Kamer (2020a). *Position Paper internationaal personenvervoer per spoor. Spoor: vervoer- en beheerplan. Brief van de minister van Verkeer en Waterstaat aan de Tweede Kamer van 18 februari 2020*. Vergaderjaar 2019-2020, 29984/35377, nr. 887.
- Tweede Kamer (2020b). *Verantwoord vliegen naar 2050: ontwerp-luchtvaartnota 2020-2050*. Den Haag.
- Tweede Kamer (2020c). *Hoofdlijnen integrale besluit marktordering op het spoor na 2024. Brief van de staatssecretaris van Infrastructuur en Waterstaat aan de Tweede Kamer van 11 juni 2020*. Vergaderjaar 2019-2020, 34914, nr. G.
- Verenigde Naties (2015). *Paris agreement*. Parijs.
- Verlaan, J. (2019). NS: grote problemen dreigen op spoor en stations. *NRC.nl*, 16 August 2019. Geraadpleegd via <https://www.nrc.nl/nieuws/2019/08/16/ns-grote-problemen-dreigen-op-spoor-en-stations-a3970274>
- Vries, J. de, Harbers, A. & Verwest, F. (2007). *Grensoverschrijdende projecten in Nederland en Vlaanderen: leren van HSL-Zuid, Schelde en IJzeren Rijn*. Rotterdam: NAI Uitgevers.



APPENDICES

LETTER TO THE EUROPEAN COMMISSION



IMPROVING INTERNATIONAL PASSENGER RAIL

Ms Adina Vălean
Commissioner of Transport of the European Commission
Rue de la Loi / Wetstraat 200
1049 BRUSSELS
Belgium

Date: 1 July 2020 **Appendices:** 1
Reference: RLI-2020/1542
Cc: Frans Timmermans, Executive Vice President of the European Commission
Karima Delli, Chair of the Committee on Transport and Tourism of the European Parliament
Michael Clauss, Permanent Representative of the Federal Republic of Germany to the European Union
Subject: **Improving International Passenger Rail in Europe**

Dear Commissioner Vălean,

Sustainable mobility is one of the main objectives of the European Green Deal. Your proposal to make 2021 the European Year of Rail emphasises the importance of rail transport in delivering this deal. Through the four railway packages, each consisting of a technical and a market pillar, Europe aims to revitalise the rail sector by realising a Single European Railway Area. We¹ – European advisory councils in the field of environment and sustainability – note that the intermodal competitiveness of international passenger rail services has nevertheless remained limited. In this letter, we stress that Europe can and must do more to improve international passenger transport by rail.

This letter is the outcome of an extensive analysis and consultation with international experts from various sections of the international rail sector², based on the following observations:

- The importance of efficient international rail transport cannot be underestimated.
- The share of rail in international passenger transport is very limited.
- There are persistent bottlenecks that are not being adequately addressed.

In essence, our recommendations in this letter urge the European Commission to:

- give a major boost to stimulate European passenger transport by rail, in particular by:
- instituting European corridor authorities for passenger transport by rail;
- improving regulations on travel information, ticketing and passenger rights.

Importance of international rail services

Air and road traffic volumes in Europe leave no doubt that there is huge demand for transport between the European metropolitan areas. International trains, as a safe and environmentally friendly mode of transport, should serve a larger share of this demand. Rail is a green and safe mode of transport and contributes towards achieving the EU's environmental goals. International rail passenger services play a crucial role in the transition towards a sustainable transport system by replacing short-haul flights and medium-distance car journeys on a wide number of origin-

¹ The undersigned parties are members of the EEAC, a network that brings together advisory bodies on climate change, the environment and sustainable development from 13 European countries and regions.

² Such as: ERA, EIM, CER, RailNetEurope, NS International, ÖBB, EPF, Thalys, Eurostar, Railforum, Schiphol Group, Flixtrain, Rover, ProRail, Transdev, Omio, Lynxx, Trainline, TU Delft, Erasmus University and UGent.

IMPROVING INTERNATIONAL PASSENGER RAIL

destinations pairs. This significantly reduces the negative impact of transportation on society. Moreover, better international train services will enhance the economic competitiveness of urban agglomerations and stimulate sustainable tourism. And, in your own words: 'Setting up a coherent and functional network across all Europe is an exercise in political cohesion.'³ Additionally, as a low-carbon transport mode, international trains contribute towards meeting the Paris climate targets (2015) and the objectives of the European Commission's Green Deal (2019).

The current COVID-19 pandemic is having a dramatic impact on international travel, with travellers dissuaded from using public transport because of the fear of crowding. The transport sector will need support from national governments and the EU to prevent a further collapse and future decline. This support can be used as an incentive for a post-pandemic shift to a more sustainable and efficient mobility system by stipulating that government aid be linked to support for the Commission's Green Deal targets, notably Europe's aim to become the world's first climate-neutral continent by 2050.⁴ This implies that now is the time to support a shift from air to rail, specifically for short-haul flights. We call upon European governments and EU institutions to utilise the framework of a strengthened European Green Deal as the pathway out of the COVID-19 crisis and its aftermath. Policy coherence between the Green Deal and other EU Policies is of the essence.⁵

We are aware of and support the ongoing efforts by the European Commission to facilitate international passenger services: the 2011 White Paper *Roadmap to a Single European Transport Area* provides a vision for a competitive and resource efficient transport system. The four subsequent railway packages, with a market pillar to ensure open access and a technical pillar on harmonisation and the Technical Specifications for Interoperability, and the implementation of ERTMS⁶ have fundamentally changed the way the rail sector works. The development of the core TEN-T network by 2030 and a comprehensive network in 2050 are enticing prospects for the future of European rail. EU funding instruments such as the Connecting Europe Facility (CEF) and Cohesion funding for investments in cross-border railway infrastructure are improving connections. The Shift2Rail EU innovation programme 2014–2020 stimulates the integration of new and advanced technologies into innovative rail product solutions, and the current recasting of the Regulation on rail passengers' rights and obligations focuses on improving the experience of travelling by train for international passengers. Nevertheless, Europe can and should do more to improve international rail passenger services.

The rail share of international passenger transport is very limited

Our analysis starts from the interests and needs of the international rail traveller. We are aware of the necessity to improve the European rail infrastructure. Nevertheless, the EU already has a widespread rail network available to the international traveller: about 200 000 km in the EU,⁷ of which almost 11 000 km are high-speed rail lines. So what is needed to get international travellers to choose the train? Travellers need to know what train connections there are, they should be able to buy international tickets without much difficulty and have access to frequent and comfortable train services, preferably without having to make many transfers. Although European rail passenger traffic is mostly domestic, with only 6% (of passenger-kilometres) crossing borders in 2016,⁸ the

³ European Commission (2020). Promoting Sustainable Mobility: Commission proposes 2021 to be the European Year of Rail. Press release 4 March 2020. Brussels.

⁴ UBS Investment Bank (2020). "By train or by plane?" Traveller's dilemma after COVID-19, amid climate change concerns. Consulted via <https://www.ubs.com/global/en/investment-bank/in-focus/2020/by-train-or-by-plane.html>.

⁵ European Network of Advisory Councils on Climate Change, the Environment and Sustainable Development (EEAC) (2020). Responding to Covid19: Building social, economic and environmental resilience with the European Green Deal. The Hague.

⁶ European Rail Traffic Management System.

⁷ European Commission (2020). Total length of railway lines. Consulted via Eurostat databrowser <https://ec.europa.eu/eurostat/databrowser/view/tr00003/default/table?lang=en>.

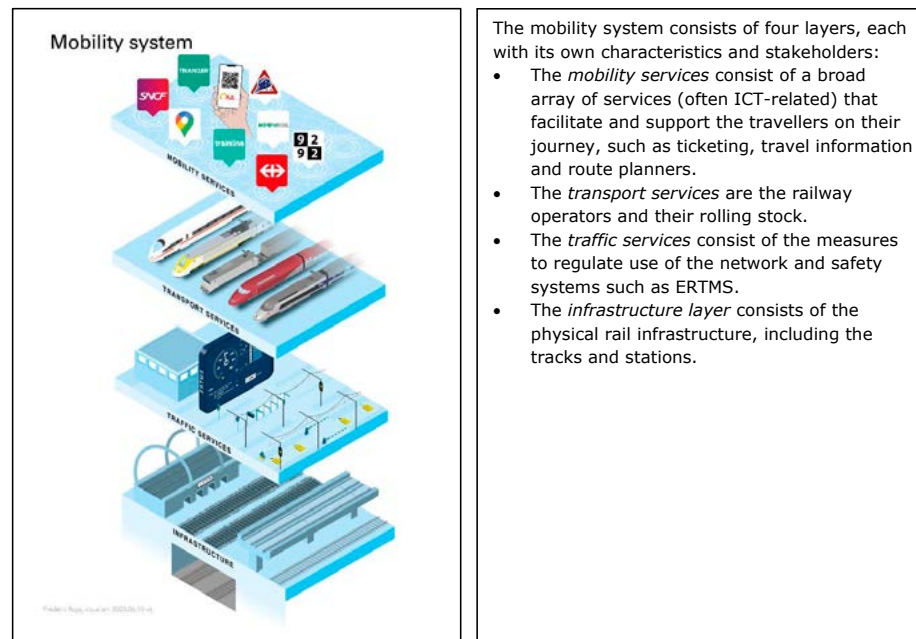
⁸ European Commission (2019). *Sixth report on monitoring development of the rail market pursuant to Article 15(4) of Directive 2012/34/EU of the European Parliament and of the Council*. Brussels.

absolute number of passengers is significant and there is much to be gained from a better use of the existing infrastructure, including the further development of night train services.

On some cross-border city pairs, such as London–Paris and Amsterdam–London, international rail services have improved and connections – albeit still at low frequencies – are now competitive with short-haul flights. But for many other destinations, international passenger transport by rail in Europe is still underdeveloped and ripe for improvement on many fronts. The four railway packages have not yet brought about the development of a well-functioning international market and, despite the best efforts of the EU, the share of rail in the transport market has actually fallen.⁹ The international rail traveller still has to contend with poor travel information, complicated booking procedures, mediocre comfort levels, unreliable timetables, low frequency services and low speeds on many services.¹⁰

Persistent bottlenecks

In our analysis of bottlenecks for the traveller, we looked at the mobility services, the transport services, the traffic services and the infrastructure (see Figure).¹¹



At the moment, the international rail network consists primarily of interlinked national systems which are optimised to meet domestic needs. The lack of integrated traffic and capacity management is detrimental to traffic predictability and an efficient use of this network. We note that this pushes the needs of the international traveller to the periphery. Travellers want a single service point and a single ticket for their international train journey and are not interested in the changes

⁹ European Environment Agency (2009). Modal split of passenger transport in EU 27, 1990-2030 [Chart]. Last modified 2012. Consulted via <https://www.eea.europa.eu/data-and-maps/figures/fig-2-modal-split-of-passenger-transport-in-eu-27-1990-2030>.

¹⁰ See also: European Court of Auditors (2018). A European high-speed rail network: not a reality but an ineffective patchwork. Luxembourg.

¹¹ Council for the Environment and Infrastructure (2018). Better and different mobility: investing in mobility for the future. The Hague.

that have to be made to provide this service. What is needed is good cooperation between parties responsible for the mobility, transport and traffic services and for the infrastructure. However, there are many bottlenecks – both within and between elements of the mobility system – that prevent an adequate response to meeting the needs of the international traveller. We conclude that the lack of international cooperation persists because public authorities, rail carriers and infrastructure managers are primarily held to account for their performance in providing domestic services and to a lesser degree for international services. What is needed is a European mindset for rail passenger services, based on a supportive regulatory framework, and the right incentives to operators for offering cross-border passenger rail services.

Moreover, we observe that all parties concerned are strongly focused on technical and infrastructure bottlenecks, the bottom two layers of the mobility system. To a degree, the implementation of European policy is no exception to this, given the focus on infrastructure in the CEF, for example, and the technological focus of the Shift2Rail initiative. Judging by the many identified bottlenecks resulting from technical and infrastructural issues, improvements in these areas will certainly be part of the solution. However, the attention being given to these aspects appears to be inhibiting improvements to the top two layers of the mobility system which will benefit international travellers in the short term. Moreover, changing the infrastructure is a very costly business and the decision-making involved is time-consuming. We do not underestimate the importance of these investments, but point out that important improvements can also be made elsewhere in the mobility system which could already have an effect in the short term. The availability of better travel information and a simple ticketing process will lead to an increase in the number of international rail passengers. This increased demand will in turn stimulate the development of new international rail services, leading to an increasing need for a better capacity management. This growth will also highlight the capacity bottlenecks in the infrastructure for international services and the obvious need to resolve these problems will then figure more prominently in the priorities of decision-makers.

Recommendations to the European Commission

In the light of the European ambitions for international rail transport (Fourth Railway Package), the Paris climate agreement and the European Green Deal, we stress the need for a major boost to stimulate international passenger rail, consisting of two specific recommendations, one on the need for better corridor coordination and the second on travel information, ticketing and passengers’ rights. These recommendations are also relevant for the many national, supranational and industry parties involved in international passenger transport by rail.

1. A major boost to stimulate European passenger transport by rail

We believe the European Commission and EU Member States should give a major boost to the further development of a European rail transport network for international travellers, putting the preferences and needs of the international rail passenger first. It is important to note that when travellers decide which mode of transport to use, they do not just look at price and speed, but also consider service, comfort, availability of direct services and the uncertainties surrounding changing trains en route.

So far the European approach has leaned heavily on stimulating market mechanisms and harmonising regulations, information and technology, and technical standardisation. There is still room for improvement because major bottlenecks remain that are caused by poor coordination between countries and between rail parties. The major boost that is needed implies an increase in political attention, speeding up policy effort from DG-Move and stimulating the international working groups and actors concerned with international passenger rail. The European Commission must therefore give priority to further improvement of international passenger transport by rail. Better

coordination across the European rail network can bring about a huge improvement, but the network itself must also be made better connected and faster. As set out below, much can be achieved in the short term by improving corridor coordination in terms of traffic management and capacity management, by providing adequate travel information and simple ticketing, and by improving passenger rights.

2. European corridor authority for passenger transport by rail

We see the need for a better institutional framework, in particular good international coordination on the main rail links between the major urban agglomerations in Europe. We are in favour of an EU regulation establishing a European 'rail traffic control and capacity management' governance structure for the rail network as better network coordination is essential for improving rail connectivity between the European agglomerations. This pan-European initiative could start with international coordination along the separate core corridors for passenger transport within Europe: Rail Passenger Corridors.

Establish corridor authorities

We recommend that the European Commission ensures that agreements are made on improving international rail services in the most important core corridors between the major urban agglomerations taking national interests into account. The focus should be on cross-border city pairs that now lean heavily on short-haul flights but can be connected within three or four hours by international rail. Parties to these agreements should be the relevant public authorities (EU, national government, regions and cities), the infrastructure managers in the Member States and the railway undertakings). This will allow concrete decisions to be made and create institutional space for considering the interests of the international traveller.

The EU already has regulations on TEN-T and rail freight corridors (RFCs). These regulations are primarily directed towards rail freight traffic. There is no regulation for passenger corridors similar to the RFCs. For dedicated tracks this needs to be addressed with a regulation for passenger corridors. For tracks with mixed use the existing imbalance (coordination of freight only and not passenger transport) needs to be corrected. A suitable regulation is needed to transform the RFCs into an integrated coordination body. The governance of both types of corridors (dedicated and mixed) should consist of two tiers: a board of directors consisting of representatives from the Member States and the EU, and a management board consisting of infrastructure managers and allocation bodies.

Corridor coordination is aimed at two elements of the rail system: traffic control and capacity management:

1. European rail traffic control

We see a need for supervision and monitoring of international rail traffic. In order to realise this, infrastructure managers and allocation bodies need a structured and standardised way of coordinating traffic across borders. A European traffic control system must instruct national traffic management centres to work together in a defined standard approach for a smooth transfer of international trains from one part of the network to the other. Traffic control procedures are needed for a smooth handling of adjustments or disruptions to the timetable.

2. Capacity management

As stated, we see a pressing need for better coordination between countries, regions and cities along corridors. Not just between public authorities, but especially between carriers, infrastructure managers and other rail parties. A corridor authority coordinates consultation and planning between all the parties to ensure, among other things, better connections between train paths and services. The corridor authority, as the transport authority within a corridor, must have the ability to make it

clear to all stakeholders what level of service is required – in concrete terms, the rolling stock to be deployed, the frequency of services and the desired operating speed – and to ensure that international connectivity is guaranteed during disruptions to the network. As a market instrument, the corridor authority must be able to stimulate high level and competitive services to clients and users of the tracks, for instance by putting cross-border public service obligations (PSOs) out to tender. As a policy and governance instrument, the corridor authority should be able to harmonise national practices across a broad range of topics, but also tackle the various obstacles to international freight and/or passenger transport by rail, such as cross-border difficulties and problems with interoperability. The corridor authority must be able to hold the parties concerned to account. We therefore recommend that the EU is represented on the board of directors of the corridors. In the event of conflicts between countries, infrastructure managers and/or carriers, the European delegate must be able to break the deadlock. We feel that this arrangement will ensure that the interests of international passengers are given full consideration in the decision-making process.

Long-term objective

Based on the lessons learned from corridor coordination between city pairs (for passengers) and harbours (for freight), pan-European rail traffic and capacity management should be allocated to a European agency. In synergy with the existing tasks of the European Union Agency for Railways (ERA), the responsibility for pan-European rail traffic and capacity management for the international network should therefore be allocated to this agency, which implies an extension to the mandate of the ERA. The ERA must be able to conclude new supranational PSOs for important services, with key performance indicators geared to the efficient use of the available capacity. The European rail traffic and capacity manager will also seek to increase the operating speed of the services by resolving technical problems and removing bottlenecks in the infrastructure. For particularly difficult bottlenecks, appropriate EU financing will be needed, for example from the CEF fund, under the condition that this demonstrably leads to faster train services on international routes. This should also include the implementation and management of a harmonised EU model for track access charging, including collecting and disbursing funds for an improved EU-wide railway infrastructure.

Criteria for corridor quality

In its regulation, the European Commission should set down criteria for defining passenger corridors, such as:

- international connectivity: services between major urban agglomerations (e.g. > 500 000 residents;
- easy to reach: stations near the city centre;
- transport value: a minimum service level to be maintained on each section of the corridor, based on the potential ridership for both daytime connections and night trains;
- substitution potential of road and air: possibilities for opening stations at international airports;
- network function: connections at different system levels, national and regional.

Criteria should also be set for service level per corridor:

- average speed: rapid international services;
- frequency: number of services per day or per hour that must be offered on each section of the corridor;¹²
- comfort and facilities: for instance, the quality of the rolling stock on the corridor.

¹² In concrete terms, this involves setting a minimum level of service for international journeys, such as the number of changes and time spent waiting for connections. It also includes providing sufficient day return services with departure and arrival times that suit international travellers rather than domestic users. This would connect the existing European networks in a convenient way for passengers. Day return services are needed for international business travellers who want to arrive in the morning in time for a meeting and be back home again in the evening.

3. EU Regulations on travel information, ticketing and passenger rights

As stated, the quality of international travel information and ticketing is below par. There is urgent need for a better EU regulation on travel information and ticketing. The ongoing revision of the EU Regulation on rail passengers' rights and obligations presents an opportunity to improve the rights of international rail passengers.

Ticketing: make it easier to find and book international train journeys

International rail passengers want an easy-to-use booking process, which shows all the carriers (incumbents and non-incumbents) that operate services on a route in a single, clear and comprehensive format. Because passengers do not travel from station to station, but from door to door, they want integrated travel advice and ticketing. The development of Mobility as a Service (MaaS) will help to fill this gap in the future. Various apps are already under development that will provide integrated travel information and ticketing services. However, and notwithstanding existing EU regulations,¹³ app developers still face the problem of inadequate access to travel information, passenger data and ticket sales because carriers are not making these available. Carriers must therefore make these data publicly available as soon as possible. A new EU regulation should be considered that makes the provision of travel and passenger information a requirement and standard condition for carriers to obtain access to the rail infrastructure. Examples of easy to realise improvements to the quality of the service are advanced route planning, real-time traffic information, mobile applications and related push notifications.

Ticket availability: tickets must be available to buy at least nine months before the date of travel

Train tickets are usually only available three months in advance. This does not match the booking behaviour of many international travellers. The EU regulation should require international train tickets to be available for purchase earlier than the current three months in advance. We consider a period of nine months to be feasible.

Booking: agreements on international ticketing

There are at this time big differences between the booking systems of national carriers, which is a hindrance to making agreements on international ticketing. The European Commission should make provisions, in a regulation, to ensure that tickets can be booked across these systems in a way that is convenient for the traveller. Service providers and ticket agents will then be able to sell through tickets that are valid from the point of departure to the final destination. The regulation must also contain a provision that when tendering and awarding PSOs, countries must oblige carriers to share data and permit third parties to sell tickets. The many years of negotiations between carriers with only limited results on this point suggests that a uniform commission percentage fixed by the European Commission is now essential.

Passengers' rights: improve the rights of passengers, such as compensation and inclusion in the EU Regulation on rail passengers' rights and obligations

Like airlines, rail carriers should make mutual agreements on taking over each other's passengers in the event of delays or cancellations (through ticketing). The European Commission should aim at making binding agreements on this in the recast Regulation on rail passengers' rights and obligations, which is currently under revision. Public authorities should also be obliged to make agreements on through ticketing when awarding PSOs. It is not up to the passengers, but the carriers to work out how to deal with the costs incurred as a result of missed connections. This can

¹³ One of these is the EU Regulation 454/2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services' of the transEuropean rail system (TAP TSI). The aim is to establish procedures and interfaces between all types of actors to provide information and issue tickets to passengers via widely available technologies. Another relevant regulation is Commission Delegated Regulation 2017/1926 on multimodal travel information systems that aims to gather (static and dynamic) travel information and booking data in central national data hubs in order to facilitate access to these data. This regulation contains an obligation to provide static data and leaves the decision on dynamic data to the Member States.

be addressed in the current revision of the regulation by including a provision that compensation for delays or cancellation of trains applies not just to the part of the journey that is subject to delay, but to the entire journey by train. This will encourage carriers to be more aware of each other's interests in the event of delays or cancellations (and thus also the interests of the passengers). Guaranteeing passengers' rights reduces the need for through services, which may obviate the need for investments in other layers of the mobility system.

In conclusion

The undersigned place considerable value on your efforts on this topic. We think that improving international passenger transport by rail will make a considerable contribution towards European objectives. If you so wish, we will gladly discuss with you the points set out above in more detail.

Yours sincerely,

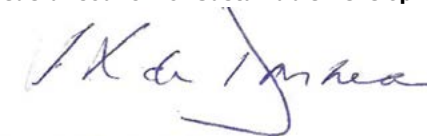
Council for the Environment and Infrastructure, Netherlands



Jan Jaap de Graeff (Chair)



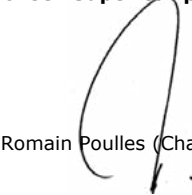
Federal Council for Sustainable Development, Belgium



François-Xavier de Donnea (Chair)



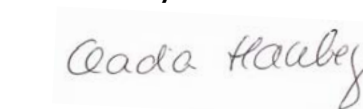
Conseil Supérieur pour un Développement Durable, Luxembourg



Romain Poulles (Chair)



German Advisory Council on the Environment



Prof. Claudia Hornberg (Chair)



German Council for Sustainable Development



Dr Marc-Oliver Pahl (Secretary General)



European Environment and Sustainable Development Advisory Councils Network



Arnau Queralt Bassa (Chair EEAC Network)



RESPONSIBILITY AND ACKNOWLEDGEMENTS

Advisory committee

Jeroen Kok, Council member and committee chair

Niels Koeman, Council member

Wijnand Veeneman, external committee member, TU Delft

Co Verdaas, Council member

Frank Witlox, external committee member, Ghent University

Project team

Tim Zwanikken, project leader

Barth Donners, external project officer, consultant at Royal Haskoning DHV

Mirjam van Gameren, project assistant (from 1 May 2020)

Linde Jehee, project officer

Katja de Vries, project assistant (to 1 Januari 2020)

Consultees

Ruben Alblas, KLM

Lord Berkeley, ALLRAIL

Freek Bos, Vereniging Rover

Helmut Brall, Treinreiswinkel

Cecilia Braun, Corridor expert TEN-T Rhine Alpine corridor

Nick Brooks, ALLRAIL

Guus de Bruijn, European Rail Infrastructure Managers
Maurizio Castelletti, European Commission, DG MOVE
Josef Doppelbauer, European Union Agency for Railways
Keir Fitch, European Commission, DG MOVE
Paul Gerretsen, Vereniging Deltametropool
Justus Hartkamp, ProRail
Stefan Hartman, NHL Stenden Hogeschool / European Tourism Futures
Institute
Monika Heiming, European Rail Infrastructure Managers
Corina de Jongh, Railforum
Arthur Kamminga, FlixMobility
Philipp Koiser, RailNetEurope
Bart Kuipers, Erasmus University Rotterdam
Libor Lochman, Community of European Railway and Infrastructure
Companies
Willem Loonen, ProRail
Heike Luiten, NS International
Guus de Mol, ProRail / RailNetEurope
Max Obenaus, European Union Agency for Railways
Frank van Oort, Erasmus University Rotterdam
Paul Peeters, Breda University of Applied Sciences
Karla Peijs, Corridor coordinator of Rhine-Danube Corridor, on behalf of the
European Commission
Peter Pol, Department of Urban Development, Municipality of The Hague
Fons Savelberg, Netherlands Institute for Transport Policy Analysis (KiM)
Maurits Schaafsma, Royal Schiphol Group

Annemarie Sipkes, Netherlands Authority for Consumers & Markets
Ronald Timmerman, Netherlands Authority for Consumers & Markets
Xaf Utberg, Arcadis
John Voppen, ProRail
Jan Vreeburg, KLM
Elisabeth Werner, European Commission, DG MOVE
Marcel Wijermans, Department of Urban Development, Municipality of
The Hague
Emma de Wijs, Department of Urban Development, Municipality of
The Hague
Nino Zambara, European Commission, DG MOVE

Expert meeting 22 January 2020 – morning session

Ruben Alblas, KLM
Helmut Brall, Treinreiswinkel
Lennard van Damme, Province of Limburg
Pier Eringa, Transdev
Bram Hansma, Public Transport Ombudsman
Arthur Kamminga, FlixMobility
Hildebrand van Kuyeren, Treinreiziger.nl
Jaap Modder, Vereniging Deltametropool
Simon Smits, Thalys
Didier van de Velde, TU Delft / Inno-V
Reinout Wissenburg, ProRail



Expert meeting 22 January 2020 – afternoon session

Nick Brooks, ALLRAIL

Alexis Dall’Asta, Federal Council for Sustainable Development Belgium

Marc Depoortere, Federal Council for Sustainable Development Belgium

Giles Harris, Eurostar

Arriën Kruyt, European Passengers’ Federation / Rover

Paul Rooijmans, Lynxx

Maurits Schaafsma, Royal Schiphol Group

Thomas Schönig, ÖBB-Personenverkehr AG

Rose Teunissen, NS International

Ronald Timmerman, Netherlands Authority for Consumers & Markets

Xaf Utberg, Arcadis

Individuals consulted at ministries

Carien Aalbers, Ministry of Infrastructure and Water Management,
DG Mobility and Transport

Wino Aarnink, Ministry of Infrastructure and Water Management,
DG Mobility and Transport

Femke Buitenhuis, Ministry of Infrastructure and Water Management,
DG Mobility and Transport

Kees van der Burg, Ministry of Infrastructure and Water Management,
DG Mobility and Transport
Manuel Dijkstra, Ministry of Infrastructure and
Water Management, DG Mobility and Transport

Hinne Groot, Ministry of Infrastructure and Water Management, DG Mobility
and Transport

Willemieke Hornis, Ministry of the Interior, DG Public Administration,
Spatial Planning and Housing

Rachel van Houwelingen, Ministry of Infrastructure and Water Management,
DG Mobility and Transport

Eric Mink, Ministry of Infrastructure and Water Management, DG Mobility
and Transport

Robert-Jan Ruifrok, Permanent Representation of the Kingdom of the
Netherlands to the EU

Coen Timmerman, Ministry of Infrastructure and Water Management,
DG Mobility and Transport

Consulted European advisory councils in the field of sustainability

During the course of the study and advisory process the Council consulted
and coordinated with fellow advisory councils from surrounding European
countries.

Alexis Dall’Asta, Federal Council for Sustainable Development Belgium
(FRDO)

Marc Depoortere, Federal Council for Sustainable Development Belgium
(FRDO)

Marguy Kohlen, Ministère de l’Environnement, du Climat et du
Développement Durable, Le gouvernement du grand-duché du
Luxembourg (CSDD)

Claudine Lorang, Ministère de l’Environnement, du Climat et du
Développement Durable, Le gouvernement du grand-duché du
Luxembourg (CSDD)

Hannah Janetschek, Rat für Nachhaltige Entwicklung (RNE)



Julia Hertin, Sachverständigenrat für Umweltfragen (SRU)
Michiel de Vries, secretary of the European Environment and Sustainable
Development Advisory Councils (EEAC)

External reviewers

Rob van der Heijden, Radboud University Nijmegen
Kaj Mook, Berenschot

OVERVIEW OF PUBLICATIONS

2020

Soils for sustainability. ['De bodem bereikt?!']. July 2020 (Rli 2020/02)

A grip on hazardous substances. ['Greep op gevaarlijke stoffen'].
March 2020 (Rli 2020/01)

2019

Towards a Sustainable Economy: The governance of transitions.
['Naar een duurzame economie: overheidssturing op transitie'].
November 2019 (Rli 2019/05)

Desirable Tourism: Capitalising on Opportunities in the Living Environment.
['Waardevol toerisme: onze leefomgeving verdient het']. September 2019
(Rli 2019/04).

European Agricultural Policy: Working Towards Circular Agriculture.
['Europees Landbouwbeleid: inzetten op kringlooplandbouw']. May 2019
(Rli 2019/03).

Aviation Policy: A New Approach Path. ['Luchtvaartbeleid: een nieuwe
aanvliegroute']. April 2019 (Rli 2019/02).



The Sum of the Parts: Converging National and Regional Challenges. [‘De som der delen: verkenning samenvallende opgaven in de regio’]. March 2019 (Rli 2019/01).

2018

Warmly Recommended: Towards a Low-CO₂ Heat Supply in the Built Environment [‘Warm aanbevolen: CO₂-arme verwarming van de gebouwde omgeving’]. December 2018 (Rli 2018/07)

National Environment and Planning Strategy: Litmus Test for the New Environmental and Planning Policy [‘Nationale omgevingsvisie: lakmoesproef voor de Omgevingswet’]. November 2018 (Rli 2018/06)

Accelerating Housing Production, While Maintaining Quality [‘Versnellen woningbouwproductie, met behoud van kwaliteit’]. June 2018 (Rli 2018/05)

Better and Different Mobility: Investing in Mobility for the Future [‘Van B naar Anders: investeren in mobiliteit voor de toekomst’]. May 2018 (Rli 2018/04)

The Healthy City: Delivering Health Through Environmental and Planning Policy [‘De stad als gezonde habitat: gezondheidswinst door omgevingsbeleid’]. April 2018 (Rli 2018/03)

Sustainable and Healthy: Working Together Towards a Sustainable Food System [‘Duurzaam en gezond: samen naar een houdbaar voedselsysteem’]. March 2018 (Rli 2018/02)

Electricity Provision in the Face of Ongoing Digitalisation

[‘Stroomvoorziening onder digitale spanning’]. February 2018 (Rli 2018/01)

2017

A Broad View of Heritage: The Interactions Between Heritage and Transitions in the Physical Environment [‘Brede blik op erfgoed: over de wisselwerking tussen erfgoed en transitie in de leefomgeving’]. December 2017 (Rli 2017/03)

Energietransitie en leefomgeving: kennisnotitie. December 2017 (Rli 2017) [only available in Dutch]

Land for Development: Land Policy Instruments for an Enterprising Society [‘Grond voor gebiedsontwikkeling: instrumenten voor grondbeleid in een energieke samenleving’]. June 2017 (Rli 2017/02)

Assessing the Value of Technology: Guidance Document [‘Technologie op waarde schatten: een handreiking’]. January 2017 (Rli 2017/01)



2016

Faster and Closer: Opportunities for Improving Accessibility in Urban Regions ['Dichterbij en sneller: kansen voor betere bereikbaarheid in stedelijke regio's']. December 2016 (Rli 2016/05)

International Scan 2016: Emerging Issues in an International Context. November 2016 (Rli/EEAC)

The Connecting Landscape ['Verbindend landschap']. November 2016 (Rli 2016/04)

Challenges for Sustainable Development: Main Focus Areas Identified in Advisory Reports Published in the Past Four Years by the Council for the Environment and Infrastructure ['Opgaven voor duurzame ontwikkeling: hoofdlijnen uit vier jaar advisering door de Raad voor de leefomgeving en infrastructuur']. July 2016 (Rli 2016/03)

Beyond Mainports ['Mainports voorbij']. July 2016 (Rli 2016/02)

Notitie Systeemverantwoordelijkheid in de fysieke Leefomgeving. May 2016 (Rli 2016/01) [only available in Dutch]

2015

Reform of Environmental Law: Realize your Ambitions ['Vernieuwing omgevingsrecht: maak de ambities waar']. December 2015 (Rli 2015/07)

A Prosperous Nation Without CO₂: Towards a Sustainable Energy Supply by 2050 ['Rijk zonder CO₂: naar een duurzame energievoorziening in 2050']. September 2015 (Rli 2015/06)

Room for the Regions in European Policy ['Ruimte voor de regio in Europees beleid']. September 2015 (Rli 2015/05)

Changing Trends in Housing: Flexibility and Regionalisation Within Housing Policy ['Wonen in verandering: over flexibilisering en regionalisering in het woonbeleid']. June 2015 (Rli 2015/04)

Circular Economy: From Wish to Practice ['Circulaire economie: van wens naar uitvoering']. June 2015 (Rli 2015/03)

Stelselherziening omgevingsrecht. May 2015 (Rli 2015/02) [only available in Dutch]

Survey of Technological Innovations in the Living Environment ['Verkenning technologische innovaties in de leefomgeving']. January 2015 (Rli 2015/01)

2014

Managing Surplus Government Real Estate: Balancing Public Interest Against Financial Gain ['Vrijkomend rijksvastgoed: over maatschappelijke doelen en geld']. December 2014 (Rli 2014/07)



Risks Assessed: Towards a Transparent and Adaptive Risk Policy [‘Risico’s gewaardeerd: naar een transparant en adaptief risicobeleid’]. June 2014 (Rli 2014/06)

Recovering the Costs of Environmental Damage: Financial Indemnity Requirements for High-Risk Companies [‘Milieuschade verhalen: advies financiële zekerheidstelling milieuschade Brzo- en IPPC4-bedrijven’]. June 2014 (Rli 2014/05)

International Scan 2014. Emerging Issues in an International Context [‘Internationale verkenning 2014. Signalen: de opkomende vraagstukken uit het internationale veld’]. May 2014 (Rli 2014)

The Future of the City: The Power of New Connections [‘De toekomst van de stad: de kracht van nieuwe verbindingen’]. April 2014 (Rli 2014/04)

Quality Without Growth: On the Future of the Built Environment [‘Kwaliteit zonder groei: over de toekomst van de leefomgeving’]. April 2014 (Rli 2014/03)

Influencing Behaviour: More Effective Environmental Policy Through Insight Into Human Behaviour [‘Doen en laten: effectiever milieubeleid door mensenkennis’]. March 2014 (Rli 2014/02)

Living Independently for Longer, a Shared Responsibility of the Housing, Health and Welfare Policy Domains [‘Langer zelfstandig, een gedeelde opgave van wonen, zorg en welzijn’]. January 2014 (Rli 2014/01)

2013

Sustainable Choices in the Implementation of the Common Agricultural Policy in the Netherlands [‘Duurzame keuzes bij de toepassing van het Europese landbouwbeleid in Nederland’]. October 2013 (Rli 2013/06)

Pulling Together: Governance in the Schiphol/Amsterdam Metropolitan Region [‘Sturen op samenhang: governance in de metropolitane regio Schiphol/Amsterdam’]. September 2013 (Rli 2013/05)

Safety at Companies Subject to the Major Accidents Risks Decree: Responsibility and Effective Action [‘Veiligheid bij Brzo-bedrijven: verantwoordelijkheid en daadkracht’]. June 2013 (Rli 2013/04)

Dutch Logistics 2040: Designed to Last [‘Nederlandse logistiek 2040: designed to last’]. June 2013 (Rli 2013/03)

Nature’s Imperative: Towards a Robust Nature Policy [‘Onbeperkt houdbaar: naar een robuust natuurbeleid’]. Mei 2013 (Rli 2013/02)

Room for Sustainable Agriculture [‘Ruimte voor duurzame landbouw’]. March 2013 (Rli 2013/01)

2012

Keep Moving: Towards Sustainable Mobility. Edited by Bert van Wee. October 2012 (Rli/EEAC)



Original title

Verzet de wissels: Naar beter internationaal reizigersvervoer per trein

Text editing

Saskia van As, Tekstkantoor Van As, Amsterdam, The Netherlands

Infographic

Frédéric Ruys, Vizualism, Utrecht (pagina's 15, 17, 25, 71)

Photo credits

Cover: Serjio74, Shutterstock

Page 5: Lex van Lieshout, Hollandse Hoogte

Pagina 9: Olbor, ANP

Page 14: Rainer Jensen, dpa Picture-Alliance, Hollandse Hoogte

Page 24: Sabine Joosten, Hollandse Hoogte

Page 37: ÖBB

Page 46: Walter Geiersperger, ANP

Page 62: Benoit Tessier, Reuters, Hollandse Hoogte

Page 70: Felix kalkman, ANP

Page 81: Nancy Kleine, Nationale Beeldbank

Page 91: Rainer Waldkirch, Mauritius Images GmbH, ANP

Graphic design

Jenneke Drupsteen Grafische vormgeving, The Hague, The Netherlands

Publication Rli 2020/03

July 2020

Translation

Derek Middleton, Zevenaar, The Netherlands

Preferred citation

Council for the Environment and Infrastructure (2020). *Changing Tracks: Towards better international passenger transport by train*. The Hague.

978-90-77166-91-8

NUR 740

