

# Cross-border transport infrastructure planning in the Nordic Region - An introduction

NORDINFRA PROJECT

Anna Lundgren, Linnea Löfving, Lars Westin

NORDREGIO REPORT 2023:3



# Table of contents

<b>Preface</b>	<b>3</b>
<b>Summary</b>	<b>4</b>
<b>Sammanfattning</b>	<b>6</b>
<b>1. Introduction</b>	<b>8</b>
1.1 Aim, definitions and layout of the report	10
<b>2. Cross-border transport infrastructure planning in the Nordic countries</b>	<b>12</b>
2.1 Denmark	12
2.2 Finland	16
2.3 Norway	20
2.4 Sweden	24
2.5 Transport infrastructure planning in the Nordic Region – a comparative overview	31
<b>3. Cross-border transport infrastructure planning</b>	<b>35</b>
3.1 Cross-border transport infrastructure planning in a multi-level governance and cross-sectoral policy context	36
3.2 EU policy influencing cross-border transport infrastructure planning	38
3.3 Nordic co-operation influencing cross-border transport infrastructure planning	43
<b>4. Opportunities and challenges for cross-border transport infrastructure planning and collaboration</b>	<b>47</b>
4.1 Opportunities for cross-border transport infrastructure and planning	47
4.2 Challenges to cross-border transport infrastructure and planning	49
<b>5. Concluding discussion and next steps</b>	<b>54</b>
<b>References</b>	<b>57</b>
<b>About this publication</b>	<b>66</b>

# Preface

What is the status of cross-border transport infrastructure planning in the Nordic Region? What is the role of cross-border transport infrastructure in national transport plans in Denmark, Finland, Norway and Sweden? What is the role of European and Nordic planning and policies? And how can cross-border transport infrastructure planning in the Nordics be further improved?

These were some of the issues raised in dialogue between the Swedish Transport Administration and Nordregio in spring 2021. The dialogue resulted in a project description for a two-year project, NORDINFRA – *Nordisk transport infrastrukturplanering. Institutionella hinder och möjligheter till samordning (2021–2023)*<sup>1</sup>, as well as an application for funding from the Swedish Transport Administration in 2021.

The project is run by Nordregio in collaboration with Umeå University and funded by the Swedish Transport Administration (*Trafikverket*). The project's steering group comprises representatives from the Swedish Transport Administration, while the reference group consists of representatives from different relevant academic disciplines with broad Nordic representation. While both the reference group and the steering group have discussed drafts of the report, the authors remain responsible for its content.

This first NORDINFRA report shows that the initial questions remain highly relevant but also that the answers are highly complex.

The report provides an overview of transport infrastructure planning in Denmark, Finland, Norway and Sweden and discusses the framing of national transport infrastructure planning into the European and Nordic co-operation in the field. Based on the literature, the report presents challenges relating to cross-border transport infrastructure planning but also highlights opportunities to overcome those challenges.

This introduction to and overview of Nordic cross-border transport infrastructure planning represents an important starting point. The next steps will include in-depth studies and interviews in with stakeholders involved in the day-to-day work of cross-border transport infrastructure planning based on three case studies.

*Björn Hasselgren*  
*Chair of the steering group*

---

1. NORDINFRA – Nordic transport infrastructure planning. Institutional obstacles and enablers for collaboration (2021-2023)

# Summary

Throughout history, transport infrastructure has played a crucial role in industrialisation, economic growth and regional development and continues to do so. In recent decades, international trade, the growth potential of extended cross-border labour markets and new connections, such as the Öresund bridge (finalised in 2000) and the Fehmarn Belt connection between Denmark and Germany (to be opened in 2029), have further increased interest in cross-border transport infrastructure.

This is the first report in the NORDINFRA project, aiming at increasing knowledge of cross-border transport infrastructure planning in the Nordic Region. The project covers four Nordic countries (Denmark, Finland, Norway and Sweden) and explores institutional and other challenges and opportunities associated with better and more coordinated cross-border transport infrastructure planning.

NORDINFRA is a research project financed by the Swedish Transport Administration (Trafikverket) and run by Nordregio and Umeå University. Its research methods consist of literature and document studies as well as interviews with stakeholders. Three Nordic cross-border transport infrastructure case studies have been selected: a new fixed link between Sweden and Denmark, namely the Helsingborg–Helsingör road and rail tunnel; an improved railway connection between Stockholm and Oslo; and the road and ferry connection from Mo i Rana in Norway, via Umeå in Sweden, to Vasa in Finland.

This report begins with an overview of the transport infrastructure planning systems in Denmark, Finland, Norway and Sweden, with a focus on the policy goals, the main actors and their responsibilities within the transport infrastructure planning system, central elements of the planning process, analytical tools and tools for impact analysis.

Overall, we find many similarities between the Nordic countries, although there are also important differences. In terms of transport goals, all four countries share important commonalities in that they focus on efficiency, accessibility, sustainability, and safety – although the specific goals are formulated in different ways and with different emphases. We find that, to a large extent, the countries share the same timeframe when it comes to the planning period (Denmark 2021–2035, Finland 2021–2032, Norway 2022–2033 and Sweden 2022–2033).

These commonalities are positive and can be expected to facilitate the planning of cross-border transport infrastructure objects. The analysis of the countries' national infrastructure and transportation plans shows that although Nordic cross-border transport is mentioned, the focus is primarily on national transport infrastructure that is not adjacent to a border. In all the countries, planning takes place via step-by-step, formalised processes, including impact assessments. Here, too, the similarities between the countries can be expected to increase the potential for cross-border collaboration.

We also find similarities between the Nordic countries studied when it comes to the main actors involved in transport infrastructure planning. At national level, the relevant ministry holds the responsibility for transport infrastructure, along with one or several national authorities in the field. However, one important difference between the Nordic countries is that, according to the Danish and Norwegian public administration models, the national transport authorities have less independence from the transport ministry than the equivalent agencies in Sweden and Finland.

In all of the countries, the regional councils are responsible for elaborating a regional

development strategy and are frequently involved in public transportation. The municipalities are responsible for local physical planning but may also have other tasks relating to transport infrastructure, such as local roads, local public transport, ports and airports. Looking closer, the division of transport infrastructure tasks between different levels of government varies depending on the country, and there can sometimes be territorial differences within the country, too.

However, a general pattern can be observed whereby actors at national level have overall responsibility for the national transport infrastructure system, whereas regional and local actors are endowed with specific tasks and responsibilities within the transport infrastructure system. In order to facilitate cross-border transport infrastructure planning it is important that those actors involved in cross-border transport infrastructure planning have knowledge about these differences between the countries and regions involved to be able to better understand the prerequisites for cross-border infrastructure planning and adapt to the circumstances involved.

Although transport infrastructure planning primarily takes place within a national context, also the European Union plays an important role for cross-border transport infrastructure planning. A policy area of great importance is EU transport policy – for example, the Trans-European Transport Network (TEN-T) which aims to link territories across the EU via a core network of corridors, of which the Scandinavian – Mediterranean (Scan-Med) and North Sea–Baltic corridors are most important for the Nordic countries. The EU's policy for regional development and its Cohesion Policy are both central to cross-border collaboration – not least the Interreg A programmes, which are targeted at cross-border co-operation. Just as the EU regional development policy is connected to measures and financing mechanisms such as the Interreg, the implementation of EU transport policy is facilitated by, e.g. the Connecting Europe Facility (CEF). While EU policies in the fields of regional development and transport support cross-border transport infrastructure planning in the Nordic Region, it is less evident to what extent Nordic co-operation supports cross-border transport infrastructure planning. Even though the national transport authorities are involved in knowledge-sharing networks (e.g. *Nordisk Vejforum*, and *NJS – Forum for Nordisk Jernbanesamarbeid*), since the dissolution of the Council of Ministers for Transport in 2005, there has been a lack of a Nordic political platform to discuss cross-border transport infrastructure.

Previous research and literature show that cross-border transport infrastructure faces challenges in many different fields. Challenges relating to governance involve, for example, many stakeholders at different levels of government. Economic challenges may relate to, for example, only calculating benefits on one side of a national border or increased costs due to higher insecurity. Among the legal and administrative challenges, we find conflicting laws and regulations; and among the political challenges, a lack of political interest or the risk of altering the balance of power between countries or within a country. Other challenges may relate to differences in technology, calculation models or language.

However, research literature and previous findings also highlight opportunities to overcome those challenges. These include establishing clear common goals, promoting transparency, working with relevant stakeholders and ensuring their commitment, allocating benefits and risks, and promoting effective governance. During the next steps of the project, three case studies will be conducted to further explore how cross-border transport infrastructure planning is conducted and may be further improved.

# Sammanfattning

Transportinfrastruktur har genom historien spelat en avgörande roll för industrialisering, ekonomisk tillväxt och regional utveckling, och spelar också idag en viktig roll. Internationell handel, ökande potential kopplad till utvidgade gränsöverskridande arbetsmarknader och nya förbindelser som Öresundsbron (färdigställd 2000) och Fehmarn Bält-förbindelsen mellan Danmark och Tyskland (som öppnas 2029) har under de senaste decennierna ökat intresset för gränsöverskridande transportinfrastruktur.

Detta är den första rapporten i projektet NORDINFRA som syftar till att öka kunskapen om gränsöverskridande transportinfrastrukturplanering i Norden. De fyra nordiska länderna Danmark, Finland, Norge och Sverige ingår, och projektet syftar till att utforska institutionella och andra utmaningar och möjligheter för förbättrad och mer samordnad gränsöverskridande transportinfrastrukturplanering.

NORDINFRA är ett forskningsprojekt som finansieras av Trafikverket och genomförs av Nordregio och Umeå universitet. Forskningsmetoderna består av litteratur- och dokumentstudier samt intervjuer med intressenter. Tre nordiska fallstudier om gränsöverskridande transportinfrastruktur har valts ut: En ny fast förbindelse mellan Sverige och Danmark med väg och järnväg i tunnel Helsingborg-Helsingör, en förbättrad järnvägsförbindelse mellan Stockholm och Oslo samt väg- och färjeförbindelsen från Mo-i-Rana i Norge via Umeå i Sverige till Vasa i Finland

I denna rapport börjar vi med att ge en översikt över planeringssystemet för transportinfrastruktur i Danmark, Finland, Norge och Sverige med fokus på de politiska målen, huvudaktörerna och deras ansvar inom planeringssystemet för transportinfrastruktur, centrala delar av planeringsprocessen, och analytiska verktyg och verktyg för effektanalyser.

Sammantaget finner vi många likheter mellan de nordiska länderna, men även viktiga skillnader. Transportmålen i alla fyra länderna innefattar väsentliga likheter då de fokuserar på effektivitet, tillgänglighet, hållbarhet och säkerhet – även om målen formuleras på olika sätt och med olika betoningar. Vi konstaterar att länderna i stor utsträckning delar samma tidsram när det gäller planeringsperioden (Danmark 2021–2035, Finland 2021–2032, Norge 2022–2033 och Sverige 2022–2033). Dessa likheter är positiva och kan förväntas underlätta planeringen av gränsöverskridande transportinfrastrukturobjekt. Analysen av de nationella planerna i respektive land visar att nordiska gränsöverskridande transporter tas upp i de nationella planerna för transportinfrastruktur, även om fokus i planerna ligger på nationell transportinfrastruktur som inte ligger i anslutning till en nationell gräns. Planeringen genomförs i alla länder i form av stegvisa formaliserade processer som också innefattar effektbedömningar. Även här kan likheterna mellan länderna när det gäller planeringsprocesserna förväntas underlätta möjligheterna till samarbete över gränserna.

Även när det gäller de viktigaste aktörerna i planeringen av transportinfrastrukturen finner vi likheter mellan de nordiska länder som studerats. På nationell nivå finner vi ministeriet med ansvar för transportinfrastruktur och en eller flera nationella myndigheter på transportinfrastrukturområdet. En viktig skillnad är dock att enligt den danska och norska modellen för offentlig förvaltning är de nationella transportmyndigheterna mindre oberoende i förhållande till ministeriet jämfört med Sverige och Finland.

På regional nivå ansvarar de regionala myndigheterna i alla länder för att utarbeta en regional utvecklingsstrategi och har ofta också ett visst ansvar för kollektivtrafik.

På lokal nivå ansvarar kommunerna i alla nordiska länder för den lokala fysiska planeringen, men kan också ha andra uppgifter som rör transportinfrastruktur som lokala vägar, lokal kollektivtrafik, hamnar och flygplatser. Om man tittar närmare, ser man att fördelningen av uppgifter när det gäller transportinfrastruktur varierar mellan olika förvaltningsnivåer beroende på land, och ibland finns det också territoriella skillnader inom respektive land.

Ett generellt mönster kan dock skönjas när det gäller ansvarsfördelningen, där aktörerna på nationell nivå har det övergripande ansvaret för det nationella transportinfrastruktursystemet medan aktörerna på regional och lokal nivå har särskilda uppgifter och ansvarsområden inom transportinfrastruktursystemet. För att underlätta planeringen av gränsöverskridande transportinfrastruktur är det viktigt att de aktörer som är involverade i gränsöverskridande transportinfrastrukturplanering har kunskap om dessa skillnader mellan de berörda länderna och regionerna, för att bättre förstå förutsättningarna för gränsöverskridande infrastrukturplanering och kunna anpassa sig till dessa omständigheter.

Även om planeringen av transportinfrastrukturen i första hand sker i ett nationellt sammanhang spelar EU en viktig roll för planeringen av gränsöverskridande transportinfrastruktur. Ett EU-politikområde av stor betydelse är EU:s transportpolitik, där de transeuropeiska näten (TEN-T) syftar till att förbinda territorier i hela Europeiska unionen genom ett stomnät av korridorer, varav Scandinavian- Mediterranean (Scan-Med) och North Sea-Baltic korridorerna är viktigast för de nordiska länderna. EU:s politik för regional utveckling och sammanhållningspolitik är central för gränsöverskridande samarbete, inte minst Interreg A-programmen som är inriktade på just gränsöverskridande samarbete.

På samma sätt som EU:s politik för regional utveckling är kopplad till åtgärder och finansieringsmekanismer som Interreg, underlättas genomförandet av EU:s transportpolitik av t.ex. Connecting Europe Facility (CEF). Medan gränsöverskridande transportinfrastrukturplanering i Norden stöds av EU:s politik inom regional utveckling och transportpolitik, är det mindre uppenbart i vilken utsträckning gränsöverskridande transportinfrastrukturplanering stöds av det nordiska samarbetet. Även om de nationella transportmyndigheterna engagerar sig i tjänstemannaorganisationer och nätverk för kunskapsutbyte (t.ex. Nordisk Vejforum, NJS- Forum for Nordisk Jernbanesamarbeid) saknas fortfarande en nordisk politisk plattform för att diskutera gränsöverskridande transportinfrastruktur sedan Ministerrådet för transport upplöstes 2005.

Tidigare forskning och litteratur visar att utmaningar för gränsöverskridande transportinfrastruktur finns inom många olika områden. Utmaningar som rör governance och styrning innefattar till exempel att det är många intressenter på olika myndighetsnivåer som är inblandade. Ekonomiska utmaningar kan till exempel handla om att bara beräkna effekter på ena sidan av en nationell gräns eller att ökad osäkerhet kan föra med sig ökade kostnader. Bland de juridiska och administrativa utmaningarna finner vi motstridiga lagar och regler, och bland de politiska utmaningarna en brist på politiskt intresse eller en risk för förändrad maktbalans, mellan länderna, eller inom länderna. Andra utmaningar kan handla om olika tekniska lösningar, olika beräkningsmodeller eller språk. Men forskningslitteratur och tidigare resultat pekar också på möjligheter att övervinna dessa utmaningar. Bland möjligheterna finner vi bland annat att fastställa gemensamma och tydliga mål, främja transparens, engagera relevanta aktörer i att göra åtaganden, fördela vinster och risker och att främja effektiv styrning. I nästa steg i projektet kommer tre fallstudier att genomföras för att ytterligare utforska hur gränsöverskridande transportinfrastrukturplanering bedrivs och hur denna skulle kunna förbättras ytterligare.



Photo: iStock

# 1. Introduction

Transport infrastructure policy has long been anchored in a national policy context, aimed at strengthening the nation-state, its territory and economy. Today, despite globalisation, closer international collaboration, and increasing global flows of goods and people, policy-making in the area of transport infrastructure is still, to a large extent, framed by a national policy context.

While roads and waterways have a long history, railways and canals were only introduced in the 19th century and played a crucial role in industrialisation and economic growth in the Nordic countries (e.g. Enflo et al., 2018). At that time, the Nordic countries were predominantly poor, rural and considered peripheral in an international context. The establishment of new transport infrastructure facilitated exports and the internal exchange of agricultural products, as well as faster and cheaper transportation flows in the traditional forestry and mining/iron ore sectors. Large-scale projects in the Nordic countries primarily related to the exploitation and export of natural resources in remote areas but also facilitated industrialisation in rural areas. However, by transferring information and economic resources, large infrastructure projects also contributed to strengthen the capital cities' position and power within the national urban systems.

The main motivation for the expansion of transport infrastructure was to facilitate large-scale trade flows but also to supply growing agglomerations and regions with food and consumer goods, as well as to support geopolitical and military objectives. According to a study of the expansion of the railway networks in the Nordic countries (1860–1960), the railroads contributed to the shaping of the economic landscape in the Nordic Region in three distinct ways: through the exploitation and export of natural resources; by supplying food and fuel for heating, which was previously limited in the local hinterlands, thereby contributing to urbanisation; and by facilitating new settlements in remote areas, which in turn re-shaped the long-term economic landscape of the entire Nordic region (Enflo et al. 2018).

This brief historical background shows that transport infrastructure not only plays a role, per se but also makes a significant contribution to the overall structure of the economic and urban landscape and, as such, plays an important role in national policy-making.

A common overarching goal of national transport infrastructure planning is to create a socioeconomically efficient transport system that supports and enables accessibility for both passengers and freight transport in various parts of the country. This goal is translated into national policies and legislation via detailed regulations and planning processes, analytical models, planning instruments, and different financing and steering models, which together determine the development and management of transport infrastructure planning in each country. In addition, governance structures, in which actors at different levels of government have different roles, have an impact on the organisation of transport infrastructure planning (e.g. Global Infrastructure Hub & Ramboll, 2021).

Transport infrastructure planning is also part of international collaboration, especially within the EU transport policy framework and with a view to expanding cross-border collaboration (Castanho, Loures, Fernandez & Pozo, 2018). In order to increase mobility, interoperability and accessibility across the European territory, the EU sets goals at a supranational level. The aim of the EU transport policy is to connect different parts of the vast European territory, including the Nordic countries. This means focusing on the nine transport network corridors (TEN-T) and on measures designed to promote, support and finance them (e.g. the Connecting Europe Facility Instrument). However, other measures for supporting transport infrastructure, regional development and interregional development are found within the European Union's regional and Cohesion Policy framework, which involves not only national but also regional and cross-border actors, e.g. in the Interreg programmes.

The past 30 years have seen an increase in cross-border collaboration (CBC) in Europe (Castanho et al. 2018). The EU single market, the structural funds supporting cross-border collaboration and the Schengen Agreement have made it easier for people to live and work on different sides of national borders. According to the European Commission, 37.5% of the population of the EU live in areas bordering one or more of the almost 40 internal borders (European Commission, n.d.d). In the Nordic Region, citizens have enjoyed freedom of movement since the 1950s. The Nordic passport union and the common labour market enable Nordic citizens to travel and work in other countries in the region.

However, the figures for commuting to a job in another country remain quite modest. For example, commuting data from 2015–2018 reveals that, on average, cross-border commuting accounts for 1% of the working-age population in the EU and 0.5 % in the Nordic Region (Lundgren & Wøien Meijer, 2022). One explanation for this is that cross-border commuters face many administrative and practical obstacles (Lundgren & Bogason, 2022). The last decade even appears to be an all-time low for Nordic commuting due to the ID/passport requirements introduced between Denmark and Sweden during the 2015 refugee crisis, again to deter cross-border criminality in 2019 and to prevent the spread of COVID-19 in the Nordic Region in 2020 (Giacometti & Wøien Meijer, 2021). However, digitalisation, along with the "work from home trend" that emerged during the pandemic (Randall & Norlén, 2022), may indicate potential for greater labour market mobility, as remote working may become a new normal.

Finally, while commuting may be a short-term solution, cross-border migration for work offers a long-term alternative. Here, too, the figures are rather modest, with only 1.7% of the Nordic working-age population living in another Nordic country than the one in which they were born. The trend for cross-border migration has also been stable, or even declining, in the Nordic countries since 1990 (Lundgren & Wøien Meijer, 2022). Nonetheless, it is important to recognise that for individual

municipalities and regions, cross-border commuting and migration can play important roles, and many cross-border regions describe cross-border migration as an unrealised potential (e.g. Greater Copenhagen, n.d.a).

Transport projects and investments along the TEN-T network corridors have increased and strengthened cross-border collaboration in terms of trade, goods, labour market and infrastructure (De Sousa, 2003; Loures et al., 2016). However, research points to challenges in collaborating across borders and highlights that CBC projects continue to be understudied and poorly valued (Waddell, 2002; Nicolini & Pinto, 2013; Yigitcanlar, Dur & Dizdaroglu, 2015). It would be illuminating to explore the extent to which cross-border collaboration in border regions has also been a driving force behind the establishment of links in the TEN-T network or if these have been dominated by national and supranational interests alone.

To conclude, despite the ambitious Nordic vision of becoming the most integrated and sustainable region in the world (Nordic Council of Ministers, n.d.) and the increasing need for cross-border transport infrastructure, several studies point to difficulties and challenges with regard to Nordic cross-border transport infrastructure planning (e.g. Helo et al. 2019; Grandin, 2020; Hasselgren & Lundgren, 2016). The NORDINFRA project aims to shed light on this question by systematically identifying obstacles, enhancing knowledge and highlighting opportunities for improving cross-border transport infrastructure planning in the Nordic Region.

## 1.1 Aim, definitions and layout of the report

The aim of NORDINFRA is to increase knowledge of cross-border transport infrastructure planning in the Nordic Region. The project will explore institutional and other challenges and opportunities for improved greater coordinated cross-border transport infrastructure planning in the Nordic region.

The project runs from 2021–2023 and is managed by Nordregio in collaboration with Umeå University. The project has been funded by the Swedish Transport Administration

The project starts by establishing an overview of public-sector cross-border transport infrastructure planning in Denmark, Finland, Norway and Sweden, based on both scientific and grey literature. This overview serves as the knowledge background to the project.

In the project's next steps, obstacles and enablers for cross-border transport infrastructure planning will be explored via three selected case studies:

- a. A fixed link by road and rail tunnels connecting Helsingborg and Helsingör (HH). This project was investigated by the Danish and Swedish transport authorities in a joint study that concluded in 2021.<sup>2</sup>
- b. The construction of a better Stockholm–Oslo railway connection. The Norwegian Railway Directorate and the Swedish Transport Administration investigated the project in a joint study that concluded in 2022.<sup>3</sup>
- c. The road and ferry connection from Mo i Rana via Umeå to Vasa. This route follows the E12 road across two national borders. The municipalities along the road have been collaborating for a long time, both over the strait of Kvarken (currently through the Kvarken Council EGTC) and in the MidtSkandia region, along the border between Sweden and Norway.

---

2. The Swedish Transport Administration, the Danish Road Directorate and the Danish Transport, Construction and Housing Authority (2021), *Strategisk analys av en fast förbindelse mellan Helsingör och Helsingborg*.  
3. Jernbanedirektoratet & Trafikverket (2022), *Mulighetsstudie Oslo- Stockholm*.

Finally, the project will also highlight opportunities and propose measures that could facilitate the coordination of transport infrastructure planning across national borders in the Nordic Region.

Defining cross-border transport infrastructure planning is not straightforward. It crosses one or more national borders – either on land or at sea. The cross-border infrastructure objects can be of different character along a spectrum, at one end we find objects where the physical infrastructure asset is located in multiple countries and in the other end, we find infrastructure assets that are physically located in only one country but which may have a considerable impact in one or more other countries.

In addition, the planning of cross-border transport infrastructure projects involves different inter-dependencies. The more interdependencies and actors, the more transnational and interregional collaboration is required. This is often challenging in terms of project funding, financing and governance (Global Infrastructure Hub & Ramboll, 2021).

In NORDINFRA, we will use the following working definition:

By the term "cross-border transport infrastructure planning" we intend planning of transport infrastructure objects that take place in a cross-border context, where the physical infrastructure involves planning, negotiations and decision making from at least two countries and different levels of government.

This report is structured as follows: This first chapter contains a background to cross-border transport infrastructure planning, outlines the aims of the project and presents a working definition of cross-border transport infrastructure planning.

The second chapter provides an overview of national transport infrastructure planning in Denmark, Finland, Norway and Sweden to establish the background to the framing of cross-border transport infrastructure planning in different national contexts. The national overviews include each country's main transport policy goals, policy documents regulating transport infrastructure planning, the main actors, the planning process, analytical and impact assessment tools, and Nordic cross-border collaboration. The chapter concludes with a comparative overview.

In the third chapter, we explore how national transport infrastructure planning is framed in Nordic, European and international contexts. As we will see, the EU's transport and regional development policies play particularly crucial roles here.

In the fourth chapter, we return to the literature to learn more about opportunities and challenges in cross-border transport infrastructure planning relating to governance and to economic, legal, political, administrative, and calculation and modelling challenges.

In the fifth and final chapter, we pull the threads together, point at some key learnings and set out the next steps of the research project.



Photo: iStock

## 2. Cross-border transport infrastructure planning in the Nordic countries

In this chapter, we will look into and provide an overview of the framing of cross-border transport infrastructure planning in the national systems in four of the Nordic countries, Denmark, Finland, Norway and Sweden.

### 2.1 Denmark

#### Introduction

In terms of area, Denmark is much smaller than the other Nordic countries and has a higher population density and a more urbanised spatial structure. It consists of five regions and 98 municipalities, the latter of which are bigger in terms of population than the average municipalities in Finland, Norway and Sweden. Since the structural reform in 2007, the state and the municipalities have taken on new responsibilities, while the role of the regions has decreased. In this respect, Denmark also differs from Finland, Norway and Sweden, where the regions have assumed greater importance in recent past decades.

#### Main transport policy goals and other policy documents

Transport infrastructure planning in Denmark is regulated by a number of acts, of which the three most important are highlighted here: the Public Roads Act, the Traffic Act and the Transport Company Act. The objective of the Public Roads Act (*Lov om offentlige veje*, 2014) is to secure a well-functioning and coherent road transportation system for mobility throughout the country. The Act stipulates that the Ministry of Transport is responsible for the overall planning of roads and traffic and for undertaking the studies needed to fulfil this task.

The Ministry of Transport is responsible for national public roads, whereas the boards of the local authorities are responsible for municipal public roads. However, responsibility for the administration of state public roads is delegated to the Danish Road Authority and regulated by the Ministry of Transport. The road authorities (i.e. the Ministry of Transport and the boards of the municipalities) are responsible for maintaining public roads required by the nature and volume of the traffic.

New state public roads and changes to a road's status are determined via legislation. Before a law is passed, a public hearing involving the municipalities concerned is conducted. The Ministry of Transport approves the planning of state roads, while local authority boards approve the planning of municipal roads.

The Traffic Act (*Færdselsloven*, 2021) covers regulations relating to traffic on public roads, including different types of vehicles and pedestrians.

The Transport Company Act (*Lov om Trafikselskaber*, 2005) covers railway transport. It stipulates that at least every fourth year, the transport minister must draw up a transport plan for the railways. This plan (*Trafikplan*) must be sent to a public hearing involving the operators and municipalities. It must contain information about the political and economic goals for national public transport services and a description of decided national projects and their financing that are relevant to the railway network's capacity and its ability to coordinate with existing public transport services.

## **Main transport and infrastructure actors**

The main actors involved in national transport infrastructure planning in Denmark are the transport minister (*Transportministeren*) and the Ministry for Transport (*Transportministeriet*), who have primary responsibility for the planning, construction, maintenance and supervision of the national system of public infrastructure. This includes roads, railways, harbours, fixed links and airports, as well as vehicles, rapid transit systems, ferry operations and aviation.

Within the Ministry of Transport, there are three authorities that play a particularly important role in transport infrastructure planning; the Danish Road Directorate (*Vejdirektoratet*); *Banedanmark* (responsible for the railways); and the Danish Civil Aviation and Railway Authority (*Trafikstyrelsen*).

The Danish Road Directorate (*Vejdirektoratet*) is responsible for the national road network, including the planning, construction and maintenance of motorways, expressways (*motortrafikled*) and many bridges.

*Banedanmark* is responsible for maintaining existing railways and the construction of new ones. It consists of four departments: resources, infrastructure, construction and traffic.

The Danish Civil Aviation and Railway Authority (*Trafikstyrelsen*) is responsible for creating good framework conditions (*rammebetingelser*) for transports on railways, airways and public transport, with a view to enhancing safe, sustainable and cohesive transport solutions for people and for the business and industry sector. Every four years, it draws up a plan for the public railway system. Until 2021, the authority was also responsible for planning housing. It describes itself as being at the intersection between the ministry, *Banedanmark* and the Danish Road Directorate, each of which is responsible for delivering the services in their respective fields.

In Denmark, just as in the other Nordic countries, responsibility for infrastructure and transport is shared between different entities at national, regional and local levels. The five Danish regions are responsible for regional public transportation by local trains and buses and for the 13 local railways. The regions' responsibilities include elaborating regional mobility strategies in collaboration with the municipalities, business development organisations, NGOs and passenger organisations in order to solve regional transportation challenges (Danske Regioner, n.d.). The Danish Regions also elaborate regional development strategies that include transport infrastructure. However, responsibility for the implementation of the regional development strategies lies mainly with actors at state and municipal level, e.g. the business hubs (*tværkommunale erhvervshuse*), and not with the regions (Tillväxtanalys, 2021).

## Central elements in the planning process

Transport infrastructure planning in Denmark is based on political agreements. In June 2021, the "Agreement on Infrastructure Plan 2035" was concluded between *Socialdemokratiet and the political parties Venstre, Dansk Folkeparti, Socialistisk Folkeparti, Radikale Venstre, Enhedslisten, Det Konservative Folkeparti, Nye Borgerlige, Liberal Alliance, Alternativet and Kristendemokraterne* (Finansministeriet, 2021).

The infrastructure plan spans the period 2021–2035 and amounts to DKK 105.8 billion in new economic resources for transport infrastructure. Along with previously allocated resources, the Danish infrastructure plan amounts to DKK 161 billion, of which 64 billion is allocated to roads, 86 billion to railways and 11 billion to other infrastructure. According to the calculations, 41,000 tons of CO<sub>2</sub> per year will be released when the plan has been implemented. The plan's socioeconomic benefits are estimated at DKK 20 billion.

According to the agreement, infrastructure planning takes place on a "rolling" basis, with a first roll-out in 2021–2028 and a second in 2029–2035. More important, however, is the Danish practice of deciding upon individual infrastructure projects one by one. The document states that the agreement does not mean that funding is earmarked for individual projects up until 2035. This means that the infrastructure agreement could be understood more as an intention or joint memorandum of understanding between the signatories. The agreement includes pilot studies, analyses and surveys, which have to be formalised by the relevant parties and laid down in separate agreements for the individual projects.

Although funding is included in the agreement, it is also dependent on income from agreements and public enterprises such as A/S Storebælt, Øresundsbro Konsortiet, A/S Øresund and Togfonden. In addition, there is also a practice of pooling resources (*pulje*).

In general, the Danish planning process consists of the following steps:

1. Strategic analysis
2. Pilot study (*Förundersökelse*)
3. Environmental Impact Assessment (EIA)
4. Legislation (*Finanslov*).

The decision-making process in the Danish transport infrastructure system has several defining characteristics. One is that it is project-based, i.e. decisions are taken on one infrastructure project at a time. Another characteristic is that

infrastructure projects are commonly developed as public companies (*selskab*). This is called the Örestad model and was introduced in Denmark with the establishment of the Örestad area (hence the name). One example of the application of this model can be seen in *By og Havn* in Copenhagen. Another commonly used model is the Docklands model, in which the public company borrows money backed by state guarantees.

## Important analytical models and tools for impact analysis

In planning of transport infrastructure, the so called *Landstrafikmodellen* is used for all state transport infrastructure planning and can also be used in municipal planning of transport infrastructure. The model was introduced in 2009 and was inspired by similar models in Great Britain, Netherlands, Sweden and Norway who use similar models. The model is used to calculate transport data for people and goods, as well as to conduct cost-benefit analyses (*samfundsøkonomiske analyser*) and to prioritise transport infrastructure investments. The Ministry for Transport also uses the manual and counting model TERESA (*Transportministeriets Regnearksmodel for Samfundsøkonomisk Analyse for transportområdet*).

## Nordic cross-border collaboration

Denmark is well connected to international rail and road networks. The most recent important international crossing project is the Fehmarn Link between Denmark and Germany, which will be finalised in 2029. Part of the TEN-T ScanMed corridor, Fehmarn Link will improve both rail and road connections between the Nordic countries and Germany, as well as to the rest of Europe. The Fehmarn Link is expected to increase the volume of goods transported through Denmark.

Discussions are currently ongoing about complementary links across the Öresund, to complement the Öresund Bridge, which opened in 2000. The main reasons for these discussions are the expected significant increase in goods transport, the potential for a larger and more integrated labour market which would support economic growth and reduce unemployment (today, approx. 18,000 people in the Öresund area commute to work across the national border) (Region Skåne, 2022), and a strong interest in increasing the number of international train journeys to Europe. A new fixed link would also support the redundancy of the transport system across Öresund.

Regarding the complementary cross-border links between Sweden and Denmark, two links in particular have been discussed in recent years: the HH fixed link between Helsingborg and Helsingör; and the Metro between Malmö and Copenhagen. Both links are promoted in the so called *Skånebild*, which was agreed between Region Skåne, the large cities and the city regions in Skåne in 2015. Both links are also part of the Greater Copenhagen Traffic charter from 2016. Greater Copenhagen is the joint organisation of municipalities and regions on both sides of Öresund. It consists of four regions and 85 municipalities in the Greater Copenhagen region and is currently chaired by the Mayor of Copenhagen (2022).

The HH fixed link joint strategic analysis, conducted by the national transport authorities in Denmark and Sweden, was finalised in 2021. The strategic analysis focuses on passenger traffic and includes one tunnel for passenger traffic on railway and one tunnel for road traffic. In the next step, a formal agreement should be reached between the Swedish and Danish governments so that the transport authorities in the respective countries can start a so called "*lokaliseringutredning*"

(Sweden) and a "*förundersökelse*" (Denmark). On the Swedish side, the HH fixed link is part of the *Sverigeförhandlingen*. However, the HH fixed link is not included in either the proposed Swedish National Plan for Transport Infrastructure 2022–2033 (2021) or the Danish Infrastructure Plan 2035 (2021).

Another suggestion is a Metro between Malmö and Copenhagen. This idea has strong support, especially from the two cities involved. It is also part of the aforementioned *Skånebild* and the Greater Copenhagen Traffic Charter and has regional support from both sides of the Sound (Region Skåne, 2015; Greater Copenhagen, n.d.). A Metro would primarily lead to increased commuting across the Sound. To date, this proposal has not been studied by the national transport authorities.

However, in recent times, a potential third fixed link is also discussed: Europaspåret. This link is primarily promoted by the city of Landskrona, located between Helsingborg and Malmö, and consists of a railway link between Landskrona and the southwest part of Copenhagen. The main argument for this link is that it would help to address several of the challenges related to increased freight transport, improve commuting opportunities, and meet the growing interest in train traffic to Europe. To date, however, the national transport authorities have not conducted studies into this railway link for both goods and passengers, which could potentially also be complemented with a tunnel for road traffic.

In the latest Danish infrastructure plan, agreed upon in 2021, the focus is on national connections within the country (Finansministeriet, 2021). However, several of those national projects would also help create openings for new fixed links to Sweden. On the Danish side of the Öresund, two of the main challenges are the lack of capacity at Copenhagen Central Station and on *Kystbanen* between Copenhagen and Helsingør. One proposal is to increase capacity by constructing a new station at Ellebjerg, located to the south-west of Copenhagen. This would be Denmark's third biggest rail hub, comprising Metro, commuter trains, regional trains and international traffic. Another proposal is a strategic analysis of a Metro to Lynetteholm – a newly constructed island east of Copenhagen.

Local and regional actors from both sides of Öresund strongly advocate new cross-border transport infrastructure links. Joint bodies such as HH2030, which include 40 municipalities and regions, as well as representatives from the business sector across the Öresund, the Öresundsmetro Executive and the Greater Copenhagen Traffic Charter, have created forums for dialogue and are pushing for the projects towards the right stakeholders, i.e. primarily the national governments on each side of the border, and lobbying for the investments.

## 2.2 Finland

### Introduction

Finland is a vast territory with a dispersed population. Most of its passenger transport is concentrated in Helsinki and the southern part of the country. Of the approximately 76 million train journeys in Finland per year, 94% are within 300 km of Helsinki (including regional transport and 64% of national transport) (Finnish Government, 2021). While the state has primary responsibility for national transport infrastructure planning, several actors at different levels are also involved in planning, developing and maintaining the transport infrastructure.

## Main transport policy goals and other policy documents

The legal basis for transport infrastructure planning of roads and highways is laid down in the Highways Act (Finlex, 2009) and the Railroad Act (*Spårtrafiklag*) (Finlex, 2018). According to the Highways Act, national land-use objectives, regional plans and local plans (as specified in the Land Use and Building Act, as well as the Nature Conservation Act) shall be taken into account in the planning of transport infrastructure.

The Railroad Act (*Spårtrafiklag*) entered into force in 2019 and is expected to improve railway transport and increase the number of rail passengers (*Järnvägsnyheter*, 2019). The new act includes the European Union's fourth rail package and replaces both the previous Railroad Act and the Act on City Railroads (Finlex, 2018)

The Finnish Parliament adopted the first long-term National Transport System Plan in 2021. This is a 12-year strategic plan for the development of the transport infrastructure system during 2021–2032 (Finnish Government, 2020). It replaces the previous system, in which the government presented a transport policy report (*Transportpolitisk redogörelse*) and an investment programme for the election period to the Parliament (Transportanalys, 2011).

In addition to describing the current state of the transport system, the National Transport System Plan sets out a vision for 2050, objectives and an action plan, including measures to be addressed by national and local governments. The plan covers all modes of transport, i.e. passenger and goods transport, transport networks, and services and support measures for the transport system. Important elements of the plan include impact assessment and brings together transport planning at national, regional and local level as part of a comprehensive framework.

The plan also includes a funding programme, which from 2021–2024 conforms to the Government Fiscal Plan and budgetary decisions and includes estimates for the government expenditures for the realisation of the plan.

The National Transport Systems Plan has been elaborated based on guidance from a parliamentary steering group and as part of a wide-ranging co-operation with stakeholders. It is part of a rolling planning system and will be revised every fourth year. The investment programme for the national transport infrastructure system is linked to the National Transport Systems Plan. This is elaborated by the Finnish Transport Infrastructure Agency (*Trafikledsverket*) and will be updated yearly.

## Main transport and infrastructure actors

Three levels of government are involved in transport infrastructure planning and maintenance in Finland: national, regional and local. Just as in the other Nordic countries, actors at the local level (i.e. the municipalities) are responsible for the planning, building and maintenance of local roads, while the state is responsible for the national transport infrastructure system.

At national level, the main actors are the Ministry for Transport and Communications (LVM) and the Finnish Transport Infrastructure Agency (*Trafikledsverket*). Traficom (*Trafik och kommunikationsverket*) is mainly responsible for permits and supervision, while Fintraffic provides traffic-management services.

At the regional level, we find several bodies. The 18 Regional Councils (*Landskapsförbund*) have two main responsibilities, as laid down in the legislation:

physical regional planning (*landskapsplanläggning*) and regional development, which includes setting goals for regional transport infrastructure. At regional level, the Finnish state administration is organised in 12 Centres for Economic Development, Transport and Environment (*Närings, Teknik och Miljö centralerna NTM (Swedish)/ELY (Finnish)*), which are responsible for the supervision of roads, minor investments and winter maintenance of regional roads.

There is an ongoing discussion in Finland regarding the allocation of responsibilities, financing of transport infrastructure and asset management between different levels of government, especially in relation to the bigger cities and city areas. In the city regions, transport planning also takes place within 10 so called City Area Regions (MAL), who have been assigned by the Ministry of Environment to conduct planning that combines urban planning with planning for housing and transports.

The nature of transport infrastructure planning means that it is closely connected to physical and regional planning. While the regional councils (*Landskapsförbund*), which are indirectly elected assemblies of municipalities within the 18 regions, are responsible for regional planning, it is the municipalities that are responsible for physical and master planning. In Finland, both regional plans and master plans are legally binding. Compared to Sweden, however, master planning is not compulsory for municipalities in Finland. In addition, the city regions draw up urban area plans (MAL), which include planning for housing and transport, and are formalised in agreements between the state and the city regions. At present, these are not binding, but the new Planning and Building Act suggests that these should be made compulsory from 2024. Although the state has responsibility for national transport infrastructure planning, this indicates the complexity of actors and frameworks that must be taken into account in cross-border transport infrastructure planning.

## Central elements in the planning process

The Highways Act stipulates the road-planning procedure and consists of the following steps:

1. Preliminary engineering plan, including a report about the need for the highway and alternatives studied, basic decisions in relation to transport and technical solutions, location, estimated impacts on, e.g. road safety, land use and environment, and a preliminary budget.
2. The preliminary plan serves as a guideline for drafting the final engineering plan. Once the preliminary plan has been decided and is legally in force, the processing of applications for building permits can begin.
3. The final engineering plan shall be drafted and adopted before highway construction work starts. The plan shall contain location of the project, an impact assessment, land and ownership conditions, buffer zones and potential land reservations, and an estimate of the costs.

## Important analytical models and tools for impact analysis

The impact assessment is included as an important element in the drafting of the Finnish National Transport System Plan and was conducted in accordance with the Act on the Environmental Impact Assessment of Plans and Programmes by the Authorities (the "SEA Act"). The environmental issues identified comprise climate change, natural resources, biodiversity decline, and the risk of regional and community dispersion. As part of the implementation of the Plan and in the process of drafting the investment programme, the environmental impact assessment will

be further specified.

The National Transport System Plan is also assessed in relation to the objectives of the plan, e.g. the objectives' accessibility at international, interregional and intraregional levels, as well as the transport system's sustainability and efficiency (Finnish Government, 2020). The FRISBEE model is used to estimate freight flows, while variants of the logit model system EMME/2 are used for passenger travel. The IVAR3 model is used to perform cost-benefit calculations at individual project level.

## **Nordic cross-border collaboration**

The railway section of the National Transport System Plan specifies the potential for developing railroads in cross-border areas with neighbouring countries. For the southern part of Finland, the plan emphasises the importance of well-functioning and attractive connections to the south (in particular, towards Estonia) and the west (towards Sweden and beyond), but also to the east (towards Russia and on to Asia).

Finland does not have a railway connection to Norway. The rail links to Sweden only carry goods, since the passenger rail to Haparanda was deemed non-profitable and suspended in 1988. With the aim of improving the railways' cost-efficiency and industrial competitiveness, and to support the Finnish-Swedish land transport connections as part of TEN-T, the current government, under Sanna Marin, has decided to electrify the railway between Kemi (Laurila) and Haparanda starting in 2022 (Trafikledsverket, 2021). The project is planned in collaboration with the Swedish authorities and will bring the Finnish railway system closer to the Swedish border and enable onward travel to Narvik in Norway. The transport plan states that the project not only has the potential to increase cross-border transport for passengers and goods but also supports a rail network of container traffic from Narvik to China. However, one important challenge is the difference in rail gauge between Finland and Sweden, which places economic strain on the project.

A comparison of railroad connections from Finland shows that those to Russia are better than those to Sweden, especially when it comes to passenger services. From Helsinki, St Petersburg can be reached in only four hours, and Moscow is accessible via night train. However also to Russia, there are challenges in terms of capacity for freight transport. The Russian invasion of Ukraine in the beginning of 2022 and the subsequent sanctions on Russia have had an impact on transport and are expected to affect transport infrastructure planning in both the short and long term.

Finland has cross-border sea transport links to the countries. The two most important are Sweden and Germany, which are Finland's largest trading partners. Trade with and transports to Russia have decreased since the financial crisis of 2008. According to the National Transport Plan, Helsinki is one of Europe's busiest ports for foreign passenger traffic, with more than 12.9 million passengers in 2019. Passenger traffic from Helsinki goes to Stockholm, Tallinn, St Petersburg and Travemünde, and from Åbo to Stockholm and Mariehamn in Åland. From Nådendal (outside Åbo), services sail to Kapellskär (outside Norrtälje/ Stockholm), while Holmsund (on the coast of Umeå) can be reached from Vasa. Vasa and Umeå municipalities also have a common cross-border port administration in the form of the company Kvarken Ports Ltd. Related to sea transport, Finland and Sweden are also working together on a new generation of ice-breaking vessels.

The National Transport Plan also refers to the TEN-T corridors that connect Finland to the rest of Europe. Of the nine corridors, the Scandinavian–Mediterranean corridor and the North Sea–Baltic Sea, where the link from Helsinki via Torneå to

Luleå in Sweden is pointed out, are of relevance to Finland. These corridors are expected to facilitate for railway projects in Finland to be supported by the CEF mechanism to a larger extent than before. However, the plan also emphasises collaboration with neighbouring countries in order to develop border crossings and support cross-border goods transport.

Several of the Finnish regions that border regions in other Nordic countries are involved in cross-border collaboration on transport infrastructure. One example is the Kvarken Council, representing the cross-border collaboration between the cities Vasa and Umeå and the regions of Österbotten and Västerbotten, as well as other municipalities in those regions. The judicial form of the Kvarken Council has changed since 2021 and is now a European grouping for territorial co-operation (EGTS) to facilitate and support the development of the cross-border region (Kvarkenrådet, n.d.). The Kvarken Council, the Helsinki region and the City of Turku, representing the Northern Growth Zone (a collaboration involving municipalities and regions in south-west Finland), are also members of the Scandria Alliance, which aims at "connecting regions and economies through clean and smart transportation" (Scandria Alliance, n.d.).

## 2.3 Norway

### Introduction

Norway is characterised by challenging geography, including high fjords and mountains, many islands and a lot of water. This makes it difficult to plan and build transport infrastructure. The state is responsible for the national transport infrastructure. The Ministry of Transport (*Samferdselsdepartementet*) is the managing body and sets the conditions for transport and infrastructure through framework agreements. The National Transport Plan (NTP) is the main steering document.

### Transport policy goals and other policy documents

Transport and infrastructure are steered by the National Transport Plan (NTP), which is drawn up every 12 years and updated every four years to follow the terms of political office. The last NTP was decided in March 2021 (Meld. St. 20 (2020–2021)) and includes planning for the period 2022–2033. The NTP is the framework for the development of the transport system and places particular emphasis on the priorities for the first six years.

The overarching goal for transport and infrastructure policy in Norway, as presented in the NTP, is to have an efficient, environmentally friendly and safe transport system in 2050. The new plan presents five goals on how to achieve this: more value for money (using resources in a more effective manner); efficient use of new technologies; make a contribution to Norway's fulfilment of its climate and environmental goals; Vision Zero for road traffic fatalities and serious injuries; make travelling easier; and increase the competitiveness.

In the NTP, the government states that, since the last NTP, they have carried through reforms in all parts of the transport sector, stimulated innovation, made resource use more effective, and increased co-operation through competition between actors. There have also been attempts to clarify the roles of public authorities.

The NTP presents a financial framework of about NOK 1,200 billion over 12 years, of which NOK 1,076 billion are state funds and NOK 123 billion are tolls. The state framework is distributed as follows: NOK 510 billion to national roads, NOK 52 billion to subsidies for county roads, NOK 393 billion to railways, NOK 33 billion to coastal management, NOK 80 billion to measures in urban areas, NOK 5 billion to airports and NOK 3 billion for investment across the transport sectors.

Several laws regulate transport and infrastructure. The Planning and Building Act (*Plan- og bygningsloven*) regulates the use of land. Building permits are needed to construct buildings, constructions or facilities and to extend objects with additional structures. The act states that planning and building should ensure sustainable development of society and future generations and aim for long term solutions. Openness and inclusion of all relevant actors, are mentioned as well as the considerations of children and youth. Construction should also be planned in an environmentally and climate-friendly manner and follow the guidelines for universal design and accessibility.

There are also sector-specific laws. The Railway Act (*Jernbaneloven*) regulates the construction and operation of railways, including trams, metros, commuter trains, and similar track-based means of transport. The law also applies to fixed and loose facilities and all activity related to railways. The Road Act (*Veglova*) regulates the planning, construction, maintenance and operation of public and private roads. The Aviation Act (*Luftfartsloven*) regulates both civil and military aviation unless other provisions are stated in the agreement with the European Economic Area (EEA). The Ports and Waterways Act (*Havne- og farvannsloven*) regulates maritime transport and facilitates the efficient, safe and environmentally friendly operation of ports and the use of waters while also taking into consideration the need for a competitive business community. The law takes account of national defence interests and contingency planning.

## **Main transport and infrastructure actors**

The government has the overall responsibility for infrastructure and transport, proposes the budget and new laws, implements actions, and creates guidelines and frameworks. Within the government, the Ministry of Transport (*Samferdselsdepartementet*) sets conditions for how the transport and infrastructure is realized via framework agreements. The Ministry of Transport has the overall responsibility for road and railway sector, national ferries (*riksveiferjene*) as well as for the postal service and aviation. They are also the managing body for the public authorities that work in the areas of transport and infrastructure. These bodies, which are listed below, are guided by annual government directives based on the budget (*tildelingsbrev*) which set the framework for the bodies' activities for the year. The bodies also have several additional responsibilities, e.g. regarding new investigative assignments.

The Norwegian Public Roads Administration (*Statens Vegvesen*) is responsible for managing, investigating, planning, building, operating and maintaining national roads. Its mission is to develop and facilitate a comprehensive and future-oriented transport system throughout the country, which promotes accessibility, reduces transport accidents and contributes to the transition to a low-emission society. This also includes responsibility for information and communication technology (ICT).

The Norwegian Railway Directorate (*Jernbanedirektoratet*) works with the development of the railway and to ensure that the railway sector is operated efficiently, safely and in an environmentally friendly manner for the benefit of

passengers, freight transport and society.

The Norwegian Coastal Administration (*Kystverket*) ensures safe and efficient traffic along the coast and into ports and is responsible for national contingency planning in the event of acute pollution incidents. The NCA operates under the Ministry of Trade, Industry and Fisheries, not the Ministry of Transport.

Other relevant public authorities are the Road Supervisory Authority (*Vegtilsynet*), the Norwegian Railway Authority (*Statens jernbanetilsyn*), CAA Norway (*Luftfartstilsynet*) and the Norwegian Safety Investigation Authority (*Statens havarikommisjon*).

The state companies are also important actors. Avinor AS is the largest owner of airports in Norway, while Bane NOR SF is responsible for railway infrastructure. On the regional and local level, the regions (*fylkeskommune*) and municipalities (*kommune*), respectively, are important actors. The regions are responsible for regional planning, while the municipalities are the planning authorities responsible for, e.g. local roads.

## Central elements in the planning process

The planning processes in Norway differ depending on the transport mode. However, for large infrastructure projects, the process is relatively similar:

1. Starting the project
2. Strategic Choice of Measure (included in the material for the NTP)
3. Quality assurance for state investment (KS1)
4. Use of land regulated in planning and building law
5. Regional plan
6. Municipal plan (*kommundelsplan*)
7. Technical planning
8. Quality assurance for state investment (KS2)
9. Allocation of investment funds in the state budget.

Strategic Choice of Measure (*Konseptvalgutredning* in Norwegian) is an important part in Norwegian transport and infrastructure planning process. It is used to investigate and consider alternative solutions before making decisions on a road or railway design plan according to the relevant acts on a legal basis. It is similar to the Swedish "Åtgärdsvalsstudie" and also follows the same four step process as in Sweden.

- Step 1: Measures that affect the demand for transport and the choice of mode of transport
- Step 2: Measures for efficient use of existing infrastructure
- Step 3: Improvements to existing infrastructure
- Step 4: New investments and major rebuilds of infrastructure

Climate considerations are an important part of this process, and many of the evaluations are based on the Norwegian climate goals. This means that when choosing between different modes of transport, the project's climate impact is significant (Sjögren & Kyster-Hansen, 2018).

Infrastructure projects can be financed either by taxpayers (via taxes) or by transport and infrastructure users (tolls). There are several different methods of financing, including loans from state infrastructure funds and regional and municipal advance payments (*Förskotterging*). Grants from the state budget are however the

most common way of financing infrastructure projects in Norway.

## Important analytical models and tools for impact analysis

Several models and tools are used to carry out the analyses in the Norwegian planning process. To analyse the effects of passenger traffic, Avinor, together with other transport agencies, developed the national transport model NTM 5b. The model is used for travel over 100 km, while five other regional transport models (RTM) are used for travel under 100 km (Helo et al., 2019). The PANDA model is used to simulate the long-term development of transport flows in nodes and regions.

Other national and regional models are used to describe and make prognoses of the transport measures' system effects. The PINGO model is used to generate prognoses for nodes and regions and to analyse how changes in population and industrial development will impact future freight flows. A network model and a logistical model are also used. The Norwegian logistical model shares many similarities with the Swedish SAMGODS model. The EFFECT tool is used to perform socioeconomic calculations for individual objects (Helo et al., 2019).

## Nordic cross-border collaboration

Nordic cross-border collaboration is not frequently mentioned, but it should be emphasised that some documents address the importance of Nordic co-operation.

The Norwegian Public Roads Administration states that it is engaged in substantial international activities. One of its goals is to better coordinate cross-border plans, projects and transports in both the Nordic Region and the High North (*Nordnorrådene*)<sup>4</sup> (Statens Vegvesen, n.d.). EU and EEA forums, as well as the Nordic Road forum (*Nordisk Veiforum*) are mentioned as prioritized. The annual governmental directives to the Norwegian Public Roads Administration (*tilldelningsbrev*) from 2022 state that Nordic co-operation is an important part of the government's European policy and that it strengthens the influence in the European arena. Nordic co-operation is also mentioned in relation to the Norwegian Presidency of the Nordic Council of Ministers 2022. The statement about Nordic co-operation being important to reach influence in the European arena recurs in the annual governmental directives to several public authorities, including the Norwegian Railway Directorate, Norwegian Safety Investigation Authority, CAA Norway and the Road Supervisory Authority.

The Rail Directorate mentions a few aspects in need of improvement regarding cross-border collaboration (Jernbanedirektoratet, n.d.). These include the harmonisation of cross-border train schedules and ticketing, better train connections to the continent, and strengthening international co-operation in a way that optimises international passenger train traffic.

The latest NTP (from 2021) mentions Nordic areas and Nordic collaboration several times. The priority projects for cross-border collaboration are Oslo–Ørje/Magnor (corridor 2) and Trondheim–Bodø, with connections to the Swedish border. Another important corridor is Bodø–Narvik–Tromsø–Kirkenes (Corridor 8). Upgrades of the Ofoten Line are included in the package for combined freight transport between Oslo and Narvik and the traffic here is located on the Swedish side and connected to the Iron Ore Line (Malmbanan), which is a priority in the Swedish NTP. The Skibotndalen – an EU-funded pilot project for information and technology services

---

4. Territories of countries in the north (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States) located throughout the Arctic beyond the Polar Circle.

(ITS) involving private- and public-sector actors from Norway, Sweden, Denmark and Finland, as well as test locations are specified in relation to Oslo and Svinesund/Kornsjø, as well as Oslo–Ørje/Magnor (corridor 2). The latter is said to contribute to improving the accessibility of the road network from the Swedish border to Oslo via the development of the E18 Retvet–Vinterbro.

One section in the NTP is dedicated to the High North, which the Norwegian government describes as “Norway’s most important strategic investment area” (Regeringen.no). The priorities include funding the relocation of Bodø Airport and a new airport in Mo i Rana in the first six-year period; cooperating with neighbouring countries on the joint development of transport supply; upgrading and further developing the road network in the northern areas; facilitating the development of business and industry; expanding the housing and labour market regions; reducing transport time; and increasing the capacity for freight transport by rail.

The NTP does not mention the railway and road connection between Oslo and Stockholm. In 2022, the Norwegian Railway Directorate was assigned to investigate the potential for developing a railway connection between Oslo and Stockholm. The Swedish government has assigned a similar task to the Swedish Transport Administration. The joint investigation was concluded in October 2022.

## 2.4 Sweden

### Introduction

In Sweden, national long-term transport planning is done on a 12-year cycle and revised every fourth year. In practice, this means that the four-year national plans are the main focus of the work, while projects and measures specified in the 12-year horizon may be added, adjusted or postponed. The most recent government bill (prop. 2020/21:151) covers the period 2022–2033. The Swedish government decided on the infrastructure bill in spring 2022, and it is expected that decision on a new bill will be taken in 2026. Within this framework of goals, bills and annual government directives from Parliament and the government, the Swedish Transport Administration (STA) is responsible for long-term planning for all modes of transport. However, other actors also have important roles in the regulation, management and evaluation of the transport system.

### Main Transport policy goals and other policy documents

In the long term, transport infrastructure planning is shaped by the goals of Sweden’s transport policy. The current goals were presented in the government bill “Goals for Future Travel and Transport” (Government Bill 2008/09:93), which was adopted by Parliament in 2009. The goals consist of an overarching goal and two secondary goals. The overarching goal is to ensure “an economically efficient and sustainable provision of transport services for people and business throughout the country”. The two secondary goals pertain to accessibility and to particular considerations with respect to traffic, security, the environment and health. To clarify those goals and make them more concrete, at that time, the government also added seven clarifications. The third of these clarifications, with respect to accessibility goal, may be of particular importance for this study. It states that accessibility should be improved both between regions in Sweden and between “Sweden and other countries”.

Traffic Analysis, a government agency responsible for providing policy advice to decision-makers in the transport area, is tasked with developing a method for ensuring regular follow-up work on the Swedish transport policy goals. The large number of clarifications and the partly unclear nature of their internal relationship generated obstacles to a summarised and weighted evaluation. Instead, it was suggested that the overarching objective and the two secondary goals should be retained and that the clarifications should be replaced by three *transport policy-related priorities* and a set of *indicators*. (Traffic Analysis, 2017). As a consequence of this shift to indicators, the importance of improved accessibility between Sweden and other countries, which was explicit in the third accessibility clarification, seems to have been omitted from the evaluation and is not included as an explicit indicator.

It may hence seem confusing that one of the current tasks specified in the instruction for the STA (*Förordning (2010:185) med instruktion för Trafikverket*), i.e. to develop "an internationally competitive transport system", is not explicitly part of Traffic Analysis's evaluation of the current national transport policy. Hence, it is not explicitly stated that the transport system should have a role in the development of an internationally competitive position for Sweden and the Swedish economy in international trade networks, e.g. by transport and infrastructure networks and links to current or future trading partners.

However, international accessibility is brought up in other policy contexts, e.g. in relation to the EU, the development of the TEN-T network, and in national policies relating to the shipping industry, aviation and the national freight strategy (Ministry of Industry/ Näringsdepartementet, 2018). International links, harbours and shipping are mentioned as areas of importance, and it is pointed out that Sweden will continue to be active within the TEN-T collaboration. In this respect, Sweden has for example suggested that Narvik and Haparanda should be included in the ScanMed corridor and that Örebro–Oslo should be included in the core railway system. In addition, Sweden should develop transport links in the Baltic Sea and the Barents region. It is also stated that the Swedish government should initiate dialogue with the Norwegian government regarding the work by the STA on the routes Stockholm–Oslo, Gothenburg–Oslo and Kiruna–Narvik in order to devise joint studies aimed at improving those routes. The government has previously allocated resources for a study of the Helsingborg–Helsingör link.

## **The national transport plan and the bill for transport infrastructure**

As has been noted, the Swedish Transport Administration plays an important role in the development of the National Transport Plan. The elaboration of a proposal for a national plan for infrastructure departs from the transport policy goals and mainly covers the following areas: operation and maintenance of state-owned roads and railways; investment in state-owned roads, railways, fairways and locks; measures to reduce the environmental impact of infrastructure; support to municipalities to promote sustainable urban environments (urban environment agreements); and funding research and innovation (Swedish Transport Administration, 2022). Based on this proposal, the government formulates a transport infrastructure bill and submits it to Parliament for adoption. Once Parliament has made its decision, the STA revises the plan and updates the measures for investment, operations and maintenance. Based on these revisions, the government decides on the operational national plan. The current National Transport Plan was presented by a written communication to Parliament in June 2022.

## National Transport Plan for the period 2022-2033

The financial framework for the most recent National Transport Plan was specified in the above-mentioned government bill, "Infrastructure for the Future: Sustainable investment throughout Sweden". Directions for this work were specified in the government directive of 23 June 2021 to the STA, the aim of which was to prepare a proposal for an intermodal national plan for the development of transport infrastructure for the period 2022–2033.

According to the English summary of the National Transport Plan it is suggested that investments will continue to be made in the four designated transport corridors: the Western Mainline, Southern Mainline, Northern Rail Freight Corridor (Hallsberg–Luleå) and the Iron Ore Line (Luleå–Riksgränsen). Due to positive developments in the north of Sweden, the focus now will be on the Iron Ore Line and Northern Rail Freight Corridor. However, in the full version of the National Transport Plan, we find more information regarding the international links. One section of the plan deals with EU transport policy and refers to European Parliament and the Council's regulation (EU) no. 1315/2013 regarding the development of the TEN-T, as well as other relevant EU directives regarding, e.g. long freight trains, ERTMS, rest areas along roads, security, etc.

The National Plan refers to Government directives stating that in the development of cross-border transport infrastructure, the Swedish Transport Administration shall consider data prepared in consultation with other countries where relevant. It seems, therefore, that the new plan does not include the previous ambitions of developing common Nordic models for analyses (Prop 2016/17:21, s 62). Rather, it appears that ongoing co-operation between authorities on both sides of the borders should be incorporated into the planning for cross-border relations. Strategic choice of measures (ÅVS) have been carried out on most routes between Sweden and the neighbouring countries. According to these studies, the regions, counties and municipalities on both sides of the borders, as well as affected parts of the business community, were invited to participate in the investigations.

According to the plan, the STA also has initiated a forum involving Banedanmark, the Danish Road Directorate, Traficom and Vaylä in Finland, the Norwegian Railway Directorate and the Norwegian Public Roads Administration. The aims of the co-operation are, among other things, to help create consensus on bottlenecks, identify shortcomings in cross-border relations, and establish an arena for discussion and sharing information about the respective authority's planning proposals, measures and transport plans.

Among the objects highlighted in the National Plan 2022–2033 are the important shipping ports: Narvik (iron ore port), via the Ofoten Line in Norway, as well as the ports along the Norrland coast; Luleå (port in the TEN-T core network); and Umeå, Sundsvall and Gävle (ports in the comprehensive TEN-T network). Important transit routes for domestic transport between northern and southern Norway are highlighted, as well as significant volumes of commercial freight transport, which go via southern Sweden and across the Öresund Bridge to export markets. In Gothenburg, two strategically important nodes are emphasised: the port of Gothenburg (a port in the TEN-T core network) and Sävenäs freight yard.

From Stockholm (Kapellskär, Stockholm and Nynäshamn), transport corridors continue by ferry to Turku/Helsinki, while in the western part of the country, the Stockholm–Oslo railway is characterised by low quality and small capacity. The national road and rail routes in the west connect Norway and Sweden to the continent via the ports along the coast and the connections to the Öresund region.

The planned Fehmarn Belt connection is expected to increase transport flows by land.

The airports that handle the largest amount of international air freight arrivals and departures are Arlanda (Stockholm), Landvetter (Gothenburg) and Malmö. It is pointed out that Swedish people mainly undertake long-distance domestic travel by car but often travel abroad by air.

Under the heading "further studies", the National Plan states that the Swedish and the Danish Transport, Construction and Housing Authority have commissioned the STA, the Danish Road Directorate and the Danish Transport and Housing Agency to carry out a strategic analysis aimed at increasing knowledge about a new fixed link between Helsingborg and Helsingör. This report has since then been conducted and was finalised in 2021. The National Plan also proposed investigations into the Stockholm–Oslo route which should include capacity and travel time with a focus on the part between Karlstad and the national border. The Norwegian government commissioned the Norwegian Railway Directorate to investigate the Oslo–Stockholm railway connection, and the results of this joint study were presented in autumn 2022.

The assumed impacts of the planned proposal for improved international transport possibilities, are primarily linked to EU transport policy objectives. For example, the measures implemented in Sweden as part of the TEN-T network and the increasing number of "rest areas" along roads which are in line with EU objectives aimed at developing the TEN-T network and increasing security on the roads.

## **Main transport and infrastructure actors**

The Swedish Transport Administration (STA) is the main national authority responsible for planning, investment and, to some extent, the operation of state-owned transport networks for freight and passenger transportation.

Other national transport and infrastructure actors are the Ministry for Transport and other national authorities in the area of transport infrastructure, such as the Swedish Transport Agency, Swedish Maritime Administration, LFV (airports and air control) and Transport Analysis, which is responsible for evaluating transport policy.

The Swedish Transport Administration is a large agency that plays an important role in Swedish transport policy, at national, as well as regional and cross-border levels. This is especially the case in relation to land-based transport. Since the establishment of the STA in 2010, and according to government bill (Proposition 2010:185), the STA is responsible for, among other tasks, the long-range planning of infrastructure in order to obtain the goal of a social economic efficient, internationally competitive and in a long-range perspective sustainable transport system. § 2 of the bill states that the STA will be a partner to the Swedish regions in their growth-oriented work, (sentence then continues: while § 4 states that the STA will support the government in developing the European corridors and the TEN-T transport network. Moreover, § 12b states that the STA has the option to procure international public transportation in the event that the regional public transport administration has been unable to procure such traffic.

As mentioned, the government directive specifies the funding for the STA's annual budget. The directive also stipulates that the government may point to specific policies, means or goals that the STA should deliver in the year(s) to come. As such, in 2022, the conditions attached to the STA budget included a requirement for railway transportation from Sweden to destinations in other countries, especially

towards Central Europe. The aim was to simplify options for travelling by rail, rather than by air, from Sweden to Central Europe. This may be interpreted as meaning that the STA should procure such a line.

STA is furthermore required to report on how their work contributes to the National Strategy for Regional Development (Ministry of Enterprise and Innovation, 2020) and the governmental proposition for a Cohesive Policy for the Swedish countryside (Ministry of Enterprise and Innovation, 2017). This means that the STA also co-operate with the Swedish regions and the international cross-border regions.

At the regional level, regional transport plans (*Länsplaner*) are developed by the regional councils on a 12/4 schedule following upon directives from the government. In the regional transport plans priorities of smaller regional investments funded by government resources are made. These may involve co-financing investment in the extended state-owned road network within the regions, as suggested by the region or by municipalities, or adding to resources provided by the STA. Finally, municipalities have responsibility for local roads, harbours and airports, as well as some stations and terminals which form part of the national railway and public transportation system, and for land-use planning.

Part from the key actors involved in transport infrastructure system already mentioned, also a few other national actors could be mentioned. For example, the Ministry of Finance plays a key role in decisions regarding taxation aimed at internalising externalities both within and originating from the transport system, as well as in the allocation of financial resources to transport policy within the total budget. The Ministry of Enterprise and Innovation, may enact various measures that affect the localisation of people and industries and the flows in communication and transportation networks. *Boverket*, the Swedish National Board of Housing, Building and Planning, operates under the Ministry of Finance and also plays an important role in physical planning via the Planning and Building Act (PBL).

At the local level, PBL grants municipalities the responsibility for the planning of both land and water areas within their jurisdictions. The municipalities adopt comprehensive plans, area plans and detailed development plans and decide on the implementation of the plans. Municipalities must consider national legislation laid down in for example the Swedish Environmental Code. Here, national interests may limit what can be achieved within a specific area. The regional County Administrative Boards act as governmental representatives in the regions and have a role to safeguard and coordinate state interests.

Private actors, too, play an important role in the development and utilisation of the overall transport system. Since the planning system is based on long-term planning, which in practice consists of four-year terms with various control steps, the system may have problems coping with large and rapid changes in the localisation of industries. This, in turn, may have a major impact on for example freight volumes in the transport system. Unlike, say, the development of new housing areas, investment in a new industrial facility may be announced only shortly before construction begins. As a consequence, the effects on shortages or congestion in the transport network may be felt much faster. When private actors (constructors, real estate developers, etc.) wish to develop new areas for housing and service, the municipality, as a result of its key role in planning, usually has insight into the process. In order to dissolve bottlenecks and take on new initiatives, there may be a need for a faster negotiation process between municipalities and the STA than is stipulated in the long-term planning process – especially at the beginning of a new planning period.

Naturally, some of these private and public actors are international actors who have an impact on the development of the Swedish transport system and thus become

part of the overall Swedish transport policy. Of those, the EU and agreements regarding standards and legislation for European transportation, as well as the TEN-T land-based network, are particularly important. But other international regulations with respect to shipping and aviation also influence the Swedish network and the standard of vehicles used, as do agreements within the United Nations.

We have already mentioned Transport Analysis, the government agency charged with providing decision-makers with policy advice. This agency is also responsible for producing official statistics and fulfils an important function by providing many actors with information, data and evaluations of the status of the transport system. Parliament and the government are two important recipients of these evaluations, but more generally, Transport Analysis's reports add to the knowledge base and are used by a wide range of actors.

Regarding the development of new statistical methods, policies, evaluation methods, etc., Traffic Analysis works with universities, schools of engineering research institutes and consultants. Among those, VTI (the Swedish National Road and Transport Research Institute) is an increasingly prominent actor in the transport sector. It is notable that the STA involves more research-focused actors in their activities, both via own research-funding activities and as advisers in socioeconomic, environmental, etc., analyses.

## Central elements in the planning process

Above, we have provided an overview of the Swedish planning process and its main actors. In this section, we will focus on the process in more detail. As mentioned, the planning process starts when the government gives the STA and the regions directives to present national and regional plans for long-term transport infrastructure planning at their respective levels.

Even if those directives have the 12/4-year rolling schedule, the financial directives, e.g. for the STA, are decided annually, given the constraints set by Parliament in the annual budget. In the annual governmental directive (*Regleringsbrev*) to STA the economic possibilities/constraints are defined. Based on this the STA may then present a more detailed plan for its operations (*Verksamhetsplan*) for the coming years. The operations listed or discussed more generally in the long-term plan should have been studied in detail in a Strategic Choice of Measure (in Swedish: *ÅVS; Åtgärdsvalsstudie*), which includes dialogue with various actors and consideration of more cost-effective alternatives and solutions that are more in line with various policy priorities. When such a project has been found to be competitive compared with other projects, the process may continue towards decisions in a road design plan or a railway design plan. Once the relevant acts are legally approved, the physical operation may begin.

As such, various proposed projects that are deemed interesting enough to be subject to a Strategic Choice of Measure study are fulfilled or set aside in a "storage bank", from which measures/objects/projects can later be selected. It has been strongly emphasised that this is a necessary step for a project to be considered, especially at the national level. The outcomes of plans and of the finalised and implemented measures are then evaluated in different ways by the STA and Transport Analysis. The results are reported to the Ministry of Infrastructure.

The National Transport Plan is however not the only policy in the field of transports. The abovementioned National Strategy for Freight is an example of another policy which has been developed separately with a national freight transport council focused on major actors within industry and freight transportation. Similar

consultations take place at the regional level, albeit with varying regularity.

## Important analytical models and tools for impact analysis

The catalogue of models used by the STA for planning measures includes a large number of specific models and tools for performing certain calculations. We will not cover all of those here. Instead, we will mention three major models. First of all, the STA relies on Sampers, the Swedish national modelling system for the analysis of all modes for passenger traffic. This model is used when drawing up long-term forecasts. The model has its roots in the planning practice of the 1990s. According to the STA, it has not been updated for a long time. This is a problem since forecasting traffic flows on roads and railways (especially high-speed lines) for international travel has become more urgent. Moreover, the model, has problems in terms of dealing with feedback, e.g., from the housing market, that is of importance for the utilisation and distribution of benefits from infrastructure investments.

The Strategic Choice of Measure studies use more object-oriented models for cost-benefit calculations, namely EVA (road) and Bansek (railway), together with formalised structures to calculate both overall and less quantifiable socioeconomic impacts. Sampers may provide input to those in the form of estimates of future demand for passenger transportation.

Samgods is the estimation model for freight and for forecasting freight flows on different transportation modes and links. This model is not as detailed as Sampers, as it only has one node in each municipality. The international network is also quite aggregated, and the model handles international flows given by a fixed matrix into the model. According to the STA, there is a need to update the model and there may be a potential to develop a long-term, partly common model for the Nordic countries (Trafikverket, 2019). To compensate for the shortcomings of Samgods when it comes to making more detailed analyses within municipalities of the impacts of new larger facilities or of investment in increased capacity within an existing facility, the STA has developed a routine that can be used when drawing up a business impact assessment (*Företagsekonomisk Konsekvensbedömning*, FKB). A FKB is not a model per se but a fast and systematic approach to assessing (e.g. based on interviews) how a company's initiative might potentially affect freight flows.

## Nordic cross-border collaboration

To understand Swedish ambitions for cross-border transport infrastructure, it may be illuminating to go back a few years. The infrastructure bill 2016/17:21 presented the plan for the period 2018–2029. Among other things, it underlined the need for dialogue with the governments in the Nordic countries in order to increase the efficiency of cross-border transport and called for the promotion of all modes of both passenger and freight transport between the Nordic countries. For example, it calls for the development of common analytical models for forecasting traffic. The bill states that there may be synergistic effects of initiating Nordic collaboration on the development of such models. Further, it argues that common planning processes could be developed in a dialogue between strategic planners and decision-makers, although it is explicitly stated that the plans for the development of infrastructure should continue to be a national concern. As mentioned earlier, a collaboration between the Nordic transport authorities has been established. Cross-border collaboration which involves different levels of government in the Nordic border regions is extensive and works to promote common interests in infrastructure, e.g. the Barents Joint Transport plan, and regional cross-border development more

generally.

In the most recent decision on a national plan for infrastructure (Regeringen; Skr 2021/22:261 *Nationell planering för transportinfrastrukturen*) the two projects: Helsingborg–Helsingör and Stockholm–Oslo are mentioned explicitly, while common projects with Finland are not mentioned. Since 2021, a joint study on a fixed link between Helsingborg and Helsingör has been finalised by the STA and the Danish Road Directorate in 2021. The government tasked STA to investigate the conditions for developing the Stockholm-Oslo line in co-operation with the Norwegian Railway Directorate who received a corresponding assignment from the Norwegian Ministry of Transport to do a feasibility study. The joint study on Stockholm–Oslo was finalised in October 2022.

## **2.5 Transport infrastructure planning in the Nordic Region – a comparative overview**

As the previous section shows, there are both similarities and differences between the Nordic countries when it comes to transport infrastructure planning. The table below provides a brief comparative overview of the transport policies, the main actors, the planning processes and Nordic collaboration in cross-border transport infrastructure planning.

**Table 1. Comparative overview of transport infrastructure planning in Denmark, Finland, Norway and Sweden**

	Denmark	Finland	Norway	Sweden
<b>Main transport policy goals</b>	<p>Seven indicators for green mobility:</p> <ol style="list-style-type: none"> <li>1. Fewer people in car congestions</li> <li>2. Attractive public transport</li> <li>3. Just as easy to drive a green car as a fossil fuel car</li> <li>4. More people choosing bicycle</li> <li>5. Less noise from traffic</li> <li>6. More green development</li> <li>7. Increased safety on roads</li> </ol>	<p>Vision: A sustainable and accessible Finland.</p> <p>Three parallel goals aimed at reducing climate change:</p> <ol style="list-style-type: none"> <li>1. The transport system guarantees accessibility in all of Finland, and responds to demand from businesses, the labour market and housing</li> <li>2. Improved sustainable mobility, especially in city regions</li> <li>3. Improved socioeconomic efficiency of the transport system</li> </ol>	<p>To have an efficient, environmentally friendly and safe transport system in 2050</p> <ul style="list-style-type: none"> <li>- More for the money</li> <li>- Efficient use of new technology</li> <li>- Contribute to meeting Norway's environmental and climate goals</li> <li>- Zero vision for dead and seriously injured</li> <li>- Make travelling easier and increase the competitiveness of business and industry.</li> </ul>	<p>To ensure the provision of economically efficient and sustainable transport services for people and businesses throughout the country.</p> <p>In addition to this overarching goal, there are two secondary goals that pertain to accessibility and considerations.</p>
<b>Transport infrastructure policy</b>	Agreement on Infrastructure Plan 2035 (2021-2035)	National Transport Systems Plan 2021–2032	National Transport Plan 2022–2033	National Transport Plan 2022–2033
<b>Main actors</b>	<p><b>National level:</b> Ministry for Transport Danish Road Directorate (<i>Vejdirektoratet</i>) Banedanmark Danish Civil Aviation and railway Authority (<i>Trafikstyrelsen</i>)</p> <p><b>Regional level:</b> 5 regional councils</p> <p><b>Local level:</b> 98 municipalities</p>	<p><b>National level:</b> Ministry for Transport and Communications (LVM) Transport Infrastructure Agency (<i>Trafikledsverket</i>)</p> <p><b>Regional level:</b> 18 Regional councils (landskapsförbund) 12 Centres for Economic Development, Transport and Environment (NTM/ELY)</p> <p><b>Local level:</b> 309 municipalities City regions (MAL)</p>	<p><b>National level:</b> Ministry of Transport (<i>Samferdseldepartementet</i>) Norwegian Public Roads Administration (<i>Statens Vegvesen</i>) Norwegian Railway Directorate (<i>Jernbanedirektoratet</i>) Norwegian Coastal Administration (<i>Kystverket</i>)</p> <p><b>Regional level:</b> 11 regional councils (<i>Fylkeskommuner</i>, 15 from 2024)</p> <p><b>Local level:</b> 356 municipalities</p>	<p><b>National level:</b> Ministry of Infrastructure Swedish Transport Administration (<i>Trafikverket</i>)</p> <p><b>Regional level:</b> 21 regional councils</p> <p><b>Local level:</b> 290 municipalities</p>
<b>Planning process and impact assessment</b>	Formalised planning process: Yes Impact assessment: Yes	Formalised planning process: Yes Impact assessment: Yes	Formalised planning process: Yes Impact assessment: Yes	Formalised planning process: Yes Impact assessment: Yes
<b>Nordic cross-border transport infrastructure planning in national transport policy documents</b>	<p>Yes For example: Öresund bridge.</p> <p>Specific projects: Additional Öresund crossings, Helsingborg–Helsingör (HH), Metro and Europaspåret</p>	<p>Yes For example: Railway to Sweden.</p> <p>Specific projects: Laurila–Torneå–Haparanda</p>	<p>Yes For example: Strategic investments in the High North.</p> <p>Specific projects: Oslo–Ørje/Magnor, Trondheim–Bodø, Bodø–Narvik–Tromsø–Kirkenes (connections to Iron Ore Line), pilot project in Skibotndalen, Oslo–Stockholm</p>	<p>Yes For example: Meetings and consultations with regions.</p> <p>Specific projects: Öresund/HH Stockholm–Oslo Kiruna–Narvik</p>

Source: Developed by the authors.

As the above table shows, the national transport policies in the Nordic countries explored in this study, to a large extent, share much the same timeframe for their respective transport policies, spanning 2021/2022 to 2032/2035.

A comparison of the main transport goals also shows similarities between the four countries. Accessibility, efficiency, sustainability and safety seem to be core values for all of the countries, although the goals are formulated independently, with different goal hierarchies and emphases.

In terms of the actors involved in transport infrastructure planning, we find many similarities between the Nordic countries. In each country, the main actor responsible for transport infrastructure planning is the transport ministry, supported by national authorities. While Sweden and Finland have one authority for both road and railway planning – the Swedish Transport Administration (*Trafikverket*) and Finnish Transport Infrastructure Agency (*Trafikledsverket*), respectively – Denmark and Norway have separate authorities for road and rail planning. One important difference between the Nordic countries is that Denmark and Norway (and Iceland) follow a public administration model in which the national agencies are part of the ministerial organisation, whereas in Sweden and Finland the agencies are separate and independent authorities (Wenander, 2022). One of the implications of this is that, e.g. in Denmark, the transport infrastructure authorities (*Banedanmark*, *Trafikstyrelsen* and *Vejdirektoratet*) are formally part of the Ministry of Transport, and the Minister of Transport exerts more direct influence over transport policy. The law even stipulates that it is the Minister of Transport (*Transportministeren*), rather than the Ministry, who is responsible for transport infrastructure planning.

In all the Nordic countries, transport infrastructure planning also involves the regional level and municipal actors. One thing that all of the countries have in common is that the regions (i.e. the *landskapsförbund* in Finland, the regional councils in Sweden and Denmark and the *fylkeskommune* in Norway) are responsible for elaborating a regional development strategy. Although these strategies generally focus on economic growth and sustainable development, infrastructure and mobility are important factors in achieving that aim and, as such, are included to some degree. The regional development strategies are supplemented by mobility and infrastructure strategies, such as the “regional system analyses” in Sweden and strategies for regional public transportation.

Responsibility for the planning, implementation and maintenance of transport infrastructure and public transport is, to a large extent, an overall shared responsibility. However, in most cases, this means that actors at different levels of government are responsible for different parts of the transport infrastructure system. Regarding the division of responsibility between those actors, we find that this differs not only between the Nordic countries but also between the regions within the individual countries. However, in all of the countries, the planning and maintenance of local public roads is usually a municipal responsibility, while property owners’ associations may be responsible for managing local private roads.

The overview shows that generally speaking, the Nordic countries seem to follow similar planning processes, which include impact assessments. However, since the actors have somewhat different roles, mandates and financial resources, we find differences in terms of decision-making on transport infrastructure. For example, in Denmark, where the transport authorities are formally part of the ministry, the model is more project-based, and legislators make decisions on new infrastructure projects on a case-by-case basis.

Regarding Nordic cross-border planning of transport infrastructure, we find that even if the main focus is on the development of national transport infrastructure, examples of cross-border transport infrastructure projects are mentioned.

To sum up, despite the many similarities between the four Nordic countries, we also find important differences between them in terms of transport infrastructure planning. Furthermore, it is important to acknowledge both similarities and differences in order to understand the prerequisites for transport infrastructure planning across national borders. In the next section, we will delve more deeply into the challenges of cross-border transport infrastructure planning.



Photo: Eivind Sætre / norden.org

## 3. Cross-border transport infrastructure planning

This section describes the background to cross-border transport infrastructure planning in order to understand how it is conducted in the Nordic Region. We start by looking at the concept in a multi-level governance and cross-sectoral context. The section continues with a discussion of transport and infrastructure policy and planning at national, EU and Nordic level.

Transport infrastructure policy and planning are mainly anchored in a national territorial perspective. However, numerous different territorial perspectives are at play here: international, European, Nordic, national, regional and local. This has important implications since each of these levels of governance has its own goals, modes of governance, financing, planning and management. As such, transport infrastructure planning is framed in a multi-level governance context.

Transport infrastructure planning is also framed in a cross-sectoral policy context. This means that transport infrastructure planning not only involves infrastructure and transportation policy but also other policy areas such as regional development policy and climate policy. Infrastructure, transportation and regional policy are to a large extent interdependent – without demand for transport (e.g. from regional business or industry) or infrastructure at hand (e.g. ports or railways), there will be no investment in transport means (e.g. maritime vessels or trains). On the other hand, even when investment in transport infrastructure is in place, demand may not always arise in a way that warrants the specific investment.

As we will see, this understanding of transport infrastructure planning as being a dynamic process involving many actors and framed by multi-level governance and a cross-sectoral context has important implications for cross-border transport infrastructure planning.

### 3.1 Cross-border transport infrastructure planning in a multi-level governance and cross-sectoral policy context

The Nordic countries are examples of unitary states with centralised governments and elected national parliaments responsible for legislation. These centralised governments are supported by national authorities such as the national transport authorities. The Nordic countries are also characterised by strong local authorities and the devolution of powers to local and regional levels, especially in areas connected to the welfare sector (e.g. education, health and social care), but also urban planning, housing, regional development and public transportation.

In the area of transport infrastructure planning, responsibility is shared between different levels of government in all of the Nordic countries. As we have seen in the previous sections, the division of tasks may differ between the countries. As a general pattern, overall responsibility for transport infrastructure planning rests at national level, whereas regional authorities are mainly involved in regional development which may include regional transport plans, and public transportation. In general, local authorities are responsible for municipal roads but may also be responsible for other infrastructure facilities, such as ports and airports.

However, we may also find differences both between and within the Nordic countries. Differences in public administration models between the western Nordic countries (i.e. Denmark, Iceland and Norway) and those in the east (Sweden and Finland), e.g. regarding the independence of national authorities in relation to the ministries (Wenander, 2022), which can be expected to have important implications for cross-border transport infrastructure planning.

The Nordic countries are also part of international collaborations that influence their transport infrastructure planning.

Although transport is stipulated as one of the policy areas for co-operation in the Helsinki Treaty (1962), which forms the basis for Nordic co-operation in the Nordic Council of Ministers, legislative co-operation between the Nordic countries has de facto decreased since the 1970s (Tala, 2022). One explanation for this is that several Nordic countries have since become members of the European Union (Denmark in 1973, followed by Sweden and Finland in 1995). While Nordic co-operation is an intergovernmental collaboration, which means that its commitments are not legally binding compared to international law, EU legislation is binding. Today, therefore, the legislative collaboration between the Nordic countries both relates to and is framed by the EU collaboration (Tala, 2022).

Transport policy has been one of the European Union's policy areas for more than 30 years. Norway, which is a part of the EEA, is also impacted by the EU Transport policy, such as the EU regulation TENT-T (Trans-European Transport Network). Within the European Commission, the Directorate-General for Mobility and Transport (DG MOVE) is responsible for developing and implementing European policies in the transport field, including the TEN-T and the funding mechanism Connecting Europe Facility (CEF), as well as other funding programmes connected to the transport field (European Commission, n.d.b). The European Commission appoints a European coordinator for each of the nine TEN-T Core Network Corridors. DG REGIO, the European Commission Directorate-General for Regional Development, is responsible for regional development, including the Cohesion Policy and the programme for cross-border co-operation (Interreg).

Within the European Union, the Council of Ministers (i.e. the ministers from the European Union countries) and the European Parliament are jointly responsible for

legislation regarding transport and regional development. Other European institutions, such as the Committee of the Regions (COR), have a role in ensuring that local and regional perspectives are taken into account.

However, it is also important to acknowledge that transport infrastructure planning is not only influenced by developments that occur in close geographic proximity. In an ever more globalised world, global trends, actors and programmes affect development and planning in this sector. For example, the Paris Agreement, the UN Global Goals and Agenda 2030 are influencing most policy sectors. International economic co-operation organisations and structures, such as the G20, the World Bank, OECD, UNECE, etc., are also involved in transport and infrastructure policy issues. Furthermore, there are also binding international regulations regarding transport with which all transport actors must comply, such as UNCLOS (the United Nations Convention on the Law of the Sea) and the international regulations laid down by the International Civil Aviation Organization (ICAO).

Finally, although the public-sector actors and the international forums within which they collaborate play a fundamental role in transport infrastructure planning at both domestic and international level, the role of private companies should not be neglected. Within transportation, we find both public- and private-sector companies and actors. In all modes (air, sea, road, rail), the majority of transport carriers are private companies, and big consultancy firms and organisations are frequently involved in conducting analyses of transport infrastructure. Historically (but also currently), private-sector actors have played a crucial role when it comes to investment in infrastructure and transport projects. However, since the transport system is characterised by strong returns to scale, network economies and externalities associated with heavy, long-term investment, the public-sector interest should be emphasised. In this project, we will focus on the public-sector actors involved in cross-border transport infrastructure planning. In the case studies, however, we will also explore the extent and form of private-sector involvement.

Although the national government level plays a central role, many actors at different levels of government are involved in transport infrastructure planning and, as such, influence the outcome of cross-border transport infrastructure planning in this multi-level governance and cross-sectoral context.

This means, for example, that transport infrastructure planning at the regional level is connected to urban and regional planning, industrial development, and the development of the regional economies and their extended regional labour markets. The Nordic regions usually elaborate on these issues as part of their regional development strategies. However, while the Nordic regions develop comprehensive regional strategies and play a coordinating role in this work, Sandberg (2017) finds that they lack a clear mandate to coordinate.

Furthermore, transport policies and planning enabling actual mobility via the provision of trains, buses, aircraft and vessels are also important for cross-border transport infrastructure planning. In this field, we find a mix of public and private actors, which may be procured from and authorised at different levels of government, i.e. national, regional or local. And in order to understand the challenges and opportunities of cross-border transport infrastructure planning, e.g. to identify the policies and actors that play key roles, we must take into account these aspects of multi-level governance, multi-actor initiatives and cross-sectoral contexts.

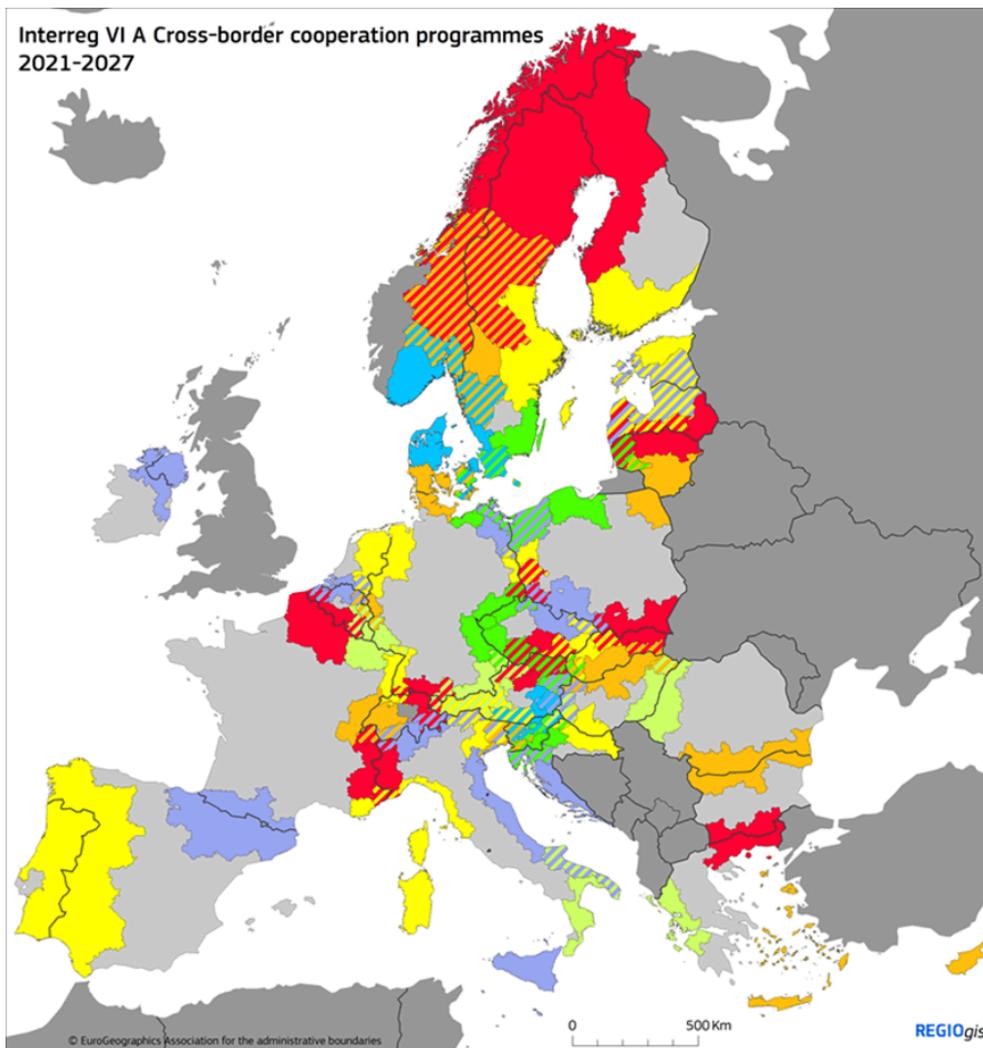
## **3.2 EU policy influencing cross-border transport infrastructure planning**

Since 1995, when Sweden and Finland joined Denmark as members of the European Union, Nordic transport and infrastructure has been highly influenced by EU policy. In the following section, we will examine how European regional policy and transport policy influence cross-border transport infrastructure planning and how this project defines and applies these concepts.

### **3.2.1 EU Regional policy influencing cross-border transport infrastructure planning**

The European Union policy for regional development, called the EU Cohesion Policy, aims at strengthening economic, social and territorial cohesion in the European Union and correcting imbalances between countries and regions. One part of this policy is the European Territorial Co-operation (ETC), which aims to solve problems across borders and jointly increase the territories' potential. The ETC is implemented through Interreg programmes and financed by the European Regional Development Fund. During the programme period 2021–2027, the Interreg has four components: cross-border co-operation; transnational co-operation; interregional co-operation; and outermost regions co-operation (European Parliament, 2022a).

The first component, cross-border co-operation (Interreg A), brings together regions or local authorities with a common border (land or maritime) in order to develop the border areas and meet common challenges. The transnational co-operation (Interreg B) covers larger transnational territories and aims to strengthen co-operation by promoting integrated territorial development between national, regional and local entities in large European geographical areas. Interregional co-operation (Interreg C) brings together subnational actors or European experts in networks that can span the entire EU. The fourth component involves the outermost regions (Interreg D), including Guadeloupe, French Guiana, Réunion, Martinique, Mayotte and Saint Martin (France), the Azores and Madeira (Portugal), and the Canary Islands (Spain). Most of the funding for the Interreg programmes for 2021–2027 goes to cross-border co-operation (Interreg A), which receives 72.2 % of the budget (see Map 1 for Interreg A programmes for 2021–2027) (European Parliament, 2022a).



**Map 1. Interreg A 2021-2027**

Source: RegioGIS, (2021). <https://www.aebr.eu/new-cohesion-legislation-enters-into-force-on-1-july/>

Via the Cohesion Policy, including the European Regional Development Fund and Interreg programmes, the EU aims to actively support an inclusive, connected and more competitive Europe based on enhanced regional development and better cross-border and transnational co-operation governance. While the Cohesion Policy is the EU's strategy for strengthening economic, social and territorial cohesion in the EU in general and for correcting imbalances between countries and regions, Interreg A provides funding and support for cross-border co-operation between at least two member states that lie directly on or are adjacent to the borders. The focus of the different Interreg A programmes across Europe varies. In some cross-border regions, building trust and establishing joint activities are important due to a history of war and conflict, while other cross-border regions are more focused on boosting and harmonising economic and territorial development and removing border obstacles. One of the aims of Interreg is to bring together actors from supranational, national and subnational levels in loose, cross-border constellations (Guasco, 2015). In practice, however, most actors involved in the Interreg programmes are from the subnational level.

Another instrument contributing to European cross-border collaboration is the European Grouping of Territorial Co-operation (EGTC). Since 2006, subnational actors have had the opportunity to create a EGTC-co-operation to build cross-border legal entities (Europaparlamentet, 2022b). An EGTC enables public

authorities of various member states to team up and deliver joint services without requiring a prior international agreement to be signed and ratified by national parliaments. The member states still have sovereignty since they decide on the participation of members in the EGCT. In 2022, there are 78 EGTCs. The most recent – and first Nordic – EGTC is the Kvarken Council EGTC established in January 2021 with actors from Sweden and Finland (European Committee of the Regions, n.d.a. & n.d.b; Kvarkenrådet, n.d.).

Sweden, Finland and Denmark are also involved in the European Union Strategy for the Baltic Sea Region (EUSBSR), together with the Baltic states, Germany and Poland. The EUSBSR is the first macro-regional strategy in Europe and has three main objectives: saving the sea, connecting the Baltic Sea region and increasing prosperity (EUSBSR, 2022).

Hence, EU policy on regional development – including the Interreg programmes, opportunities to establish EGTCs to enhance cross-border collaboration, and the EUSBSR – influences and contributes to cross-border collaboration between actors at regional, local, national and international level. These collaborations play a key role and are drivers for regional development in cross-border areas. However, as we will see, transport infrastructure planning is also framed and regulated within an international transport policy context.

### **3.2.2 EU transport policy and cross-border transport infrastructure planning**

In the European Union, transport policy was set out in the Treaty of Rome, with the aim of opening up a common transport market in the European community. According to Giorgi and Schmidt (2002), transport policy began to shift in 1985, when the first white paper on the completion of the internal market was published, and restrictions on the provision of transport services were identified as serious barriers to open trade. Between 1985 and 1991, the Commission initiated more than a dozen directives and regulations, e.g. CD 440/91 on the development of the community's railways, CR 3820/85 on the harmonisation of social legislation relating to road transport, and three air-transport liberalisation packages (in 1987, 1990 and 1992) (Giorgi & Schmidt, 2002).

The first white paper on transport policy was adopted in 1992 and has since been followed by several others. As a result of the Maastricht Treaty of 1992, the concept of trans-European networks for transport, energy and telecommunications was developed to support the single market and connect the European regions. This was later transformed into the Trans-European Transport Network (TEN-T) and measures such as the Connecting Europe Facility (CEF), the aim of which is to support transport infrastructure planning within the European territory.

#### **Trans-European Transport Network and funding mechanisms**

The Trans-European Transport Network (TEN-T) addresses the implementation and development of a Europe-wide network of railway lines, roads, inland waterways, maritime shipping routes (motorways of the sea), ports, airports and rail terminals. TEN-T's objectives include closing gaps in infrastructure, removing bottlenecks and technical barriers, and strengthening social, economic and territorial cohesion in the EU (European Commission, n.d.a). TEN-T was developed to strengthen the single market and guarantee the free movement of goods, capital, services, and people.

The underlying regulation defines requirements for the infrastructure, with target goals for 2030 for the core network (comprising nine transport corridors) and 2050 for the entire TEN-T network, including the comprehensive network.

In 2019, the European Commission initiated a review process to assess the TEN-T regulation based on recent economic, political and technical developments, such as sustainability, user-driven mobility and technological progress. Post-2020, this process was expanded to include the effects of COVID-19. The proposal was presented at the end of 2021 and has four main objectives. Firstly, the new proposal is connected to the European Green Deal and the Fit for 55 package. The European Green Deal aims to make transport greener by, e.g. providing alternative fuels and increasing the use of rail, short sea shipping and inland waterways. Fit for 55, presented by the European Commission in 2021 and adopted in 2022, aims to reduce greenhouse gas emissions by a minimum of 55% in 2030 (European Council, 2022b). Secondly, it aims to facilitate seamless and efficient transport by removing bottlenecks and missing links and by improving multimodality and interoperability in the European transport system. Thirdly, it strives to increase TEN-T's resilience to climate change and other natural hazards or human-made disasters. Finally, it aims to improve the efficiency of TEN-T's governance tools, e.g. the streamlining of reporting and monitoring instruments, and to review its network design (European Commission, 2021). The proposal for new TEN-T regulation has been open for public consultation during 2022.

The Connecting Europe Facility (CEF) is a funding mechanism connected to the TEN-T network, the aim of which is to promote growth, jobs and competitiveness through targeted infrastructure investments at European level. In addition to grants, the CEF offers financial support to projects through innovative financial instruments such as guarantees and project bonds. Since 2021, the European Climate, Infrastructure and Environment Executive Agency (CINEA) has been responsible for the coordination of CEF, and for securing the connection to the climate transition and sustainable energy, in line with delivering the Green Deal. The aim of replacing the previous coordinator, the Innovation and Networks Executive Agency (INEA), with the current CINEA was to establish a closer connection between transport and infrastructure issues and climate transition and energy issues (European Commission, n.d.c).

### **Trans-European Transport Network and the Core Network Corridors**

Within the Trans-European Transport Network, there are nine core network corridors (CNCs) (see Map 2). From the Nordic perspective, the Scandinavian-Mediterranean (ScanMed) corridor and the North Sea–Baltic corridor are central.

The ScanMed corridor is the longest of the corridors, stretching from southern Italy through Central Europe and Denmark and then branching out to Norway, Sweden and Finland. In the new CEF regulation for 2021–2027 (Regulation (EU) 2021/1153), the decision was taken to expand the ScanMed corridor. In Denmark, the "Jutland Route" will be expanded to include the cities Aarhus and Aalborg, as well as the ports Hirtshals and Frederikshavn. The corridor will continue from Stockholm along the Gulf of Bothnia to the Swedish cities Sundsvall, Umeå and Luleå, the Norwegian city Narvik and the Finnish city Oulu (European Commission, 2020a).

The North Sea–Baltic corridor is particularly important for Finland, but also for Sweden. The corridor starts in Belgium and the Netherlands and goes eastwards through Germany and Poland and then north through the Baltic states and Finland. In autumn 2017, Finland sent a request to the EU Commission to extend the corridor,

which previously ended in Helsinki. This extension was included in the new regulation for 2021–2027 (2021/1153), which means that the ScanMed corridor and the North Sea–Baltic corridor are connected and slightly overlap at the Swedish and Finnish border (see Map 2).

The Scandria Alliance is a collaboration involving cities and regions from Finland, Sweden, Norway, Germany and Italy aimed at strengthening the ScanMed TEN-T corridor. The Alliance issued a common position paper on the revisions to TEN-T, calling for a strengthening of cross-border collaboration, including local and regional players in the design of a multimodal transport system, supporting the extension of ScanMed and the North Sea–Baltic Core Network corridors, and promoting the inclusion of, e.g. the Stockholm–Oslo link into the TEN-T framework.

In addition to the construction of new physical infrastructure, the TEN-T supports the application of innovations, new technologies and digital solutions for all modes of transport. This includes the European Rail Traffic Management System (ERTMS), the objectives of which are to reduce costs and increase security in international train operations. The goal is that ERTMS should be operational across TEN-T's entire core network in 2030. The implementation plan prioritises six main corridors (named A–F), following the same routes as the TEN-T and rail freight corridors (European Commission, n.d.a)



**Map 2. Core network and the nine corridors (CNC)**

Source: European Commission, n.d.a. [https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t\\_sv](https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_sv)

## European cross-border transport infrastructure planning

The basic idea of TEN-T (Regulation No 1315/2013 – currently under revision) highlights the importance of the European cross-border dimension (European Commission, n.d.a). However, there are numerous challenges connected to the implementation of TEN-T, often related to the member states' national authority over decisions on infrastructure and transport planning. The challenges are attributed to several factors: different country-specific standards, the division of planning between many national authorities within the respective countries, the characteristics of the national markets, and difficulties in transnational coordination (Guasco, 2014). While TEN-T recognises the importance of regional mobility and interregional connectivity and also promotes cross-border projects, it does not clearly address how these should be implemented (Guasco, 2015).

The building and expansion of the TEN-T core network corridors has the potential to significantly alter travel and transport patterns, which in turn may affect the regions' economies, attractiveness and territorial planning. For many cities and regions along the corridors, the effects of TEN-T are positive. However, corridor-void areas and transit areas, e.g. areas not in proximity to a corridor node, may be negatively affected (TENacle, 2019). As such, even though the intention is to improve cohesion in Europe, TEN-T-related measures may occasionally have the opposite effect. Some scholars discuss the so-called "straw effect", which reveals how new road networks may have negative impacts, e.g. lower economic productivity in lagging areas, by increasing the level of local dependency on major metropolitan areas (Behrens et al., 2007; Kim & Han, 2016).

## 3.3 Nordic co-operation influencing cross-border transport infrastructure planning

Although the Nordic countries have historically liaised and collaborated on, for example, road standards and air transport, the Nordic collaboration was more formalised with the co-operation Helsinki Treaty (1962), the Nordic Council and Nordic Council of Ministers. The first article in the Treaty states that the Nordic countries "shall endeavour to maintain and develop further co-operation between the Nordic countries in the legal, cultural, social and economic fields, as well as in those of transport and communications and environmental protection" (Helsinki Treaty, 1962:5). Furthermore, it states that the countries should consult each other when constructing cross-border connections, facilitate mobility across borders, and coordinate border controls (1962:8).

At the moment (2022), the Nordic Council of Ministers has ten different Councils of Ministers (called MRs<sup>5</sup>). However, the Nordic Council of Ministers for Transport (MR-Transport) was dissolved in 2005 as part of a larger reform agenda. One of the arguments for dissolving this council was that meetings between the Nordic transport ministers took place in other forums, such as the European Union, the Barents Council, the Northern Dimension and the Nordic-Baltic Eight (NB8). Another explanation was that the Nordic Council of Ministers for Transport had lost its relevance and importance by focusing primarily on technical issues of low political interest, such as road-safety issues and transport research, and was unable to place strategic transport infrastructure issues on the political agenda (Hasselgren & Lundgren, 2016).

---

5. MR stands for *Ministerråd* (Minister council in Swedish).

Since the dissolution of MR-Transport, both the Nordic Council and regional actors involved in cross-border transport have repeatedly emphasised the need for better coordination of Nordic transport policies and for reinstating the Nordic Council of Ministers for Transport (Nordic Council, 2021; TENTacle, 2019). However, a 2016 study based on interviews with representatives from the Nordic governments, parliaments and transport agencies showed that there was little interest in re-establishing the council (Hasselgren and Lundgren, 2016). In particular, representatives from the governments were reluctant to endorse the idea, indicating that transport infrastructure is, first and foremost, a national political issue involving both long-term structural perspectives and substantial resources. They also highlighted coordination difficulties and that the coordination of cross-border transport infrastructure primarily takes place at EU level.

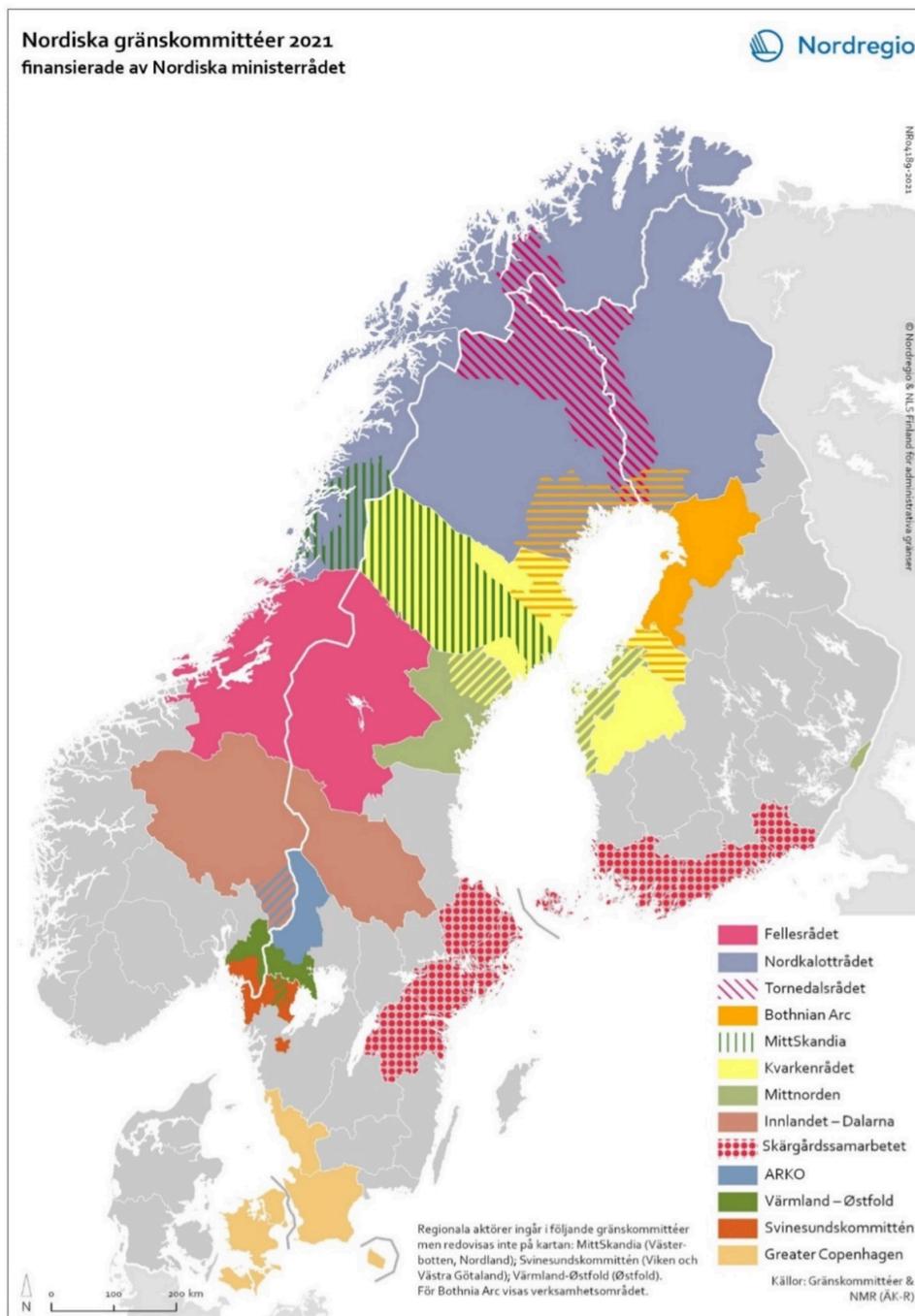
In 2020, the first steps were taken towards enhancing Nordic co-operation on transport and infrastructure. The Nordic transport ministers came together in an informal meeting, and a report from the Nordic Council of Ministers to the Nordic Council stated that the structures for future Nordic collaboration on transport infrastructure would be further discussed (Nordic Council of Ministers, 2020). However, the yearly plan and budget for 2022 state that the Nordic countries have not agreed to re-establish MR-Transport (Nordic Council of Ministers, 2022). In 2022, the Social Democratic Group on the Nordic Council has again raised this issue with the Nordic ministers (Nordiska rådet, 2022). The removal of cross-border barriers to sustain economic growth is one of the objectives of the Council of Ministers for Sustainable Growth, yet transport infrastructure issues are currently not part of its agenda (Nordiska ministerrådet, n.d.b).

Since the dissolution of MR-Transport, there has been no formal political co-operation between the Nordic countries on transport infrastructure planning. The former Nordic-Russian co-operation, which takes place within the Barents Euro-Arctic Transport Arena (BEATA), has been suspended due to Russia's military aggression against Ukraine. The Arctic Council, which also includes Canada, Russia and the United States, is another platform for collaboration in the northernmost parts of the Nordic countries.

However, collaboration does take place between the Nordic national transport authorities. In 2017, the Swedish Transport Administration initiated a forum for the Nordic transport authorities, i.e. the Danish Governmental Railway Agency (*Banedanmark*), the Danish Road Directorate (*Vejdirektoratet*), the Finnish Transport Infrastructure Agency (*Väylä*), the Norwegian Railway Directorate (*Jernbanedirektoratet*) and the Norwegian Public Roads Administration (*Statens vegvesen*) (Grandin, 2020). The aim of the co-operation is to provide a common understanding of bottlenecks and obstacles to cross-border relationships, as well as to inform and discuss new measures and plans and develop analyses for cross-border projects at an early stage in the planning process. According to a report from Swedish Transport Administration, the forum has "frequent meetings" (Grandin, 2020), but the mandate and outcome of this and other civil servant networks remain to be investigated.

Another example is the Nordic Road Association (*Nordisk Vejforum NVF*), which is a public-private collaboration of actors from the road sector in Sweden, Norway, Finland, Denmark, Iceland and the Faroe Islands (Nordisk Vejforum, n.d.). NVF is tasked with sharing and developing knowledge and best practices within the road and transport sector. This takes place via NVF's working groups, in which experts meet to develop knowledge, such as a foreign transport model designed to improve the exchange of data and statistics for applied planning (Grandin, 2020). A third

example is the Forum for Nordic Railway Association (NSJ) (*Nordisk Jernbanesamarbeid*, n.d.), a similar organisation that brings together active professionals and individuals with a significant interest in railway planning in the Nordic Region. The emphasis is on knowledge development, with a view to enhancing Nordic railway co-operation.



### Map 3. Nordic cross-border co-operation committees 2021

The map shows the geographical delimitation of cross-border regions and committees financed by the Nordic Council of Ministers as of December 2021 (Nordregio, 2021).

At a more decentralised level, extensive Nordic co-operation also takes place in the Nordic cross-border regions. Many of these initiatives have a long history. Map 3 presents the 13 cross-border regions and committees that received support from the Nordic Council of Ministers in 2021. The cross-border regions serve as platforms and hubs for cross-border collaboration and involve public- and private-sector actors, as well as civil organisations, mainly at regional and local level. Apart from Nordic funding, the cross-border regions also frequently attract Interreg funding. The Nordic cross-border regions facilitate the co-operation among themselves, but are also organised in the Association of European Border Regions (AEBR) (Association of European Border Regions, n.d.).

In addition, initiated by national authorities, cross-border committees, Interreg programmes etc., many Nordic cross-border transport infrastructure analyses and projects are underway in the Nordic Region, e.g. Helsingborg–Helsingör, Stockholm–Oslo and Mo i Rana–Vasa, which will be further explored in the next steps of this research project.

Finally, it is also worth mentioning the Nordic Freedom of Movement Council, which was created under the auspices of the Nordic Council of Ministers in 2014 with the aim of removing cross-border regulatory barriers and bottlenecks to cross-border mobility, e.g. in the field of social security and taxation (Nordic Council of Ministers, n.d.). However, this council does not work specifically on issues relating to cross-border transport infrastructure.



Photo: Johan Nilsson/Øresundsbron

## 4. Opportunities and challenges for cross-border transport infrastructure planning and collaboration

In this section, we delve further into the academic literature on opportunities and challenges in cross-border transport infrastructure planning and collaboration.

### 4.1 Opportunities for cross-border transport infrastructure and planning

As we have seen, the overall aim of transport infrastructure projects is to remove bottlenecks, reduce travel time and improve connectivity and mobility between places in order to strengthen the internal market, boost international trade, improve environmental quality and sustainability, and/or enhance geopolitical security. Regional and cross-border transport infrastructure projects also generally aim to contribute to economic growth by creating bigger economic regions or labour markets or by strengthening the political position of the region or cross-border region in national and international arenas.

Investment in cross-border transport infrastructure can yield benefits such as economic growth and regional development. The literature mentions several examples of how cross-border transport infrastructure projects can provide value not only for the regions concerned but also for larger territories of countries and at the European level. A 2021 study on global practices for transport infrastructure projects lists the following values: integrating markets and interconnecting communities; spill over effects for participating countries (positive or negative); creating interconnected production networks and facilitating international trade; increasing cross-border mobility; enlarging labour markets; and enabling international infrastructure corridors for long-distance traffic (Global Infrastructure Hub & Ramboll, 2021).

The potential value of cross-border projects, therefore, is not limited to the parties involved at the regional level but also concerns those who, in one way or another, are affected by changes in the infrastructure or the larger transport system. According to the study by Global Infrastructure Hub & Ramboll (2021), these projects can also deal with underlying issues regarding financing and credit, such as risk-sharing.

Economic geography literature indicates that there are significant gains from reducing transport costs by investing in cross-border transport infrastructure and associated regional integration. However, both theoretical and empirical literature indicates an asymmetric incidence of the benefits of regional integration among developing economies, which necessitates mutually acceptable coordination and/or compensation arrangements (Fujimura, 2004). As such, the benefits of a particular cross-border transport investment depend not only on the economic structure of the regions involved but also on how costs and benefits are distributed between regions.

Capello, Caragliu & Fratesi (2018) argue that, generally speaking, European border regions do not suffer from a lack of resources but tend to have an inability to efficiently use their endowments (e.g. in the form of production factors, assets or capital). The presence of a border means that they are unable to use their resources as efficiently as other regions, i.e. exploit returns to scale and scope in production, or reap the benefits of more complete labour markets. In this respect, the study suggests a set of policy proposals. The most straightforward is that European cross-border co-operation policy should be targeted at improving the governance of regional resources rather than addressing the issue of increasing endowments. However, the study argues that although the governance policies required to address efficiency needs are more difficult to implement, they cost less than the investment needed to address endowment needs. Capello et al. (2018) focus on how various borders (water, mountains, institutional, language, administrative, cultural, etc.) affect economic growth in European border regions. Instead of measuring border effects in terms of missed economic growth due to unrealised trade possibilities caused by barriers, the study seeks to measure the opportunities for regions to exploit or attract endowments or develop governance for growth. In this way, the study focuses on the supply side of border effects rather than demand.

However, even if cross-border transport infrastructure is improved, regions may still suffer from unrealised growth due to internal factors. Moreover, if cross-border transport infrastructure is improved, but internal problems in the region remain unsolved, the improved accessibility may even prove damaging to the region, as it might facilitate competition from stronger economies. Independent of this, an inability to handle internal structural and other failures in border regions will reduce economic growth at regional, national and European level.

Furthermore, the framing of transport policy in the national context indicates that border regions may suffer from the fact that their economies are truncated by the national border and that cross-border opportunities are not fully taken into account.

In an attempt to unlock the potential of the EU transport system and reduce the risk of disturbances in export flows, there have been calls for greater investment in increased mobility, especially in east–west transport corridors, such as the One Belt Corridor from China (e.g. Sjögren & Kyster-Hansen, 2018). More recent developments in China and Russia, however, have lessened European interest in supporting these links. From a Nordic perspective and taking into account the upcoming NATO membership of Sweden and Finland, these developments may increase demand for further east–west integration within the Nordic transport system.

## 4.2 Challenges to cross-border transport infrastructure and planning

The literature identifies not only the potential benefits but also the challenges of achieving successful cross-border transport infrastructure planning and co-operation. In this section, we have categorised the challenges into five different types: governance challenges; economic challenges; legal and administrative challenges; political challenges; and calculation and modelling challenges.

### Governance challenges

For obvious reasons, the governance of cross-border transport infrastructure projects is highly complex due to the involvement of actors from more than one country, who have different languages and cultures, different priorities and national frameworks with which they must comply. National structures for negotiation and decision-making on conflicting goals and priorities, including institutional structures for the development of proposals, analyses and calculations, are usually country-specific, which can create problems when it comes to the planning and implementation of cross-border projects (European Commission, n.d.b).

Hedlund and Montin (2009:7) describe governance as "the development of new forms of mutual interaction between different actors in society in order to increase the capacity of public policy". Different types of governance literature have a different emphasis, e.g. network governance, multi-level governance, territorial governance or polycentric governance, but all governance literature essentially boils down to practices of co-operation, i.e. how actors collaborate and how collaboration can be improved. However, challenges of governance are not only formalised in institutional structures, legislation, rules and regulations but are also translated into informal structures, practices and behaviour. In the literature, these are commonly framed as formal and informal rules and constraints that influence the actors' behaviour (e.g. North, 1990, Hodgson, 2006).

Processes of cross-border transport infrastructure planning usually involve many stakeholders. Even when a formal decision-making authority is identified, the implementation usually requires the involvement of several actors, e.g. public- and private-sector actors, expert groups and stakeholders at different administrative levels. Since the public authorities in charge of the policy-making process often need to negotiate with other stakeholders, it is important to take into account how power and influence play into these processes (Guasco, 2015). Many challenges in cross-border co-operation are related to the cross-border regions' exposure to different national institutional structures and multi-level governance (European Commission, n.d.b). For example, cross-border transportation in the Greater Copenhagen area is dependent on the collaboration between public transportation authorities on both sides of the border. On the Swedish side, this is a regional authority, Region Skåne; while on the Danish side, it is a national authority (Lidmo, 2022). These not only represent different levels of government but also have different mandates and priorities (Lidmo, 2022).

## Economic challenges

Like transport infrastructure more generally, cross-border transport infrastructure projects are often capital-intensive. Differences in the participating countries' financial capacity, as well as asymmetries in the distribution of costs and benefits, can create imbalances between the actors involved. Differences in terms of legal frameworks and administrative and financial mechanisms can increase costs, and less costly projects may be less visible, dispersed or take a long time to be fully realised (Global Infrastructure Hub & Ramboll, 2021).

Institutions are acknowledged as a means of reducing transaction costs, e.g. costs associated with interaction. These transaction costs are usually financial in nature (Coase, 1960), but they may also be measured in terms of social interaction (Westlund, 1999) or even political interaction (Lundgren, 2017). A lack of appropriate and formalised institutions may therefore lead to an increase in economic expenditure for cross-border transport infrastructure projects. However, formalised co-operation forums incur their own costs. Differences between countries when it comes to calculating socioeconomic costs or performing cost-benefit analyses can hamper decision-making processes. Even if the decision-making takes place within similar structures and processes, the mere fact of having to pass through several legislative and decision-making bodies can prolong matters. Furthermore, decision-making can be more difficult, or the processes may take longer when the costs and benefits are not equally divided between the countries involved. This may occur, for example, when one country has accumulated higher costs during the project or when the calculated benefits are not evenly divided (Helo et al., 2019).

Problems may also arise when national cost-benefit analyses do not include benefits and costs on the other side of the national border. The main motivation for not including these is usually the argument that the costs and benefits should be connected to the financing of the investment. However, a consequence of this line of reasoning is that it systematically advantages investments located in the centre of the country.

In a study investigating how borders present barriers to transport infrastructure, Rietveld (2012) touches on the same topic, identifying five types of barrier effects: preferences for domestic products and services; public-sector regulations limiting cross-border mobility; formal and informal institutions; lack of information; and increased transport costs. By using different measures of spatial integration, Rietveld claims that sensitivity analyses should be included in cost-benefit analyses of transport infrastructure projects with international cross-border dimensions. Including spill overs from across the borders in the cost-benefit analyses would not only give a more complete picture but, according to Rietveld, is also more likely to highlight the benefits.

## Legal and administrative challenges

Different legal frameworks and ways of handling procurement and financing generally create expensive delays in the project process. The threshold for transport actors' participation in cross-border projects can therefore be higher than for national projects (Global Infrastructure Hub & Ramboll, 2021). A situation of insecurity can appear if two countries' national laws and regulations are in conflict with each other. In such a situation, it is important to have in place clearly defined frameworks, i.e. there must be clear guidelines for how the different frameworks should be adapted in different situations (European Commission, n.d.b). Challenges

can also arise because of different national systems for charging, fuelling or running vehicles. But since these aspects are often standardised, it is more a matter of timing than of technology.

Nonetheless, technical challenges can arise due to, for example, the difference in the width of rail tracks in Western and Eastern Europe – as is also the case between Sweden and Finland. For obvious reasons, the removal of these not only entails legal and administrative challenges but also incurs high economic costs. In addition, the scheduling of transport can be an issue. Both passenger and freight traffic are coordinated in complicated national logistical systems based on national needs and, to a large extent, not coordinated with transport in other countries (Guasco, 2015). Similarly, the operator of a vehicle, e.g. a train driver, must hold several certifications when working in different countries and must comply with different sets of safety regulations. In this way, legal and administrative obstacles may constrain important opportunities for cross-border transport infrastructure.

## Political challenges

Strategic transport infrastructure collaboration within the Nordic framework has been deprioritised for a long time. The overall legal collaboration between the Nordic countries has decreased over time (Tala, 2022), and the lack of interest in political collaboration on transport infrastructure planning among Nordic policy-makers and governments is emphasised as a challenge (Hasselgren & Lundgren, 2016; Aguiar Borges, 2020). Similarly, the prospect of establishing a common Nordic political forum in which to meet and discuss Nordic cross-border transport infrastructure still seems to be met with reluctance (Nordic Council of Ministers, 2022). Disinterest in cross-border transport and infrastructure projects is also observed along the Core Network Corridors (CNCs), where it can be difficult to engage actors in the projects. A report investigating transport projects along the CNCs in the Baltic states concludes that, in general, there is low awareness of these corridors among both the public and market players. In addition, the level of engagement is low, which means that stakeholders are unable to mobilise financial support for investment (TENTacle, 2019).

One explanation for why transport infrastructure planning is not a priority area for Nordic collaboration is that it is, first and foremost, considered a national policy area. The vast majority of large transport infrastructure projects are planned, financed and managed by national authorities and use public funding. As such, the backbone of the planning process is an alignment of different agendas, strategies and priorities with each country's geography, politics and economy. This creates a situation in which national strategies do not necessarily correspond with cross-border projects or ambitions to develop cross-border areas, let alone with other countries' strategies (Aguiar Borges, 2020). While the regional actors in the cross-border areas have in-depth knowledge of cross-border needs and potentials, they lack formal power or authority when it comes to cross-border transport infrastructure, and nor do they have the financial resources required. In the Öresund region the lack of an institutionalized arena in which to discuss cross-border transport infrastructure planning, resulted in regional cross-border actors attempting to take on the role of "ministerial meeting organizers", which was however rejected. (News Öresund, 2021).

Despite international organisations and close transnational collaborations, cross-border collaboration projects are constantly reminded of the nation-states' sovereignty and the fact that their number one priority is the national territorial framework and perspective.

Cross-border infrastructure projects can also highlight politically sensitive subjects, such as shifts in the balance of power between or within countries (Ramboll & Global Infrastructure Hub, 2021). This happened when the Öresund bridge was built, which increased transport flows into Sweden, which in turn increased the need to prioritise continued infrastructure development and investment in Skåne. Similarly, investment can also promote a more decentralised economy since two regions can come together to form a larger, more competitive region. For example, the Öresund bridge has connected Malmö and Skåne to the capital area of Copenhagen, thereby creating a new economic centre in relation to Stockholm and Gothenburg (Aguiar Borges, 2020).

Finally, cross-border transport infrastructure projects involve a high degree of insecurity associated with coordinating projects across national borders. This includes an extended life cycle, during which many unexpected changes can occur, e.g. actors rethinking their level of commitment, amendments to frameworks, and changes in priorities and strategies, new political leadership as well as new budgets and mandates (Global Infrastructure Hub & Ramboll, 2021).

## Calculation and modelling challenges

The technical and socioeconomic models applied in transport and infrastructure planning are usually developed in a national context to calculate scenarios and impacts within national borders. As such, they are not designed to function in a cross-border context (European Commission, n.d.b). The use of different technical and socioeconomic models in different countries can, for example, give rise to difficulties in terms of quantifying and comparing data on current and future traffic flows. It can also reduce accuracy when interpreting gains and losses across borders and make it difficult to estimate cross-border flows. Since there is no common Nordic or trans-national institution that coordinates cross-border infrastructure and transport statistics, there may be a lack of overview, and knowledge of cross-border projects and cross-border traffic flows in the Nordic Region may be limited (Aguiar Borges, 2020).

Despite being based on similar scientific and methodological foundations, the different countries' transport models may take their starting point in different assumptions and adjust them to respond to national priorities and strategies. Socioeconomic models in the Nordic countries do not usually allow for measuring mutual benefits across borders (Helo et al., 2019). When performing an investment analysis of a measure in a cross-border area, the collected data and calculated effects, in terms of costs and benefits, are likely to differ, therefore, between the countries involved. National cost-benefit analyses are based on indicators such as behavioural parameters and values that have been negotiated in relation to national averages. In Sweden, this occurs within a process known as the ASEK model.

Transport is a major contributor to CO<sub>2</sub> emissions (IPCC, 2022), and therefore environmental perspectives and sustainability issues play an important role in the ASEK process and similar processes in the other Nordic countries (the Swedish Transport Administration, the Danish Road Directorate and the Danish Transport, Construction and Housing Authority, 2021). Here, too, however, the national calculations may be based on different assumptions, and the prices of emissions and

other environmental externalities may differ from country to country. For cross-border regions, these are important obstacles when advocating for investment in cross-border transport infrastructure since common ground needs to be found and negotiated for each project, which increases the transaction costs of cross-border co-operation and investments. This, in turn, can lead to a socioeconomically ineffective transport system in cross-border areas, as well as in the Nordic Region as a whole (Helo et al., 2019). Needless to say, this is not a specific Nordic challenge – it is also the case at the European level, where technical methods for handling similar or identical cases are not harmonised across borders (European Commission, n.d.b).



Photo: iStock

## 5. Concluding discussion and next steps

The literature reviewed identifies not only opportunities and challenges but also recommendations for successful cross-border projects.

A study analysing 20 European cross-border projects, including transport and infrastructure projects, presented critical success factors in the development of these projects. Three factors in particular were highlighted as promoting beneficial territorial effects in cross-border projects: defining common and clear goals and an overall plan (master plan); promoting transparency and commitment to the decisions taken in the project; and promoting better connections and mobility between cities (Castanho et al., 2016).

In another study by Global Infrastructure Hub & Ramboll (2021), the key considerations in delivering cross-border infrastructure projects were as follows: adopting policy, planning and prioritisation frameworks for efficient regional co-operation; creating legal, regulatory and stakeholder alignment to enable cross-border delivery; optimising the financial structure to properly allocate risks and benefits; establishing effective governance structures; and efficient management throughout the project lifecycle.

Capello et al., (2018) emphasised the risk of applying one policy to all border regions, or even across a whole region, rather than trying to identify the territory's often unique needs and combining these considerations with general experiences of the obstacles facing border regions and the benefits of cross-border infrastructure.

Results from the TENTacle project (2019) also emphasise the need for deep stakeholder inclusion – in particular, from business stakeholders and regional and local stakeholders – in the Core Network Corridors' implementation process. Broader co-operation would support a common knowledge base and the coordination of activities aimed at the desired outcomes. It is also emphasised that more information is required about the CNCs and the potential impacts of their implementation and that this must be better communicated to stakeholders. In the ongoing revision of the TEN-T, this has been highlighted by, among others, the Scandria Alliance promoting further collaboration and supporting the extension of the ScanMed corridor. To date, neither of the selected case studies for the NORDINFRA project (i.e. Stockholm–Oslo, Helsingborg–Helsingör or Mo i Rana–Umeå–Vasa) are included in the ScanMed corridor. In this process, it will be

important to take into account the overall policy objectives for EU 2021–27, especially the focus on a greener and more effective union, including CEF financing.

Transport systems are large and complex, and how a new infrastructure project connects to the existing system is crucial for the project's outcome and effects. In a report on the Channel Tunnel between France and Great Britain, a representative from the county Pas-de-Calais states that the Hauts-de-France region (where Pas-de-Calais is located) failed to reap the potential benefits of regional and economic development since they did not develop proactive plans in time. The county opposed the project and so made no plans to connect the tunnel to the region until it was already finished (Guasco, 2015).

The literature and these reports clearly indicate the complexities involved in transport infrastructure projects. These complexities are even further emphasised when transport infrastructure projects span national borders and, therefore, must contend with different legislations and regulations, different frameworks, processes and practices for planning, and also different priorities, different languages, cultures and norms, and different geographical territories, not to mention the internal power relations involved.

In this report, we have presented an overview of how Nordic cross-border transport infrastructure planning is framed in a multi-level governance context in which national governments and authorities play a key role.

The Nordic countries share many similarities in that they are unitary states with public administration at three levels of government: national, regional and local. In all of the Nordic countries, the national level has overall responsibility for the transport infrastructure system, although there is a division of tasks among different actors at different levels of government. The private sector also plays a role, not least in providing transportation.

However, there are also important differences between the countries that affect how they collaborate on cross-border transport infrastructure planning. For example, they differ in terms of the scope and mandate of their national transport authorities. According to the legislation in the respective countries, the Swedish and Finnish authorities have more independence from the transport ministry than their Danish and Norwegian counterparts. Although in all of the Nordic countries the regions are responsible for elaborating a regional development strategy, the tasks involved and the mandate for work on regional development, infrastructure and transport issues vary from country to country and also sometimes within the countries. It is important that stakeholders involved have knowledge about these fundamental differences in order to understand the conditions for cross-border transport infrastructure planning.

The analysis shows that all four countries explored here (Denmark, Finland, Norway and Sweden) share similar transport goals, i.e. efficiency, accessibility, sustainability and safety – although the specific goals are formulated differently. Each country elaborates a long-term national plan for transport infrastructure, spanning a similar period (Denmark 2021–2035, Finland 2021–2032, Norway 2022–2033, Sweden 2022–2033). This is a good sign since the potential for collaboration between the countries can be expected to increase when the countries follow the same phases within the planning period. The overview also shows that in all of the countries, planning is a formalised, step-by-step process that includes impact analyses, socioeconomic cost-benefit analyses and other calculation models. However, the overview does not include an analysis of if – and if so, in what way – the regions, municipalities and other actors are involved in elaborating the national plans. Nor does it analyse how the plans are financed and whether actors other than national

authorities are responsible for funding parts of the plan.

Although all of the national transport plans include an external outlook, and each national plan mentions a few prioritised cross-border projects, it is clear that the national transport plans are developed with a nation-state perspective in mind. The report also shows that cross-border transport infrastructure planning intersects with several policy areas and is linked not only to transport infrastructure policy but also to regional development policy, economic growth and climate policy.

However, transport infrastructure planning in the Nordic countries is also framed in a European context of regional development and cohesion policy – e.g. Interreg plays an important role in cross-border collaboration – and European transport policy, where TEN-T's ScanMed and North Sea-Baltic corridors are particularly important for the Nordic countries. Although the European framework, with its regulations and financing mechanisms, is extensive, there is, to date, no common Nordic platform for political collaboration in transport infrastructure.

We have also learnt about both opportunities and success factors, but also about the economic, administrative, financial and political challenges involved in cross-border transport infrastructure planning.

In this report, we have mostly looked at the formal barriers and opportunities associated with cross-border transport infrastructure planning in research literature and in the Nordic Region. In the next steps of the NORDINFRA project, we will explore not only formal barriers but also how informal barriers such as norms, values and planning practices play out in the three selected case studies: the HH fixed link between Helsingborg and Helsingör; the Stockholm–Oslo railway connection; and the link from Mo i Rana, via Hemavan and Umeå, across the Kvarken strait to Vasa. We will conduct interviews with stakeholders to evaluate how actors in the case-study regions have dealt with such barriers and the measures they have taken to overcome them.

In order to investigate the informal rules at play, we will also look at power relations between the actors involved, e.g. actors on different sides of the national borders and/or actors at different levels of government or working at different territorial scales. Informal rules may involve e.g. actors' different perspectives in terms of mental maps and geographical framing, timescales, and acceptance of change, conflict, and positive and negative externalities. Finally, we will identify how different arenas are used to enhance cross-border transport infrastructure planning and make recommendations for how cross-border transport infrastructure planning in the Nordic can be further facilitated.

# References

- Aguiar Borges, L. (2020). *Transport for Regional Integration – Insights from three Nordic cross-border regions* (Nordregio report 2020:18). Nordregio. <http://www.diva-portal.org/smash/get/diva2:1507688/FULLTEXT01.pdf>
- Association of European Border Regions (n.d). Cross-border cooperation in Europe. Association of European Border Regions. <https://www.aebr.eu/>
- Banedanmark (n.d.). *Årsrapport 2021*. Banedanmark. <https://www.bane.dk/Om-Banedanmark/AArsrapport-2021>
- Behrens, K., Lamorgese, A.R, Ottaviano, G.I.P. & Tabuchi, T. (2007). Changes in transport and non-transport costs: Local vs global impacts in a spatial network, *Regional Science and Urban Economics*, Volume 37, Issue 6, p. 625-648. <https://doi.org/10.1016/j.regsciurbeco.2007.08.003>
- Capello, R., Caragliu, A., & Fratesi, U. (2018). *Measuring border effects in European cross-border regions*, *Regional Studies*, 52:7, 986-996. <https://www.tandfonline.com/doi/abs/10.1080/00343404.2017.1364843>
- Castanho, R. Loures. L, Fernandez. J & Pozo. L (2018). Identifying critical factors for success in Cross-Border Cooperation (CBC) development projects, *Habitat International*, Volume 72, 2018. <https://doi.org/10.1016/j.habitatint.2016.10.004>
- Center for Transport Analytics (May 2022). *TERESA (Transportministeriets Regnearksmodel for Samfundsøkonomisk Analyse for transportområdet)*. Center for Transport Analytics. <https://www.cta.man.dtu.dk/modelbibliotek/teresa>
- Central Sweden (March 2018). *Äntligen! Sverige vill göra Botniska korridoren till en stomnätskorridor*. Central Sweden. <https://www.centraweden.se/antligen-sverige-vill-gora-botniska-korridoren-till-en-stomnatskorridor/>
- Coase, R. H. (1960). The Problem of Social Cost, *The Journal of Law & Economics*, 3, 1-44. <http://www.jstor.org/stable/724810>
- Danske Regioner (n.d.). *Regional bus- och togtrafik*. Danske regioner. <https://www.regioner.dk/regional-udvikling/kollektiv-transport-og-mobilitet/regional-tog-og-bustrafik>
- De Sousa, C. A. (2003). Turning brownfields into green space in the City of Toronto, *Landscape and Urban Planning*, Volume 62, Issue 4, pp 181-198. [https://doi.org/10.1016/S0169-2046\(02\)00149-4](https://doi.org/10.1016/S0169-2046(02)00149-4)
- Enflo, K., Alvarez-Palau, E. & Marti-Henneberg, J. (2018). Transportation and regional inequality: the impact of railways in the Nordic countries, 1860-1960, *Journal of Historical Geography*, Vol. 62, October 2018, pp 51-70, <https://doi.org/10.1016/j.jhg.2018.05.001>
- European Commission (2020a). *Fourth Work Plan of the European TEN-T Pat Cox*. European Commission. [https://transport.ec.europa.eu/system/files/2020-10/work\\_plan\\_scanmed\\_iv.pdf](https://transport.ec.europa.eu/system/files/2020-10/work_plan_scanmed_iv.pdf)
- European Commission (2020b). *B-solutions : solving border obstacles : a compendium of 43 cases*-Publications Office, 2020. Directorate-General for Regional and Urban Policy. <https://data.europa.eu/doi/10.2776/36819>
- European Commission (2020). *Speech by Commissioner Vălean on TEN-T revision: first results of the stakeholder consultation*, at the European Parliament. European Commission, 23 June 2020, <https://ec.europa.eu/commission/commissioners/2019-2024/valean/announcements/speech-commissioner-valean-ten-t-revision->

first-results-stakeholder-consultation-european-parliament\_en

European Commission (2021). *Proposal 021/0420 (COD) for a Regulation of the European Parliament and of the Council on Union guidelines for the development of the trans-European transport network, amending Regulation (EU) 2021/1153 and Regulation (EU) No 913/2010 and repealing Regulation (EU) 1315/2013*. Com (2021) 812 final. European Commission. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM%3A2021%3A812%3AFIN>

European Commission (n.d.a). *Trans-European Transport Network (TEN-T)*. European Commission Mobility and Transport. [https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t\\_en](https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en)

European Commission. (n.d.b). *Mission statement Mobility and Transport*. Connecting Europe. <https://transport.ec.europa.eu/system/files/2018-05/move-mission-statement.pdf>

European Commission (n.d.c). *Connecting Europe Facility*. European Commission Innovation and Networks Agency. <https://ec.europa.eu/inea/en/connecting-europe-facility>

European Commission (n.d.d). *Interreg A - Cross-border cooperation*. European Commission. [https://ec.europa.eu/regional\\_policy/sv/policy/cooperation/european-territorial/cross-border/#4](https://ec.europa.eu/regional_policy/sv/policy/cooperation/european-territorial/cross-border/#4)

European Committee of the Regions (n.d.a). *EGTC full list*. European Committee of the regions. <https://portal.cor.europa.eu/egtc/CoRActivities/Pages/egtc-list.aspx>

European Committee of the Regions (n.d.b). *Kvarken Council EGTC*. European Committee of the regions. <https://portal.cor.europa.eu/egtc/CoRActivities/Pages/Kvarken-Council-EGTC-.aspx>

European Council (n.d.a). *Transport, Telecommunications and Energy Council configuration (TTE)*. <https://www.consilium.europa.eu/en/council-eu/configurations/tte/>

European Council (2022b). *European Green Deal, Fit for 55*. <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/>

Europaparlamentet (2021). *Faktablad om Europeiska Unionen: Transeuropeiska nät – Riktlinjer*. Faktablad om Europeiska unionen. <https://www.europarl.europa.eu/factsheets/sv/sheet/135/transeuropeiska-nat-riktlinjer>

European Parliament (2022a). *European territorial cooperation, Fact sheets on the European Union – 2022*. European Parliament. [https://www.europarl.europa.eu/ftu/pdf/en/FTU\\_3.1.5.pdf](https://www.europarl.europa.eu/ftu/pdf/en/FTU_3.1.5.pdf)

Europaparlamentet (2022b). *Europeiska grupperingar för territoriellt samarbete (EGTS)*. Faktablad om Europeiska unionen. <https://www.europarl.europa.eu/factsheets/sv/sheet/94/europeiska-grupperingar-for-territoriellt-samarbete-egts->

Europaparlamentet (2022c). *Faktablad om Europeiska Unionen: Den Europeiska Transportpolitiken: Översikt*. Europaparlamentet. <https://www.europarl.europa.eu/factsheets/sv/sheet/123/den-gemensamma-transportpolitiken-oversikt>

EUSBSR (2022). *EU Strategy for the Baltic Sea Region*. EUSBSR. <https://www.balticsea-region-strategy.eu/>

*Færdselsloven (The Traffic Act) (2021)* (Retsinformation 2021/1710). Folketinget. <https://www.retsinformation.dk/eli/lta/2021/1710>

- Finnish Government (2021). *The National Transport System Plan 2021-2032* (Publications of the Finnish Government 2020:77).
- Finansministeriet (2021). Aftale mellem regeringen (Socialdemokratiet, Venstre, Dansk Folkeparti, Socialistisk Folkeparti, Radikale Venstr, Ehedslisten, Det Konservative Folkeparti, Nye Borgerlige, Liberal Alliance, Alternativet og Kristendemokraterne) om: Infrastrukturplan 2035 ( 28. juni 2021). Finansministeriet. <https://fm.dk/media/24848/aftale-om-infrastrukturplan-2035.pdf>
- Framtidens infrastruktur – hållbara investeringar i hela Sverige* (Riksdagsskrivelse 2020/2021:409). Riksdagen. [https://www.riksdagen.se/sv/dokument-lagar/dokument/riksdagsskrivelse/riksdagsskrivelse-202021409\\_H80K409](https://www.riksdagen.se/sv/dokument-lagar/dokument/riksdagsskrivelse/riksdagsskrivelse-202021409_H80K409)
- Fujimura, M. (2004). Cross-border transport infrastructure, regional integration and development, *ADB Discussion Paper No. 16*. Asian Development Bank Institute. <https://www.econstor.eu/handle/10419/53503>
- Giacometti, A. & Wøien Meijer, M. (2021). *Closed borders and divided communities: status report and lessons from Covid-19 in cross-border areas* (Nordregio Report 2021:6). Nordregio. <https://norden.diva-portal.org/smash/get/diva2:1536649/FULLTEXT01.pdf>
- Giorgi, L. & Schmidt, M. (2002). European transport policy-a historical and forward looking perspective, *German Policy Studies GPS*, Vol. 2 No. 4, (2002). <https://spaef.org/article/864/European-Transport-Policy-A-Historical-and-Forward-Looking-Perspective>
- Global Infrastructure Hub & Ramboll (2021). *Reference guide: Connectivity Across Borders: Global practices for cross-border infrastructure projects*. Global Infrastructure Hub. [https://cdn.github.org/umbraco/media/4829/gih\\_cross\\_border\\_web\\_final-11-02-21\\_updated-141022.pdf](https://cdn.github.org/umbraco/media/4829/gih_cross_border_web_final-11-02-21_updated-141022.pdf)
- Grandin, J. (2020). *Gränsöverskridande planering: Ett kunskapsunderlag i den långsiktiga planeringen* (Trafikverket 2020:048). Trafikverket. <http://trafikverket.diva-portal.org/smash/record.jsf?pid=diva2%3A1394176&dswid=-3920>
- Greater Copenhagen (n.d.a). Tillsammans skapar vi tillväxt och utveckling. Greater Copenhagen. <https://www.greatercph.se/>
- Greater Copenhagen (n.d.b). Greater Copenhagen Traffic Charter. Greater Copenhagen. <https://www.greatercph.com/infrastructure>
- Guasco, C.N. (2014). *The TEN-T core network and the Fehmarn Belt region*. Roskilde Universitet. [https://rucforsk.ruc.dk/ws/portalfiles/portal/53316346/notat\\_green\\_string\\_corridor.pdf](https://rucforsk.ruc.dk/ws/portalfiles/portal/53316346/notat_green_string_corridor.pdf)
- Guasco, C.N. (2015). *Cross-border cooperation in the Fehmarn Belt Region - A political integration perspective*. Roskilde Universitet. [https://rucforsk.ruc.dk/ws/portalfiles/portal/56392881/Ph.d.\\_afhandling\\_clement\\_guasco\\_3.0.pdf](https://rucforsk.ruc.dk/ws/portalfiles/portal/56392881/Ph.d._afhandling_clement_guasco_3.0.pdf)
- Hasselgren, B. & Lundgren, A. (2016) *Gränsöverskridande transportplanering i Norden - Utvärdering av det nordiska samarbetet kring transporter och transportinfrastruktur*. Nordiska rådet. <http://norden.diva-portal.org/smash/get/diva2:952678/FULLTEXT03.pdf>
- Hedlund, G. & Montin, S. (Eds.) (2009). *Governance på svenska*. Stockholm: Santérus Academic Press
- Helo, P., Sandberg Hanssen T-E., Solvoll, G., Westin, J. & Westin, L. (2019). *Vägledning för offentliga och privata aktörer vid planering av gränsöverskridande*

*transporter och infrastruktur i Norden* (CERUM Report Nr 61/2019). Umeå universitet. <https://www.diva-portal.org/smash/get/diva2:1390891/FULLTEXT01.pdf>

*Helsinki Treaty* (1962/2018). Treaty of Cooperation between Denmark, Finland, Iceland, Norway and Sweden (2018:717). Nordic Council of Ministers. <http://norden.diva-portal.org/smash/get/diva2:1250815/FULLTEXT01.pdf>

Helsingborg (January 2020). Fast HH förbindelse. Helsingborg stad. <https://helsingborg.se/trafik-och-stadsplanering/stadsutvecklingsprojekt/fast-hh-forbindelse/>

HH-gruppen (n.d.). Väg- och tågtunnel Helsingborg-Helsingör. HH-gruppen. <https://hh-gruppen.org/>

*Highways Act* (Finlex 503/2005, 1242/2009). Ministry of Transport and Communications in Finland. [https://www.finlex.fi/fi/laki/kaannokset/2005/en20050503\\_20091242.pdf](https://www.finlex.fi/fi/laki/kaannokset/2005/en20050503_20091242.pdf)

Hodgson, G.M. (2006). What Are Institutions?, *Journal of Economic Issues*, 40:1, 1-25. DOI: 10.1080/00213624.2006.11506879, <https://www.tandfonline.com/doi/abs/10.1080/00213624.2006.11506879>

Jernbanedirektoratet (n.d.). *Om direktoratet*. Jernbanedirektoratet. <https://www.jernbanedirektoratet.no/no/om-oss/>

Järnvägsnyheter (January 2019). *Finland införde en ny spårtrafiklag*. Järnvägsnyheter. <https://www.jarnvagsnyheter.se/20190803/8468/finland-inforde-en-ny-spartrafiklag?page=0%2C1>

Kim, J.Y. & Han, H. (2016). Straw effects of new highway construction on local population and employment growth, *Habitat International* 2016, 53:123-132. DOI:10.1016/j.habitatint.2015.11.009

Det Konglige samferdsdepartementet (2021). *Statsbudsjettet 2022 - Tildelingsbrev til Jernbanedirektoratet*, 28. desember 2021. <https://www.jernbanedirektoratet.no/contentassets/484de2c08cff4c079fd11bf484e968b9/statsbudsjettet-2022---tildelingsbrev-til-jernbanedirektoratet2126341.pdf>

Det Konglige samferdsdepartementet, (2021). *Statsbudsjettet 2022 - tildelingsbrev til Statens havarikommisjon*, 23. desember 2021. <https://www.regjeringen.no/contentassets/2ff4d41f5ff648afb9ae66994863d1f7/2022/statsbudsjettet-2022-tildelingsbrev-til-statens-havarikommisjon.pdf>

Det Konglige samferdsdepartementet, (2021). *Statsbudsjettet 2022 - Tildelingsbrev til Luftfartstilsynet*, 23 desember 2021. <https://www.regjeringen.no/contentassets/ef0274560814428f9e5dc8f14de79d16/2022/tildelingsbrev-luftfartstilsynet-2022-med-vedlegg.pdf>

Det Konglige samferdsdepartementet, (2022). *Statsbudsjettet 2022 - Tildelingsbrev til Statens jernbanetilsyn*, 3. januar 2022. <https://www.regjeringen.no/contentassets/1daede0e53004959a7c9020d3362d569/tildelingsbrev-til-statens-jernbanetilsyn-2022-med-vedlegg.pdf>

Det Konglige samferdsdepartementet, (2022). *Statsbudsjettet 2022 – tildelingsbrev til Statens vegvesen*, 5. januar 2022. <https://www.regjeringen.no/contentassets/087954c97c8e47b7b2a733e350a25b4a/2022/tildelingsbrev-til-statens-vegvesen-2022.pdf>

Kvarkenrådet (n.d.). *Kvarkenrådet och EGTS*. Kvarkenrådet <https://www.kvarken.org/egts/>

Lidmo, J. (2022). Study on providing public transport in cross-border regions :

mapping of existing services and legal obstacles : Öresund train Copenhagen (Denmark) – Malmö (Sweden) : case study report, (Publications Office of the European Union, 2022). European Commission, Directorate-General for Regional and Urban Policy. <https://data.europa.eu/doi/10.2776/351828>

Lov om offentlige veje (2014) (Retsinformation LOV nr 1520 af 27/12/2014) <https://www.retsinformation.dk/eli/lt/2014/1520>

Lov om trafikkselskaber (Transport company act) (2005). (Retsinformation 2004/2 LSV 83). Folketinget. <https://www.retsinformation.dk/eli/ft/200423L00083>

*Lov om planlegging og byggesaksbehandling* (LOV-2021-06-18-130). Kommunal- og distriktsdepartementet. [https://lovdata.no/dokument/NL/lov/2008-06-27-71/\\*#\\*](https://lovdata.no/dokument/NL/lov/2008-06-27-71/*#*);

*Lov om vegar (veglova)* (LOV-2021-05-07-34). Samferdselsdepartementet. <https://lovdata.no/dokument/NL/lov/1963-06-21-23>

*Lov om anlegg og drift av jernbane, herunder sporvei, tunnelbane og forstadsbane m.m. (jernbaneloven)* (LOV-2021-06-11-87). Samferdselsdepartementet. <https://lovdata.no/dokument/NL/lov/1993-06-11-100>

*Lov om luftfart (luftfartsloven)* (LOV-2019-06-14-21). Samferdselsdepartementet. <https://lovdata.no/dokument/NL/lov/1993-06-11-101>

*Lov om havner og farvann (havne- og farvannsloven)* (LOV-2020-12-18-159). Nærings- og fiskeridepartementet. <https://lovdata.no/dokument/NL/lov/2019-06-21-70>

Loures, L., Panagopoulos, T., & Burley, J. B. (2016). Assessing user preferences on post-industrial redevelopment, *Environment and Planning B: Planning and Design*, 43(5), 871–892. <https://doi.org/10.1177/0265813515599981>

Lundgren, A. & Woien Meijer, M. (2022). Labour market mobility between the Nordic countries. In G. Norlén, L. Randall, N. Sanchez Gassen & C. Tapia (Eds.), *State of the Nordic Region* (Nordregio Report 2022:2). Nordregio & Nordic Council of Ministers. <https://pub.nordregio.org/snr22/#>

Lundgren, A. (2017). *The Openness Buzz: A study of openness in planning, politics and political decision making in Sweden from an institutional perspective* (Doctoral thesis, KTH Royal Institute of Technology). Diva. <https://kth.diva-portal.org/smash/get/diva2:1141059/FULLTEXT01.pdf>

Malmö stad (October 2021). Öresundsmetron. Malmö stad. <https://malmo.se/Oresundsmetron/Aktuella-nyheter-om-Oresundsmetron/Artiklar-Ometron/2021-10-05-Ny-dansk-infrastrukturplan-baddar-for-Oresundsmetron.htm>

*Melding til Stortinget Nasjonal transportplan 2022–2033*. Det Konglige samferdsdepartementet. <https://www.regjeringen.no/no/tema/transport-og-kommunikasjon/nasjonal-transportplan/id2475111/>

*Nationell strategi för hållbar regional utveckling i hela landet 2021–2030* (Regeringens skrivelse 2020/21:133). Näringsdepartementet. <https://www.regeringen.se/rattsliga-dokument/skrivelse/2021/03/skr.-202021133/>

News Öresund (2021). Greater Copenhagen möter Folketingets transportutskott på tisdag nästa vecka – och jobbar för ett dansk-svenskt ministermöte innan sommaren. News Öresund/ Intrastruktur. <https://www.newsoresund.se/greater-copenhagen-moter-folketingets-transportutskott-pa-tisdag-nasta-vecka-och-jobbar-for-ett-dansk-svenskt-ministermote-innan-sommaren/>

Nicolini, E. & Pinto, M. R. (2013). Strategic Vision of a Euro-Mediterranean Port City: A Case Study of Palermo. *Sustainability* 5, no. 9: 3941–3959. <https://doi.org/10.3390/>

su5093941

Nordic Council of Ministers (n.d.). Freedom of Movement. Nordic Council of Ministers. <https://www.norden.org/en/freedom-movement>

Nordic Council of Ministers. (2020). *Samarbetsministrarnas redogörelse om mobilitet och gränshinder till Nordiska rådets session 2020*, Dokument 12/2020. <https://www.norden.org/sv/node/48532>

Nordic Council of Ministers. (2022). *Planer och budget 2022*. Nordiska ministerrådet, 2022:705. <https://www.norden.org/sv/publication/planer-och-budget-2022>

Nordisk Jernbanesamarbeid (n.d.). NJS – Nordisk jernbanesamarbeid. Nordisk Jernbanesamarbeid. <https://njs.one/>

Nordisk Vejforum (n.d.). Nordisk Vejforum. Nordisk Vejforum. <https://nvfnorden.org/>

Nordiska ministerrådet (n.d.a). Vår Vision 2030. Nordiska ministerrådet. <https://www.norden.org/sv/var-vision-2030>

Nordiska ministerrådet (n.d.b). *Om Nordiska ministerrådet för hållbar tillväxt (MR-Tillväxt)*. Nordiska ministerrådet. <https://www.norden.org/sv/information/om-nordiska-ministerradet-hallbar-tillvaxt-mr-tillvaxt>

Nordiska rådet (January 2022). *Medlemsforslag om oprettelsen av et ministerråd for infrastruktur med ansvar for transport og digitalisering*. Nordiska rådet (A 1899/UVU) <https://www.norden.org/sv/node/70039>

Nordregio (December 2021). *Nordic cross-border co-operation committees 2021*. Nordregio. [Nordic cross-border co-operation committees 2021 Nordregio](https://www.nordregio.org/)

Norlén, G., Randall, L., Sanchez Gassen, N. & Tapia, C. (Eds.) (2022). *State of the Nordic Region* (Nordregio Report 2022:2). Nordregio & Nordic Council of Ministers. <http://doi.org/10.6027/R2022:2.1403-250>

North, D. (1990). *Institutions, Institutional Change and Economic Performance* (Political Economy of Institutions and Decisions). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511808678

Näringsdepartementet (2018). *Effektiva, kapacitetsstarka och hållbara godstransporter – en nationell godstransportstrategi* (N2018.21). Näringsdepartementet. <https://www.regeringen.se/49f291/contentassets/5e79349b796548f7977cbfd1c246a694/effektiva-kapacitetsstarka-och-hallbara-godstransporter--en-nationell-godstransportstrategi>

Näringsdepartementet (2017). *En sammanhållen politik för Sveriges landsbygder – för ett Sverige som håller ihop* (Regeringens proposition 2017/18:179). Näringsdepartementet. <https://www.regeringen.se/4950ea/contentassets/0ae0beff7ac24e1385d4de30424b7d02/171817900webb.pdf>

Näringslivet transportråd in Sweden, Danish industry and Logistikk og Transport in Norway (2013). *Der er behov for en Skandinavisk transportplan*. Stockholm/København/Oslo 6. november 2013 <https://www.energimyndigheten.se/globalassets/klimat--miljo/transporter/oppet-forum/naringslivet-transportrad/bilaga-till-ntrs-remissyttrande-naringslivsskrivelse-ntr-di-nho.pdf>

Raiffa, H., Richardson, J. & Metcalfe, D. (2007). *Negotiation analysis. The science and art of collaborative decision making*. The Belknap Press of Harvard University Press

Randall, L. & Norlén, G. (2022). Working from home. In G. Norlén, L. Randall, N. Sanchez Gassen & C. Tapia (Eds.), *State of the Nordic Region* (Nordregio Report 2022:2). Nordregio & Nordic Council of Ministers. <https://pub.nordregio.org/snr22/#>

- Regeringen (2021). *Danmark Fremad - Infrastrukturplan 2035*. Transportministeriet. <https://www.trm.dk/media/mihb43eg/danmark-fremad-infrastrukturplan-2035-lrn-final-a.pdf>
- Regeringen (2020). *Framtidens infrastruktur – hållbara investeringar i hela Sverige*, (Prop. 2020/21:151). Infrastrukturdepartementet. <https://data.riksdagen.se/fil/85457EC2-E5FF-4BDD-B582-9016913107D4>
- Regeringen (2021). *Uppdrag att ta fram förslag till nationell plan för transportinfrastrukturen och möjlighet att ta fram länsplaner för regional transportinfrastruktur* (rskr. 2020/21:409). Regeringen. <https://www.regeringen.se/49e930/contentassets/ac4f48a1483e41568d65b0473077986a/uppdrag-att-ta-fram-forslag-till-nationell-plan-for-transportinfrastrukturen.pdf>
- Regeringen (2022). Fastställelse av nationell trafikslagsövergripande plan för transportinfrastrukturen för perioden 2022–2033, beslut om byggstarter 2022–2024, beslut om förberedelse för byggstarter 2025–2027 samt fastställelse av definitiva ekonomiska ramar för trafikslagsövergripande länsplaner för regional transportinfrastruktur för perioden 2022–2033 (rskr. 2020/21:409). Trafikverket. <https://bransch.trafikverket.se/contentassets/3ee0d3b16cfa41c0be2323951ec26793/rb-i-13-i2022-01294-m.fl.-faststallelse-av-nationell-trafikslagsovergripande-plan-for-transportinfrastrukturen-for-perioden-202220331.pdf>
- Regeringen.no, (n.d.), Nordområdena, Departementenes sikkerhets- og serviceorganisasjon, källa
- RegioGIS, (2021). *New Cohesion legislation entered into force on 1 July 2021*. Association of European Border Regions. <https://www.aebr.eu/new-cohesion-legislation-enters-into-force-on-1-july/>
- Region Skåne (2015). *Skånebild*. Region Skåne. <https://utveckling.skane.se/utvecklingsomraden/samhallsplanering/infrastrukturplanering/sverigeforhandlingen/skanebild/>
- Region Skåne (2022). *Pendling över Öresund 1997-2020*. Enheten för samhällsanalys, Region Skåne. [https://utveckling.skane.se/siteassets/kampanjsidor/pendling-oresund/pendling\\_over\\_oresund-v9.pdf](https://utveckling.skane.se/siteassets/kampanjsidor/pendling-oresund/pendling_over_oresund-v9.pdf)
- Rietveld, P. (2012). Barrier Effects of Borders: Implications for BorderCrossing Infrastructures, *European Journal of Transport and Infrastructure Research*, 12(2). <https://doi.org/10.18757/ejtir.2012.12.2.2959>
- Sandberg, S. (2017). Regionerna, kommunerna (och staten) i den regionala utvecklingspolitiken. In *Tillväxtanalys, Regionala tillväxtpolitiska utmaningar – Behov av strukturreformer eller samverkanslösningar?* Tillväxtanalys PM 2017:10. [https://www.tillvaxtanalys.se/download/18.62dd45451715a00666f1d66d/1586366178120/pm\\_2017\\_10\\_Regionala%20tillv%C3%A4xtpolitiska%20utmaningar.pdf](https://www.tillvaxtanalys.se/download/18.62dd45451715a00666f1d66d/1586366178120/pm_2017_10_Regionala%20tillv%C3%A4xtpolitiska%20utmaningar.pdf)
- Scandria Alliance (n.d.). *Connecting regions, communities and economies through clean and smart transportation*. Scandria Alliance. <https://scandria-alliance.eu/>
- Sjögren, J. & Kyster-Hansen H. (2018). *E12 Atlantica Transport: För gränsöverskridande infrastrukturplanering* (Rapport E12 Atlantica Transport, WP2). Kvarken Council. <https://www.kvarken.org/wp-content/uploads/2020/12/2018-03-07.-E12AT-Rapport-Infrastrukturplanering-V16.-Slutlig.pdf>
- Spårtrafiklag* (Finlex 28.12.2018/1302). Kommunikationsministeriet. <https://finlex.fi/sv/laki/ajantasa/2018/20181302#L17>
- Statens Vegvesen (n.d.). *Om organisasjonen*. Statens vegvesen. <https://www.vegvesen.no/om-oss/om-organisasjonen/>

Statsrådet (2021). *Den riksomfattande Trafiksystem planen 2021-2032* (Statsrådets publikationer 2021:76). Statsrådet. <https://julkaisut.valtioneuvosto.fi/handle/10024/163390>

Tala, J. (2022). Framtidsutsikterna för det nordiska lagstiftningssamarbetet. In Godenthjelm, S., Mäkinen, E. & Niewmivuo, M. (Eds.) *Förvaltning och rättssäkerhet i Norden*. SLS Apell.

TENTacle (2019). *Realising benefits from the TEN-T Core Network Corridors – how, where and by whom?* (TENTacle Final Report). Region Blekinge. [http://tentacle.eu/a/uploads/dokument/TENTacle\\_report\\_final.pdf](http://tentacle.eu/a/uploads/dokument/TENTacle_report_final.pdf)

Tillväxtanalys (2021). Nordisk studie om regionalpolitik och omställningsförmåga. Rapport 2021:05. Tillväxtanalys. <https://www.tillvaxtanalys.se/publikationer/pm/pm/2021-09-20-nordisk-studie-om-regionalpolitik-och-omstallningsformaga.html>

Trafikanalys (2011). *Struktur och styrning av de statliga transportmyndigheterna i de nordiska länderna* (Trafikanalys PM 2011.1). Trafikanalys. [https://www.trafa.se/globalassets/pm/underlag/struktur\\_och\\_styrning\\_av\\_de\\_statliga\\_transportmyndigheterna\\_i\\_de\\_nordiska\\_laenderna.pdf](https://www.trafa.se/globalassets/pm/underlag/struktur_och_styrning_av_de_statliga_transportmyndigheterna_i_de_nordiska_laenderna.pdf)

Trafikanalys (2017). *Ny målstyrning för transportpolitiken* (Trafikanalys, Rapport 2017:1). Trafikanalys. [https://www.trafa.se/globalassets/rapporter/2017/rapport-2017\\_1-ny-malstyrning-for-transportpolitiken.pdf](https://www.trafa.se/globalassets/rapporter/2017/rapport-2017_1-ny-malstyrning-for-transportpolitiken.pdf)

Trafikledsverket (November 2021). *Banprojektet Laurila-Torneå-Haparanda inleds*. Trafikledsverket. <https://vayla.fi/sv/-/banprojektet-laurila-tornea-haparanda-inleds>

Trafikledsverket (2021). *Investeringsplan 2022-2029* (VÄYLÄ/4852/04.00/2021). Trafikledsverket. <https://www.lausuntopalvelu.fi/FI/Proposal/Participation?proposalId=77291218-f99d-4b50-840c-d1450d26e3e8&respondentId=00000000-0000-0000-0000-000000000000&proposalLanguage=9ff64fe9-04da-4471-9f0c-3f2016e71b4f>

Trafikstyrelsen (n.d.). *Trafikstyrelsens omr&ari*

Eriksson, P. & Frank, J. (2020). *Utvecklingsplan för transportekonomi och kapacitetsanalys Trafikverkets trafikslagsövergripande plan för utveckling av metoder, modeller och verktyg för analys av samhällsekonomi, järnvägskapacitet, effektsamband, statistik, styrmedel och fördelning samt för trafik- och transportprognoser* (Rapport 2020:042). <http://trafikverket.diva-portal.org/smash/get/diva2:1416722/FULLTEXT01.pdf>

Vejdirektoratet (June 2022). *Om os*. Vejdirektoratet. <https://www.vejdirektoratet.dk/sektion/om-os>

Vejdirektoratet (n.d.). *En samlet trafikmodel for Danmark*. Vejdirektoratet. <https://www.vejdirektoratet.dk/segment/den-groenne-mobilitetsmodel>

Vejdirektoratet (2021a). *Årsrapport 2021*. Vejdirektoratet. [https://www.vejdirektoratet.dk/sites/default/files/2022-03/Aarsrapport2021\\_godkendt\\_WCAG.pdf](https://www.vejdirektoratet.dk/sites/default/files/2022-03/Aarsrapport2021_godkendt_WCAG.pdf)

Vejdirektoratet (2021b). *Statsvejnettet 2021* (rapport 610). Vejdirektoratet. <https://www.ft.dk/samling/20211/almdel/TRU/bilag/58/2484605.pdf>

Waddell, P. (2002). UrbanSim: Modeling Urban Development for Land Use, Transportation, and Environmental Planning, *Journal of the American Planning Association*, 68(3), 297-314, DOI: 10.1080/01944360208976274

Wenander, H. (2022). Förvaltningsorgan under parlamenten i Norden. In Godenthjelm, S., Mäkinen, E. & Niewmivuo, M. (Eds.). *Förvaltning och rättssäkerhet i*

Norden. SLS Apell.

Westlund, H. (1999). An Interaction-cost perspective on networks. *The Annals of Regional Science* (vol. 33, 93–121). Springer: Western Regional Science Association.

Yigitcanlar, T., Dur, F. & Dizdaroglu, D. (2015). Towards prosperous sustainable cities: A multiscalar urban sustainability assessment approach, *Habitat International: A journey for the study of Human Settlements*, 36-46, doi.org/10.1016/j.habitatint.2014.06.033

Öresundsmetron (n.d.). *Örsundsmetron*. Öresundsmetron.  
<https://oresundsmetro.com/>

## Interviews

Angelica Nilsson, City of Helsingborg Sweden, 2022-04-22

Juha Nurmi, Ministry for Environment Finland, 2021-11-18

Thomas A. Sick Nielsen, Vejdirektoratet Denmark, 2022-04-26

Henrik Sylvan, Trafikstyrelsen Denmark, 2022-04-26

Paavo Taipale, Finnish Association of Local and Regional Authorities Finland, 2021-11-26

Arto Tevajärvi, Trafikledsverket Finland, 2021-11-22

## Annex

### Steering group

Daniel Altensten, Swedish Transport Administration

Peter Bernström, Swedish Transport Administration

Jimmy Grandin, Swedish Transport Administration

Björn Hasselgren, Swedish Transport Administration, chair

Maria Öberg, Swedish Transport Administration

### Reference group

Luciane Aguiar Borges, Nordregio (QA)

Carsten Greve, Copenhagen Business School

Helka Kalliomäki, Vasa University School of Management

Siv Sandberg, Åbo Akademi University

Gisle Solvoll, Nord University Business School

Wiktor Szydarowski, ESPON

Hans Westlund, KTH Royal Institute of Technology

# About this publication

## Cross-border transport infrastructure planning in the Nordic Region - An introduction

**Authors:** Anna Lundgren, Linnea Löfving, Lars Westin

**NORDINFRA project**

### **Nordregio Report 2023:3**

**ISBN:** 978-91-8001-036-8 (online)

**ISBN:** 978-91-8001-037-5 (PDF)

**ISSN:** 1403-2503

**DOI:** <http://doi.org/10.6027/R2023:3.1403-2503>

© Nordregio 2023

**Layout:** Nordregio

**Cover photo:** Peter Brinch / Öresundsbron

## Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland, and Åland.

Nordic co-operation has firm traditions in politics, the economy, and culture. It plays an important role in European and international collaboration, and aims at creating a strong Nordic community in a strong Europe.

Nordic co-operation seeks to safeguard Nordic and regional interests and principles in the global community. Shared Nordic values help the region solidify its position as one of the world's most innovative and competitive.

Nordregio  
Holmamiralens Väg 10  
Skeppsholmen  
Stockholm, Sweden  
[www.nordregio.org](http://www.nordregio.org)



**Nordregio**

**P.O. Box 1658  
SE-111 86 Stockholm, Sweden  
[nordregio@nordregio.org](mailto:nordregio@nordregio.org)  
[www.nordregio.org](http://www.nordregio.org)  
[www.norden.org](http://www.norden.org)**