European Commission

North Sea - Mediterranean

Fourth Work Plan of the European Coordinator

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Abbreviations

CEF	Connecting Europe Facility
CEMT/ECMT	Conférence Européenne des Ministres des Transports
CNC	Core Network Corridor
CNG	Compressed Natural Gas
CO_2	Carbon Dioxide
COOPERE	Le Comité des Opérateurs du Réseau (French Rail Network Operators Committee)
DG MOVE	European Commission – Directorate General for Mobility and Transport
EDP	ERTMS Deployment Plan
EFSI	European Fund for Strategic Investments
EIB	European Investment Bank
ESIF	European Structural and Investment Funds
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
GDP	Gross Domestic Product
GSM-R	Global System for Mobile Communications – Railway
INEA	Innovation and Networks Executive Agency (EU)
ITS	Intelligent Transportation System
IWT	Inland Waterway Transport
KPI	Key Performance Indicator
LGV	Ligne à Grande Vitesse
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MFF	Multiannual Financial Framework
MoS	Motorways of the Sea
NSMED	North Sea - Mediterranean
P400	Railway loading gauge offering four metre corner height
RIS	River Information Services
RFC	Rail Freight Corridor
RORO	Roll-on, Roll-off
RRT	Rail–Road Terminal
SESAR	Single European Sky ATM Research Programme
TEN-T	Trans-European Transport Network
TEU	Twenty-foot equivalent unit (container)
TKM	Tonne Kilometre
UIC	International Union of Railways

Country ISO Abbreviations

BE	Belgium
FR	France
IE	Ireland
LU	Luxembourg
NL	Netherlands
UK	United Kingdom

On 31st January 2020 the United Kingdom left the European Union under the terms of the Withdrawal Agreement. At the time of publication of the fourth Work Plan of the North Sea – Mediterranean core network corridor, the UK is in a transition period, with ongoing negotiations regarding their future partnership.

Until the end of this transition period (at the earliest on 31st December 2020), the EU legislation continues to apply in the UK. Therefore, until then, the UK remains as an integral part of the NSMED corridor.

As a consequence, the analysis of the corridor characteristics includes the UK and refers to the period up to and including 2019.

Various analyses are based on the list of projects (of the corridor), originally set up in 2014 and last updated in 2019. This list includes projects located in the UK. These UK projects were either completed by the end of 2019 or will be in principle completed during 2020.

The Work Plan does not look at the UK part of the corridor for the period post-2020.

1 Towards the NSMED Corridor 4th Work Plan

I started my role as European Coordinator for the North Sea – Mediterranean corridor in 2014. After nearly six years, I can say that important progress has been made throughout the entire corridor, towards fulfilling the ambition of a multimodal network offering cohesion and accessibility across the six interconnecting Member States. This included at that time the UK. Not only did we set the corridor work in motion, with coordination of political and technical activities, but the progress achieved can now be measured when looking at the implementation of projects, as well as at the degree of maturity of the analyses, plans, strategies and project pipeline with a view towards realising the corridor.

Indeed, since then, many relevant projects for the completion of the corridor have started, progressed or have been completed across all areas. Our corridor project list now includes 419 individual projects[1], amounting to around €88 billion, of which around 40% have either been completed or are due for completion in the coming months. Since my last Work Plan two years ago, 52 projects have been completed. The Connecting Europe Facility programme has so far co-funded 113 NSMED projects, accounting for a total investment of €4.6 billion[2]. 21 of those projects are completed, 91 are ongoing.

I have seen actions to increase the deployment of alternative fuels on a significant scale across the different modes. Governance considerations have matured as have technologies. In this regard, **25 projects involving the deployment of alternative fuels** have been launched along the corridor, including LNG for shipping and fast charging for electrical vehicles.

Increasing attention is now being drawn to the inter-relations between the long-distance transport routes and the **urban nodes**. This concerns their role in terms of

[1] The NSMED Project List, as it stands in 2019 includes 30 UK projects, which have either completed or will in principle be completed during 2020.
[2] Among those 113 projects on the NSMED corridor, 7 are UK (national) projects, for a total co-funding of €40.5m. They will in principle be achieved before the end of 2020.

addressing congestion, promoting the up-take of zero-emission technologies, as well as finding a more optimal balance between planning for short-distance and long-distance transport functions, notably with the development of multimodal interchanges. This also includes the development of rail bypasses e.g. Paris, Antwerp and Lyon, as well as better multimodal connectivity, as illustrated by the new transport strategies for Dublin and Amsterdam. The project pipeline for urban nodes has matured. This also includes considerations of accessibility, especially for passengers with reduced mobility and passengers with a disability, which is a TEN-T priority as regards public transport.

Road ITS deployment has also progressed, in terms of both strategies and projects. One of the key developments is the CEF-funded C-ROADS initiative to link national co-operative ITS (C-ITS) pilot projects to provide seamless cross-border services in areas such as road safety and efficient infrastructure use. Besides, in the last two years there has also been increased attention towards providing certified safe and secure parking for lorries, leading to the realisation of a number of new facilities, especially in Belgium and the cross-border routes towards Calais and Rotterdam.

As regards **ports**, the main international gateways, important investments aimed at increasing maritime capacity and developing motorways of the sea, have progressed, including those in Dublin, Cork, Calais, Dover, Dunkerque, Ghent (North Sea Port) and Amsterdam. There are also significant investments being made in terms of multimodal inland access to ports, such as in Marseille, Antwerp, Zeebrugge and Rotterdam.

To implement the ambitious EU transport decarbonisation agenda, greening of the individual modes is a key pillar of the corridor strategy. The second main pillar is the shift of existing flows to energy-efficient modes of transport, primarily rail and inland navigation.

As regards rail in general, **expanding capacity in certain rail nodes** is one of the most important factors. In this regard, the first phase of the long-term project aiming to improve rail circulation around the Lyon node is progressing and there are major works planned or underway in cities such as Paris or Strasbourg, as well as new measures to improve rail freight access to ports such as Marseille and Antwerp. High-speed rail coverage for passengers is a major feature of the NSMED corridor, and Member States are actively looking for ways to develop new long distance services. In 2019, for example, direct Eurostar services were introduced between Amsterdam and London. Moreover, there is an ongoing policy initiative, initiated by the Netherlands and supported by many Member States[3], to improve the performance of long distance rail passenger services linking major urban centres and reducing short distance flights.

There have also been interesting **developments in the rail freight sector**, which is key for achieving modal shift from road on all branches of the corridor. Rail is the only sustainable mode connecting all of the continental regions, as well as providing the long-distance interconnections to the neighbouring Rhine-Alpine, Atlantic and Mediterranean corridors. Cross border rail freight traffic has increased by 8% since 2016, and by 24%[4] since the rail freight corridor initiative started. Discussions on operational barriers, e.g. as regards timetabling, traffic management, coordination of works or technical interoperability, have progressed within the Rail Freight Corridor structure (RFC). Those discussions helped to bring issues the sector is facing onto the political agenda. In parallel, an evaluation of the RFC Regulation has started addressing all these elements, which may lead to a legislative proposal in 2021.

[3] Political statement for coalition of the willing, development of international rail passenger transport, issued by 25 Member States at the Transport Ministers' informal video conference on 4 June 2020.
[4] Source: RFC NSMED (traffic measured in terms of number of corridor trains)

In this context, my cooperation with the RFC has intensified significantly in the past two years, as I am aware that infrastructure development and solving operational issues go hand in hand. Besides high-level meetings and meetings with rail freight stakeholders to understand the main issues to solve with a view towards boosting rail freight, let me mention the initiative we launched at EU level towards the railway undertakings. For the first time we could identify investments in infrastructure, as prioritized from the perspective of the railway undertakings. This is a major step towards achieving close cooperation with the users of the rail networks. I would also like to underline the ongoing discussions on **loading gauge enhancement** on some French sections of NSMED. This topic is one of the most important on our corridor and I welcome the progress made, as it is a key factor in the development of combined transport traffic. Notably, SNCF Réseau is conducting an analysis, in close coordination with the French Ministry of Transport and the RFC, which takes into account the corridor dimension and the broader network benefits. Let me underline that I have had encouraging high-level contacts on this topic.

As regards the TEN-T technical parameters for rail, notably longer trains and ERTMS, we can see that some progress has been achieved. ETCS has been deployed in 2017, on the first cross border sections (Zoufftgen - Uckange and Longuyon - Mont-Saint-Martin), and since 2017 on all routes in Luxembourg or since 2015 in Belgium on the main corridor lines. But it is nevertheless clear that deployment has to be accelerated on the remaining sections of the corridor. Long trains should receive dedicated attention as they offer great potential improvement in the use of existing capacity for a limited investment. I am pleased to learn that a new study has been launched in Belgium in 2019 to update the initial assessment of 2014 with the view to identify where further investments are needed to remove peak hour traffic restrictions. The situation on the Dutch network deserves also specific attention, as has been revealed by a comprehensive study of 2019, although the intensity of this issue is less notable for the sections belonging to the NSMED corridor. Finally, the discussions aiming at improving interoperability between the NSMED and Rhine-Alpine corridors, both in terms of infrastructure standards and operational measures, launched in the wake of the Rastatt incident, have equally progressed, notably involving high-level representatives of the two corridors. The resilience of the European rail freight network, depends on the removal of such barriers.

As regards **high capacity inland waterways**, the corridor has two main networks, covering the Netherlands, Belgium and northern France on the one hand, and the Rhône – Saône on the other hand. Being limited to the main river basins, these networks cannot serve all possible corridor demands, but they are able to absorb large tonnages moving between industrial centres, urban areas and ports.

To develop further, the corridor waterways generally need capacity upgrades and modernisation to facilitate growth and in order to meet market needs with the continuing transition from bulk to unitised traffic. In this regard, we can mention infrastructure upgrades currently on-going and progressing along the Dutch and Belgian waterways including the Maas route, the Wilhelmina canal, the Beatrix lock, and the new lock in Terneuzen as well as on the Albert canal.

One of the largest and most complex elements in this Work Plan is the **Seine-Scheldt project** which will ultimately create a new high-gauge cross-border network connecting France and Belgium, linking the economic centres, maritime and inland ports in the central part of the corridor. The central component within the overall Seine-Scheldt plan is the construction of the **Seine-Nord Europe canal**, a new 107 km waterway in the north of France which will connect the Seine and Scheldt basins. It is accompanied by a comprehensive programme to modernise the existing waterways (e.g. waterway dredging and widening, bridge raising, lock upgrades, environmental measures), coupled with new infrastructure.

This unique project has made decisive progress in the past two years with the completion of the new Vb Harelbeke lock on the river Lys, the Ingelmunster bridge over the Roeselare-Lys canal and the removal of the bottleneck along the Upper Scheldt in Tournai. Moreover the "avant-projet" for section 1 of the Seine–Nord Europe canal has been adopted, land acquisitions are progressing, first works on this section are to start in early 2021. The detailed studies for the three remaining canal sections have started at the end of 2019.

Besides the infrastructure works, one of the most notable achievements of the corridor so far, is the adoption of the **Seine–Scheldt Implementing Decision** in June 2019[5], a major step giving a new impetus to the project. Agreed with Belgium (the regions of Flanders and Wallonia) and France, the Decision clarifies the exact scope of the Seine-Scheldt project, lists the upgrades and constructions to be realised per section and the actions to be undertaken, following a clear implementation timetable. It also contains provisions regarding the project's governance, including formalising my role as observer in the three governance bodies, as well as the role of the Commission. Above all, it formally renews the commitment by France and Belgium to realise the investments within the agreed 2030 timescale. Likewise, it gives a new dimension to the long-standing support of the Commission to the project.

Beyond that, the elaboration process of the Decision has proven to be a very valuable collaboration between the different parties, i.e. the Commission, the Member States authorities and the infrastructure managers. Not only have the numerous exchanges enabled us to reflect on the process of governance, but all the teams have carried out detailed work re-evaluating the different project components and their importance, defining the actions and their timing against the background of the financial resources available. The Implementing Decision will thus be our roadmap, which we will all stick to, for the coming years. This legal text will moreover be a political tool to facilitate decision-making, e.g. regarding a few sections for which the final investment decision has not yet been taken, or regarding adherence to the timetable.

Finally, let me mention the other key development: the **conclusion of the financing agreement for the construction of the canal Seine-Nord Europe** between the French State, the regions and départements concerned, signed in the presence of the President of the French Republic. This is the culmination of a long political process started many years ago. The Implementing Decision has contributed to it through securing the renewed commitment that the canal will be built. Bridging this gap in the network between France and Belgium is a pre-condition for the full range of expected benefits across the network to be realised. This is why removing uncertainty about its construction and completion by 2028 is so important, especially for investment decisions being made in other parts of the network. This is also the largest new investment in our corridor (€5.1 billion), and the largest waterway investment across all nine corridors.

My corridor is the only TEN-T corridor directly affected by Brexit. Many political developments have taken place in the past two years and we are well aware of them. Connectivity and transport are likely to be significantly impacted, as will be trade to and from Ireland. The key issue is indeed the need to maintain accessibility and economic **cohesion between Ireland and continental Europe**. A lot of discussions and reflections have taken place on the practical ways of securing this accessibility and on the preparedness of the maritime ports in case there is a substantial shift of Irish trade flows from the UK land bridge (which is the route currently chosen by

[5] http://data.europa.eu/eli/dec_impl/2019/1118/oj

around 40% of Irish exports to the Continent.[6]) to maritime routes. At stake is the potential economic impact caused by longer journey times, arising through the need to exit and later re-enter the EU en route to market, or by switching to direct maritime services. Expanding the maritime share would in turn have implications for capacity availability in both Irish and continental ports, as well as the availability of parking areas and inspection facilities. In this respect, short-term plans have already been implemented in many ports.

I have actively participated in those discussions in the framework of my corridor activities. In addition to visits to ports, I have, for instance, organised with my colleagues Prof. Secchi and Prof. Bodewig, Coordinators for the Atlantic corridor and for Motorways of the Sea, a seminar on the connectivity of Ireland, which took place in April 2019 in Dublin and attracted great interest.

Let me also point out that, in order to address a hard Brexit situation, the Commission proposed a Regulation modifying the corridor alignment with the addition of a direct connection from continental Europe to Ireland by sea and thus ensuring that Ireland remains fully integrated within the TEN-T corridor network. The adopted Regulation also foresees that in case of hard Brexit, calls for proposals would be organised, both for the comprehensive and core ports, in order to co-fund actions aimed at adapting transport infrastructure for the purposes of security and checks on external borders[7].

Negotiations on the future partnership between the EU and the UK have now started. This process will potentially decide many aspects affecting the transport sector, such as customs arrangements, sanitary and phytosanitary measures, as well as items such as reciprocal arrangements for road haulage. At this point in time, it is therefore too early to say which forms of cooperation might be envisaged between the UK and the EU at TEN-T level. Whatever the outcome of the Brexit negotiations, the UK, as a close and important market, will continue to occupy particular place in EU external relations, and there are obvious community interests for maintaining, as much as future conditions permit, existing links, including transport links.

To conclude, this is the context in which I have carried on my mission as Coordinator, keeping in mind the challenges we now face and with a sense of urgency. Within this framework I have made numerous visits and interventions on behalf of the corridor, also strengthening collaboration with, and best practices learning from, other corridors. Just to give a few examples, I continued my series of visits to the ports of the corridor, with Brexit, greening and hinterland modal shift as some of the main topics and I have made numerous interventions and visits in the framework of the Seine-Scheldt project. Similarly, I have visited several of the rail projects and met with key representatives of the rail sector, including the RFC, and with Ministers on rail-related questions. This is of course without counting various transport-related conferences and events, as well as our forum meetings. In parallel, the consultants of the corridor have refined and updated their analysis of the corridor.

As we look towards the next phase of the corridor development, and as much as we need to acknowledge the progress made, we also need to acknowledge that we still face a great number of challenges in order to achieve a corridor that is multimodal, integrated, well-functioning and, above all, sustainable. According to this shared vision for the realisation of the corridor, the Work Plan compiles an overview of the corridor characteristics, developments and challenges, looking at current and future

[6] Breen, B., Brewster, P., O' Driscoll, C., Tsakiridis, A., (2018) The Implications of Brexit on the Use of the Landbridge, Dublin: Irish Maritime Development Office.

[7] http://data.europa.eu/eli/reg/2019/495/oj

compliance, persisting bottlenecks, project implementation, financing and funding, as basis for prioritisation of the actions to be taken.

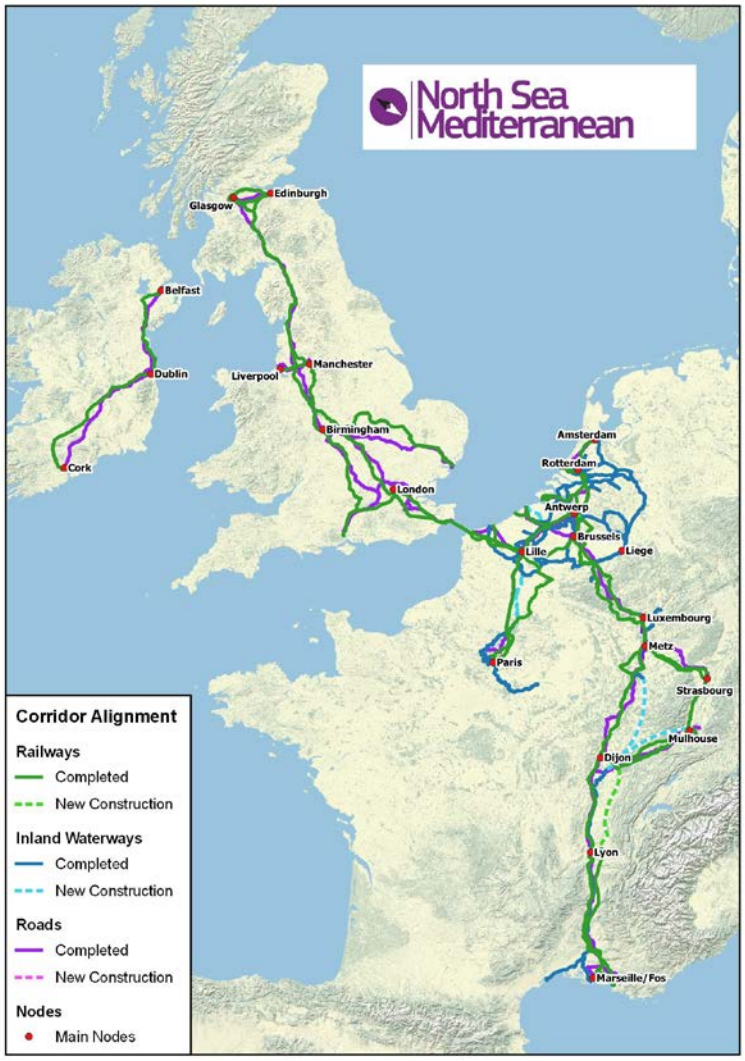
Characteristics of the NSMED Corridor

1.1 Alignment

The North Sea - Mediterranean core network corridor (NSMED CNC) stretches from Glasgow, Edinburgh and Belfast in the north to Cork in the west, Paris and Lille in the centre, Marseille in the south, and extends north-east through Luxembourg, Belgium and the Netherlands towards Amsterdam. It covers six countries, namely Belgium, Ireland, France, Luxembourg, the Netherlands and the UK. It leads to the German and the Swiss borders, connecting to the Rhine Alpine corridor with onward links through the Alpine region to Italy. It consists of 6,486km of railways, 4,210km of roads and 3,238km of inland waterways[8]. After the end of the Brexit transition period, the UK will in principle no longer be a part of the corridor.

[8] Includes existing sections as well as sections categorised as “new construction”, i.e. sections to be constructed in future.

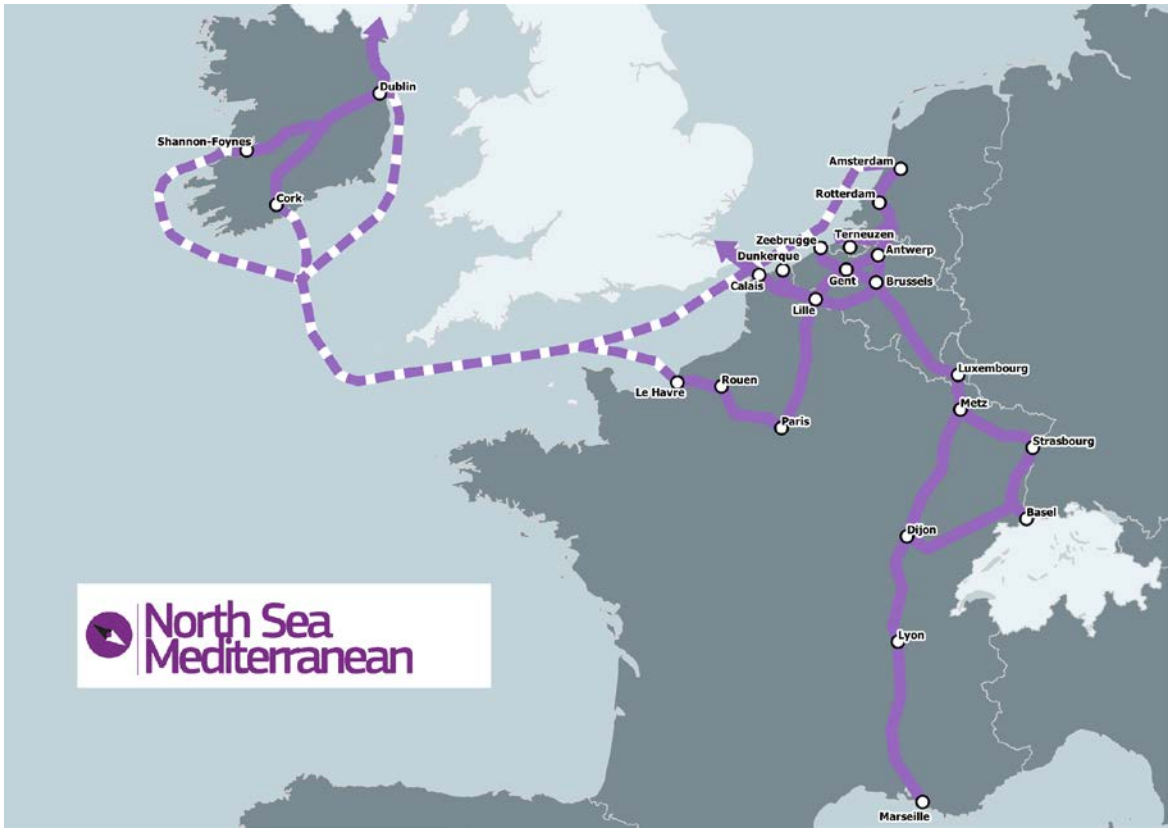
Figure 1: Alignment of NSMED Corridor, 2019



1.1.1 New alignment, post 2020

With the revision of the Connecting Europe Facility (CEF), post 2020, the NSMED corridor alignment will change. In Ireland the corridor will be extended westwards to connect the port of Shannon-Foynes, and in France the connection along the Seine river from Paris to Le Havre through Rouen will be added. The corridor will also include maritime links between the three Irish core ports of Dublin, Cork and Shannon-Foynes, and core ports in the range from Le Havre to Amsterdam (Le Havre, Calais, Dunkerque, Zeebrugge, Antwerp, Ghent and Terneuzen (North Sea Port), Rotterdam and Amsterdam).

Figure 2: New corridor alignment, post 2020



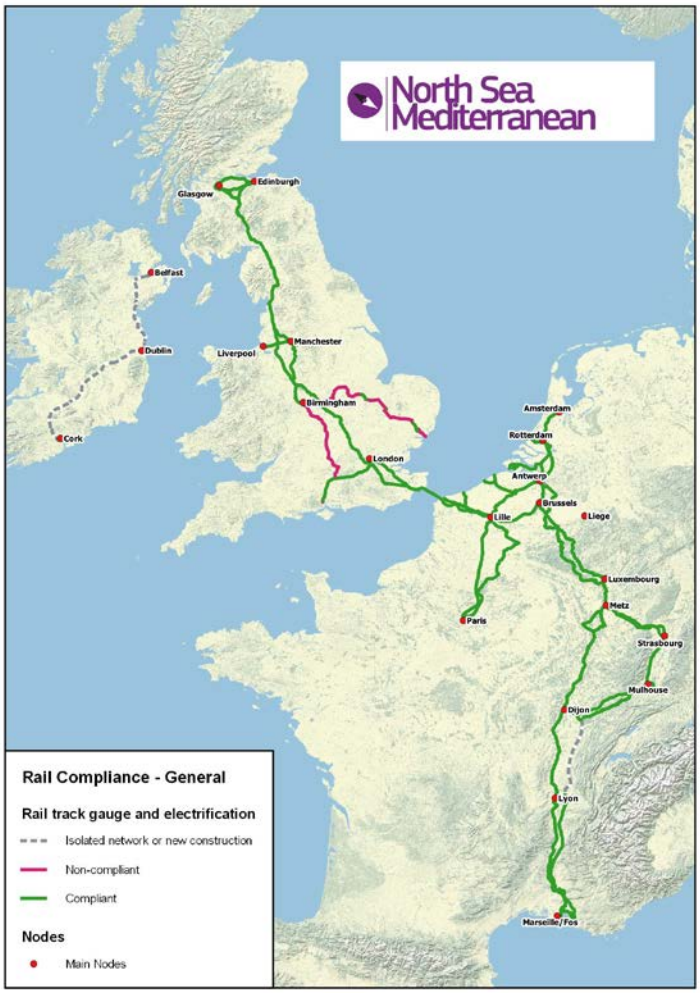
1.2 Technical characteristics of the corridor network

In the following sections, each mode of transport is analysed in turn. Their technical characteristics, including the Key Performance Indicators (KPIs) showing the percentage of kilometres which meet the TEN-T requirements, will be presented, as well as considerations on the remaining bottlenecks.

1.2.1 Rail

The NSMED rail network can be understood as having three main categories of sections: isolated sections, conventional lines (carrying freight and/or passenger trains), and passenger only (usually high speed) sections. Ireland, which has a non-standard track gauge, is considered to be an 'isolated network', and therefore not required to be converted to comply with the technical TEN-T requirements. Within the continental part of the corridor all sections use the standard track gauge. All non-isolated lines, including the high-speed passenger lines, in addition to standard track gauge, are required to offer electrification and ERTMS (signalling). Lines which are used for freight services, usually offering paths for both passenger and freight trains, are also required to achieve certain minimum standards relevant for freight trains, regarding train length, axle load and speed limits.[9]

Figure 3: Railway characteristics - Track gauge and electrification



Railway Network

Key Performance Indicators

Rail Network KPI	%
Electrification	93%
Track gauge 1435mm	100%

(2017 Basis.)

KPIs apply to: all existing, non-isolated sections (conventional and high-speed)

Apart from the exempt sections on the island of Ireland, the only non-compliant sections in terms of track gauge and electrification are the non-electrified sections in the UK. The continental networks are all compliant for track gauge and electrification.

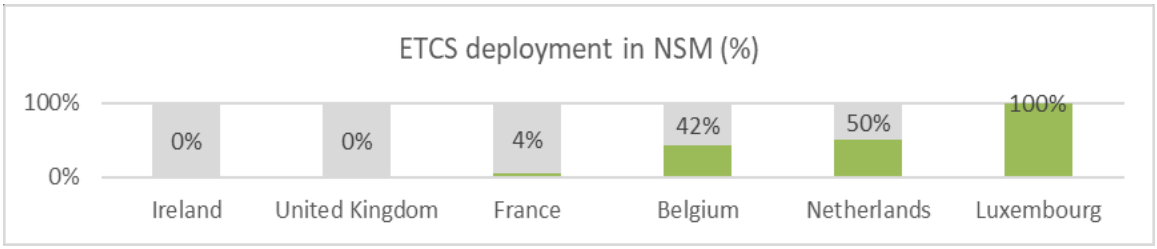
[9] Following Regulation 1315/2013, article 39, 2 (a) ii.

However, in some parts of the network there are interoperability issues related to the use of different voltages for the electricity supply. Luxembourg uses 25kV electrification whereas Belgium uses 3kV on most corridor sections and 25 kV on others such as the high-speed line and the “Athus-Meuse” line connecting towards the France/Luxembourg borders. In coming years other major parts of the Brussels to Luxembourg axis will also be equipped with 25kV, notably in the context of the EuroCapRail project.

1.2.1.1 ERTMS

ERTMS deployment is still work in progress with partial deployment in Belgium and the Netherlands and only a few sections in France. It is fully deployed in Luxembourg.

Figure 4: Current Status of ETCS deployment - NSMED



All sections planned for completion by 2019 have been achieved, but overall, only 11% of the corridor[10] has ETCS in operation while on 87% of the corridor GSM-R is in operation. Only 23% of the corridor is planned to have operational ETCS by 2023.

Most of the French sections of the NSMED corridor will not be deployed before 2023. Zoufftgen–Luxembourg border and the LGV Est-européene (Rémilly/Baudrecourt – Strasbourg) are the only sections planned to be operational before the end of 2023. However, the sections Thionville–Metz and Metz–Basel are delayed from 2020 to 2022 and 2025, respectively.

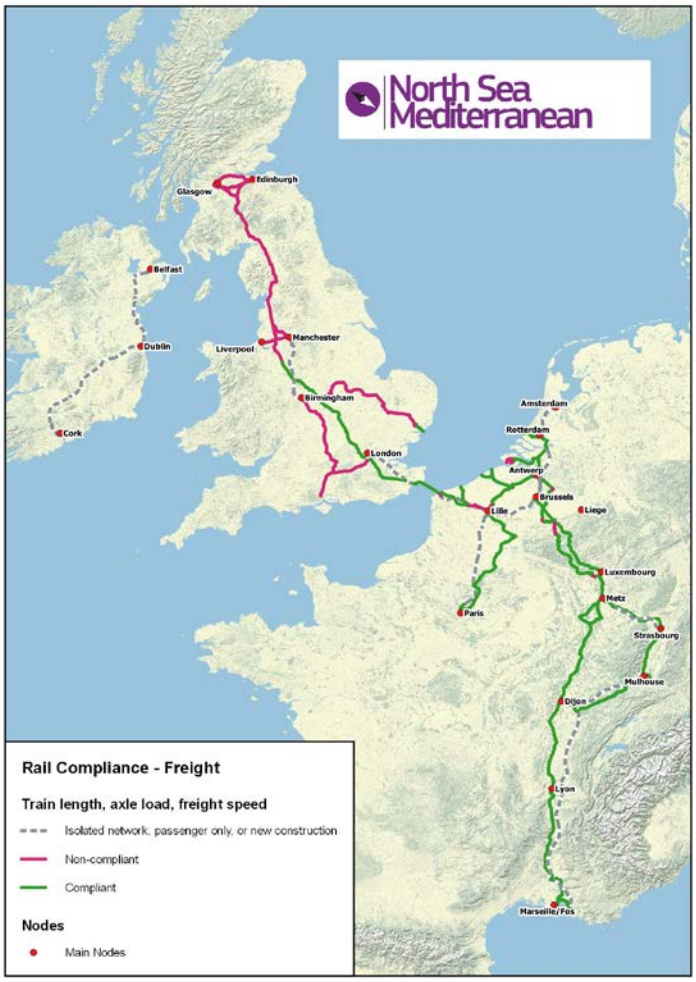
There is currently a discontinuity in the freight corridor between Antwerp Noorder-dokken (Belgium) and Barendrecht (Netherlands) that will not be in operation by 2023, although the neighbouring sections in Belgium and Netherlands are already in operation. The Antwerp node is delayed until 2023 in the sections connecting with Ghent, foreseen to be in operation by 2021 in the ERTMS Deployment Plan (EDP).

1.2.1.2 Rail freight requirements

Lines carrying freight trains are required to offer at least 22.5 tonne axle load, 100 km/h line speed and the possibility of running trains with a length of at least 740 metres. Line speed and axle load, are mainly compliant throughout the corridor, with 97% of total network kilometres compliant in both cases, but the requirement to run 740m trains is more of a widespread problem.

[10] The figure of 11% includes the island of Ireland which is exempt as an isolated network. Excluding the island of Ireland, but including the UK mainland, the target for 2030 is 95%.

Figure 5: Rail Freight Characteristics - length, axle load and speed



Rail Freight Network

Key Performance Indicators

Rail Freight KPI	%
Line speed (>=100km/h)	97%
Axle load (>=22.5t)	98%
Train length (>=740m)	74%

(2017 Basis.)

KPIs apply to all existing, non-isolated, conventional lines. They excludes high speed lines, and new constructions.

Limitations on the running of trains of at least 740m in length occur primarily in the UK, although there are important operational restrictions[11] and some bottlenecks in Belgium and the Netherlands, where, in practice, trains can be limited to 650m during peak (daytime) hours. Therefore in order to alleviate the restriction, it is necessary to increase the number of sidings designed for 740m trains. In Belgium where limitations exist, a study was launched in 2019 to update the work on identifying priorities. In the Netherlands, Prorail has also undertaken a study to identify locations where new sidings for 740m trains are needed across the whole network, including nodes on the NSMED corridor.

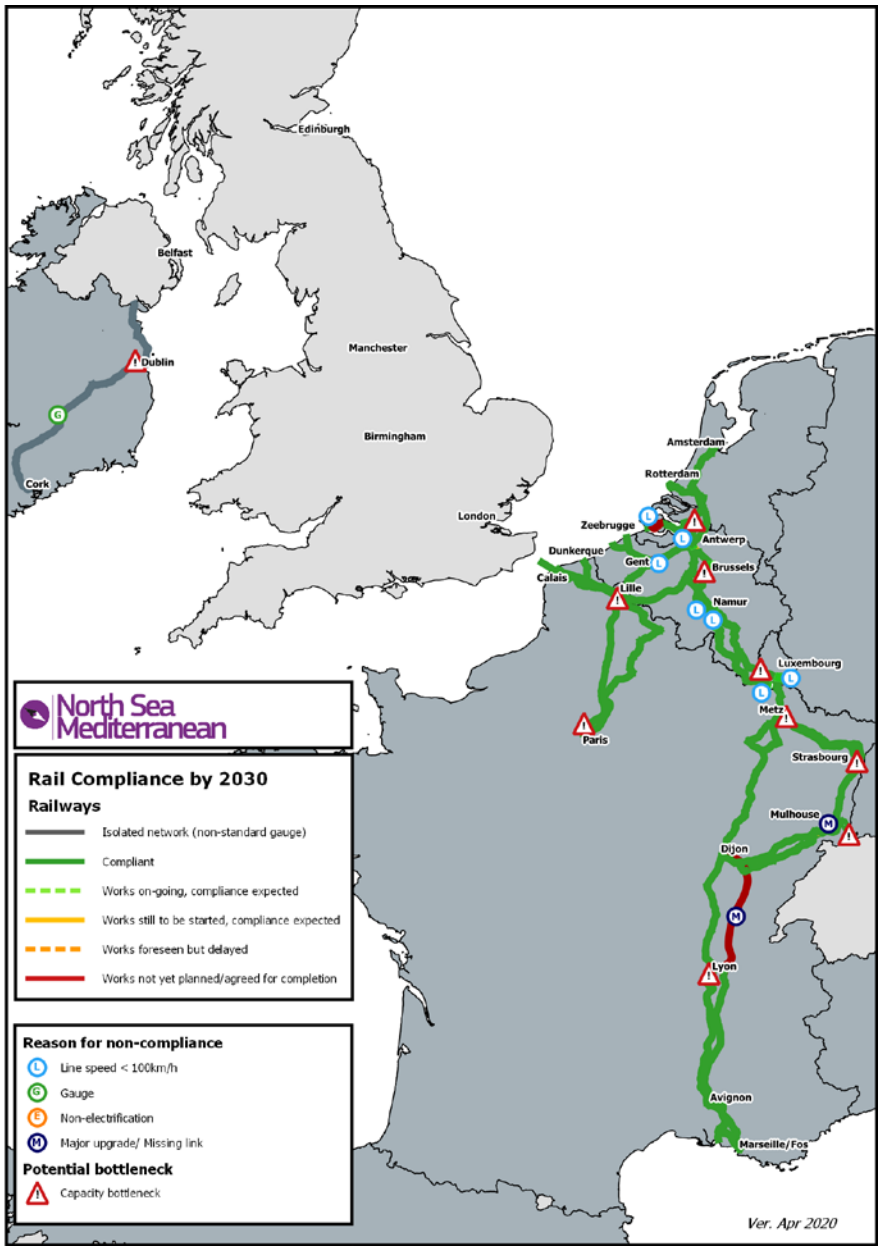
Additionally, some Belgian sections, and most notably the line between Namur and Dinant, do not comply with the 100km/h speed at the moment, but ongoing projects will provide a solution.

[11] Operational restrictions on train length are not indicated in the compliance map.

1.2.1.3 Expected railway compliance by 2030

The map below indicates the expected situation regarding completion of the railway network by 2030, with respect to three technical parameters (line speed, gauge and electrification), completion of missing links and presence of capacity bottlenecks.

Figure 6: Rail compliance by 2030 overview



By 2030 it is expected that the majority of issues related to line speed will be solved, but full compliance on train length is still uncertain and ETCS deployment will only be on prioritised routes. According to current plans the two missing sections of the high-speed line LGV-Rhone-Rhine (second phase of the project, 50kms of line) are not foreseen to be built by 2030. Likewise, the new high-speed branch Dijon - Lyon via Chalon-sur-Saône is not planned to be built by 2030.

Despite convergence towards technical compliance, there are additional factors acting as barriers to the development of rail on the corridor. Persistent capacity bottlenecks on rail networks affect many of the urban nodes, as indicated in the map, including Antwerp, Brussels, Lille, Paris, Luxembourg, Metz, Strasbourg and Lyon. The pressing need to expand capacity for short-distance passenger transport on rail can have a detrimental effect on capacity for long-distance rail services, which are also routed through these main urban centres. Specific issues are found in the major port cities, such as Antwerp and Marseille, where the potential for using rail freight as a high-capacity hinterland mode is limited by the need to route the trains on busy urban lines.

Lyon, for example, is one of the main traffic hubs on the French network and therefore of crucial importance in the management of national and regional freight and passenger traffic flows, as well as the connection to the Mediterranean Corridor and in future to the new Lyon-Turin link. The main North-South axis runs through the middle of the city where more than ten lines converge with high frequencies of regional train traffic and very limited available capacity. This is to be addressed, firstly, with works on the existing network aiming to increase reliability, safety and capacity, and secondly with a new bypass of the city, dedicated to freight trains.

In addition to the issues of restricted train length, delayed deployment of ETCS, and capacity bottlenecks, attention needs to be paid to the issue of loading gauge, i.e. the height and width restrictions of bridges and tunnels affecting the types of combined transport services which can be offered. Two notable routes in this regard are the access into Marseille from the north, and the Benelux Basel itinerary towards Italy. For the latter there is a short section of the NSMED corridor between Metz and Strasbourg where works are required in order to allow P400 loading gauge trains to be operated along the entire route. There is currently progress being made on this question, with discussions under the RFC NSMED framework and a study being conducted by SNCF Réseau.

1.2.2 Inland Waterways

In accordance with Article 15 of the TEN-T Guidelines, inland waterways are required to offer capacity for CEMT class IV or higher vessels, allowing at least 2.5 metres depth of water, and 5.25 metres minimum overhead clearance. River Information Systems (RIS) should be provided, and good navigational status should be maintained.

Overall, the NSMED waterway network is steadily moving towards full compliance with the TEN-T standards, as shown by the corridor KPIs:

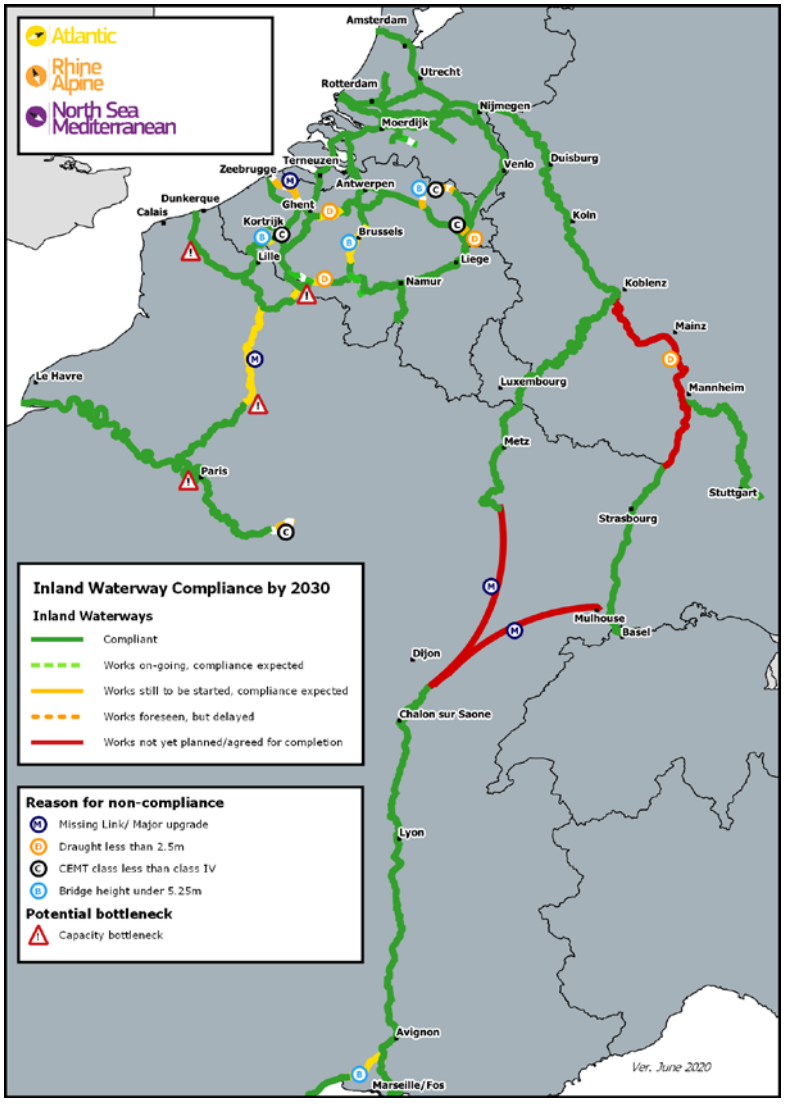
Table 1: Inland Waterway KPIs – Share of Compliant Kms per Member State

Inland waterway KPI	BE	FR	LU	NL	All
CEMT Class IV	99%	99%	100%	100%	99%
Permissible Draught (min 2.5m)	93%	99%	100%	99%	97%
Perm. Height under bridges (min.5.25m)	85%	93%	100%	100%	93%
RIS implementation	100%	100%	100%	100%	100%
Total KMs of Corridor Waterways	*994*	*1,333*	*78*	*832*	*3,238*

2017 Basis: indicates the proportion of corridor kms meeting the four standard criteria.

The corridor is over 90% compliant but the main remaining issue is caused by height restrictions under bridges with 93% of the NSMED waterway achieving the 5.25m air clearance under normal water levels. The Netherlands is largely compliant, exceeding TEN-T standards for the most part, and remaining issues are being solved.

Figure 7: Inland Waterway compliance by 2030



In Belgium a few sections are not compliant with respect to either CEMT class, water draught, or bridge height. On the Bocholt-Dessel canal the main issue is lock capacity, resulting in CEMT class IV limitations. The Bossuit-Kortrijk canal also has a CEMT class IV restriction. Bridge height restrictions occur on the Brussels-Charleroi canal and on the River Lys. Depth issues occur on the Boven Zeeschelde, which is tidal, and on the Dorsale Wallonne, including the Condé-Pommeroeul due to sedimentation. Many of those issues in Belgium are currently being addressed as part of the Seine-Scheldt project, and by 2030, most of them are expected to have been solved.

In France the existing waterways are largely compliant, although navigational problems can occur under conditions of high water along the Seine in Paris. The missing waterway connections in the East of France, linking the Saône and Moselle as well as the Saône and Rhine rivers will not be realised by 2030 according to current plans.

On the northern part of the corridor, the objective is to go beyond the TEN-T requirements and to achieve a continuous high-gauge waterway of CEMT class Va/Vb, in particular to remove capacity bottlenecks, but also to prepare the network to absorb significant traffic growth. This is necessary for the waterways to increase their competitiveness vis-à-vis other transport modes.

In general, on the NSMED corridor waterways the standards are already higher than the TEN-T requirements: currently, 81% of the NSMED waterway network achieves

CEMT V class, and almost half (47%) offers 7m bridge clearance, as shown below in Table 2.

Table 2: Corridor Specific Inland Waterway KPIs – Share of Kms per Member State

Corridor Specific KPI Waterways achieving / exceeding:	BE	FR	LU	NL	All
CEMT Class V	63%	87%	100%	93%	81%
CEMT Class VI	24%	0%	0%	53%	21%
Bridge height up to 7m	54%	11%	31%	96%	47%
Bridge height up to 9.1m	22%	3%	0%	79%	28%
Total KMs of Corridor Waterways	*994*	*1,333*	*78*	*832*	*3,238*

2017 Basis: indicates the proportion of corridor kms meeting the four corridor specific criteria.

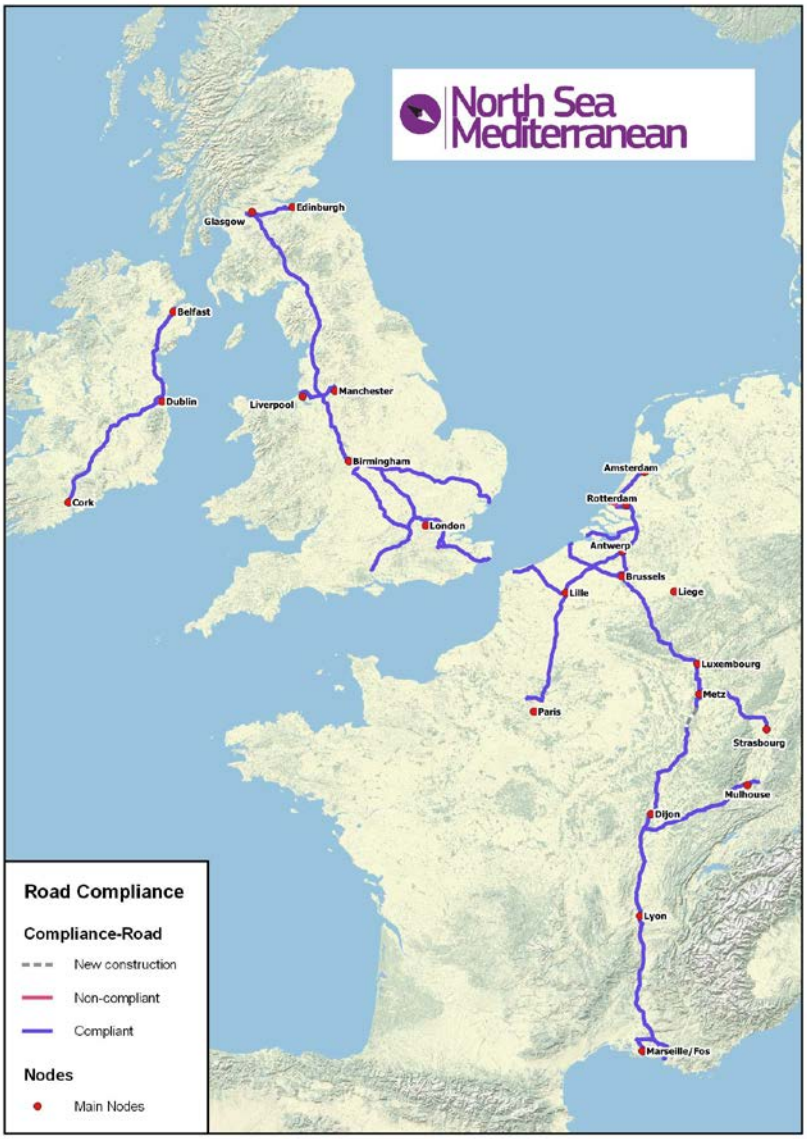
This objective of a CEMT class Va/Vb is the background to the Seine-Scheldt project, for which the new Implementing Decision lists the upgrades and constructions to be realised per section, along with an implementation timetable. In addition to the investments in physical infrastructure (e.g. waterway dredging and widening, bridge-lifting, lock modernisation, environmental measures), there are also requirements for co-ordinated approaches for alternative fuels, RIS, and development of multimodal platforms. The central component is the construction of the 107 km long Seine-Nord Europe canal, which will offer a minimum height of 7 metres at maximum water level. The implementation of this package in a coordinated way will enable the full set of network benefits to be realised by 2030. This is furthermore complementary to the necessary modernisations, current or future, on the other parts of the Belgian and Dutch networks, as mentioned in chapter 1, e.g. as regards bridge height on the Albert canal, and it will open up high capacity routes linking the Seine basin to the Scheldt, onwards to the Maas and Rhine waterways. Furthermore, a study is ongoing in the Netherlands to prepare a multimodal infrastructure agenda to upgrade the Rhine-Scheldt connection (Amsterdam-Rotterdam-Antwerp) and to extend it south in the future.

Finally, in the area of climate change resilience and the maintenance of good navigation, there have also been important developments for the corridor since the last Work Plan. The Netherlands is initiating a series of climate change adaptation measurements in order to prepare for periods of low water. This drought package is a set of interventions meant to improve the existing cross-border waterway connections in terms of robustness, sustainability and climate adaptation. It consists of measures such as increasing the capacity of locks e.g. at Grave and Weurt so that they ensure good navigability, i.e. that the water depth criteria are met throughout the year, including periods of drought and low water. We can note similar initiatives in Belgium, where water-powered pumping stations have been built along the locks of the Albert canal in the Flemish region, to be used to overcome low water during dry periods, and capable of generating electricity.

1.2.3 Road

For road, the TEN-T guidelines focus on achieving either motorway or express-way standards, as well as the provision of safe and secure parking, and the availability of alternative fuels.

Figure 8: Road network characteristics, 2017



Regarding road standards, over 99.5% of the corridor achieves the required motorway or express-way requirements. However, congestion issues are widespread in the transport networks of nearly all large urban areas, especially at peak hours.

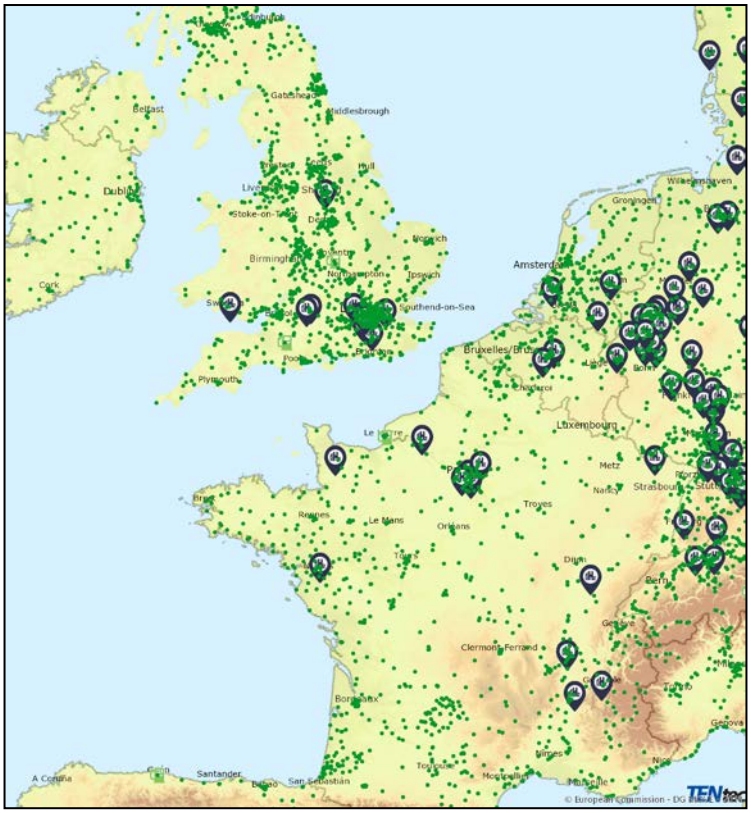
Across the network there are still shortages in terms of the availability of certified secure parking facilities for lorries, both in terms of the number of facilities available across the corridor and the capacity they offer. Progress is however being made, especially in the central part of the corridor between Calais, Brussels, Antwerp, and the south of the Netherlands.

A key development in the last two years, with a high degree of significance for the achievement of the climate change goals for the coming decade is the adoption of alternative fuels[12] and the use of zero-emission vehicles.

Figure 9 (below) shows the current level of provision for two forms of alternative fuel, namely electrical charging (green markers) and hydrogen (black/ white markers). Supply of fast charging for electric vehicles is becoming more widespread, for example in the Netherlands, Belgium and the UK as is the use of battery electric vehicles, but hydrogen supplies are still severely limited, typically being used for local projects.

[12] Electricity, hydrogen, biofuels (liquids), synthetic fuels, methane (natural gas (CNG and LNG) and biomethane) and liquefied petroleum gas (LPG).

Figure 9: Availability of fast charging and hydrogen



In addition to these, there are fairly widespread supplies of CNG, and to a lesser extent LNG. For all alternative fuels, attention must be paid to developing long distance routes in combination with clusters near urban areas.

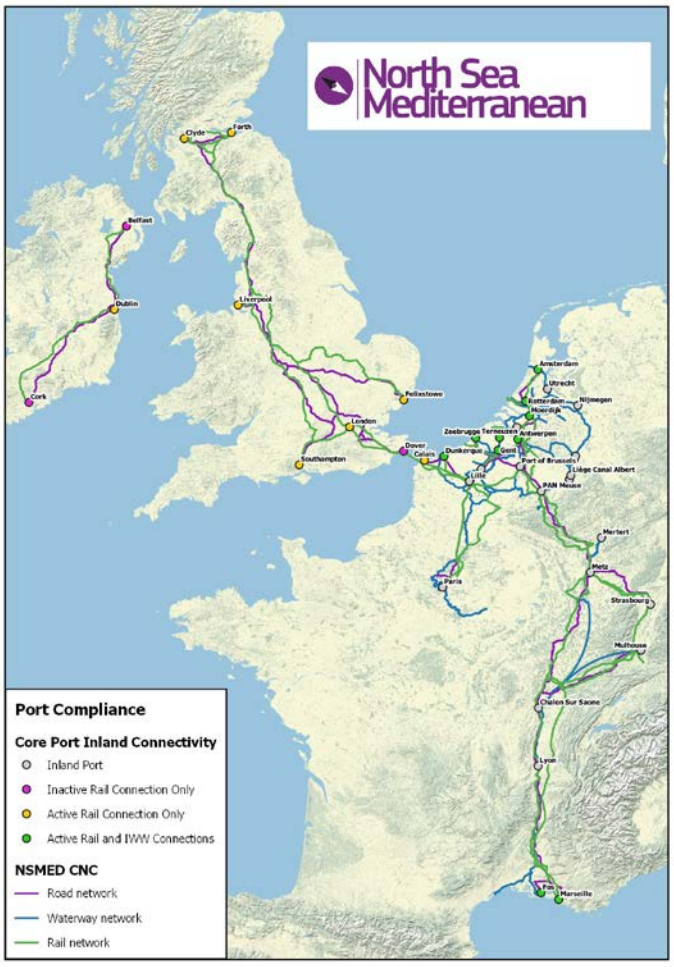
Although there are no quantified KPIs defined for intelligent transport systems (ITS), the TEN-T regulation requires ITS systems to be compliant with Directive 2010/40/EU, meaning that they should be interoperable across borders. This is being addressed in the corridor, for example, through pilot projects for Cooperative-ITS, such as the C-ROADS projects in France, Wallonia and Flanders, ending in 2020.

1.2.4 Ports

The core network consists of both maritime ports and inland ports, and following Article 41 of the TEN-T Guidelines, maritime ports in the core network need to be connected with both rail and waterway by 2030 (provided there are no physical constraints). Additionally, ports need to offer clean fuels and waste reception facilities.

Most core maritime ports in the NSMED corridor are compliant with TEN-T standards with respect to rail connectivity and indeed all of the continental ports offer an active rail connection. In Ireland, the Port of Cork is one exception where the existing rail connection is inactive. New berths are being developed at Ringaskiddy, along with road connections but there are no existing plans to connect the terminal to the rail network as, given the regional nature of the hinterland, there is no immediate case for it.

Figure 10: Port characteristics



Ports

Key Performance Indicators

Maritime Port KPI	%
Connection to rail	100%
Connection to IWW CEMT IV	100%
Availability of clean fuels	48%
Facilities for ship generated waste	100%

Inland Port KPI	%
Class IV waterway connection	100%
Connection to rail	92%
Availability of clean fuels	27%

2017 basis.

KPIs apply to all core ports.

Table 3: KPIs for Maritime Ports per Maritime Country

Number of ports achieving:	BE	FR	IE	NL	UK
Connection to rail	3	4	2	4	8
Connection to IWW CEMT IV	3	3*	0*	4	0*
Availability of clean fuels	3	4	0	3	0
Facilities for ship generated waste	3	4	2	4	8
TOTAL Maritime Ports	3	4	2	4**	8

*Port of Calais, UK and IE ports are exempt because they are not connected to TEN-T waterway network.

** The Netherlands ports of Terneuzen and Vlissingen are counted as one port.

Concerning waterway access, all non-exempt maritime ports have the required connection of CEMT class IV or higher. Calais is accessed via the CEMT class I Calais-St-Omer canal (this waterway is not part of the TEN-T network), and given the traffic profile of the port, which is mainly trucks and cars from the UK, there is no case for upgrade. Marseille, which is the Eastern part of the Marseille/Fos core node, does not have direct inland waterway access, but logistics activities mainly take place in Fos-sur-Mer which has access to the River Rhône. Zeebrugge has a TEN-T compliant class IV connection but the capacity of the connection between the port and Ghent will be

increased in the framework of the Seine-Scheldt project to reach at least CEMT class Va, in order to ensure a reliable waterway access and to increase the share of waterway traffic from Zeebrugge to its full potential.

Ten of the seaports (48%), in France, Belgium and the Netherlands, offer alternative fuels, primarily LNG. However, there are initiatives underway, for example in Dunkerque, Marseille, Zeebrugge and Rotterdam to develop hydrogen production and storage, including green hydrogen, produced by electrolysis, as well as initiatives to build hydrogen powered inland waterway vessels.

For greater multimodality it is advantageous that TEN-T core inland ports have connections to the TEN-T rail networks. In the NSMED corridor there are 26 inland ports, of which eight are also maritime ports. Currently all but two core inland ports in the corridor can be classified as having no rail connection, but in reality the situation is more complex as some inland ports are defined as the port authorities for a whole city or stretch of waterway, containing many terminals, only some of which are rail connected.

Table 4: KPIs for Inland Ports* per Country

Number of inland ports achieving:	BE	FR	LU	NL
Connection to rail	7	9	1	7
Connection to IWW CEMT IV	7	9	1	9
Availability of clean fuels	2	2	0	3
TOTAL Inland Ports	7	9	1	9

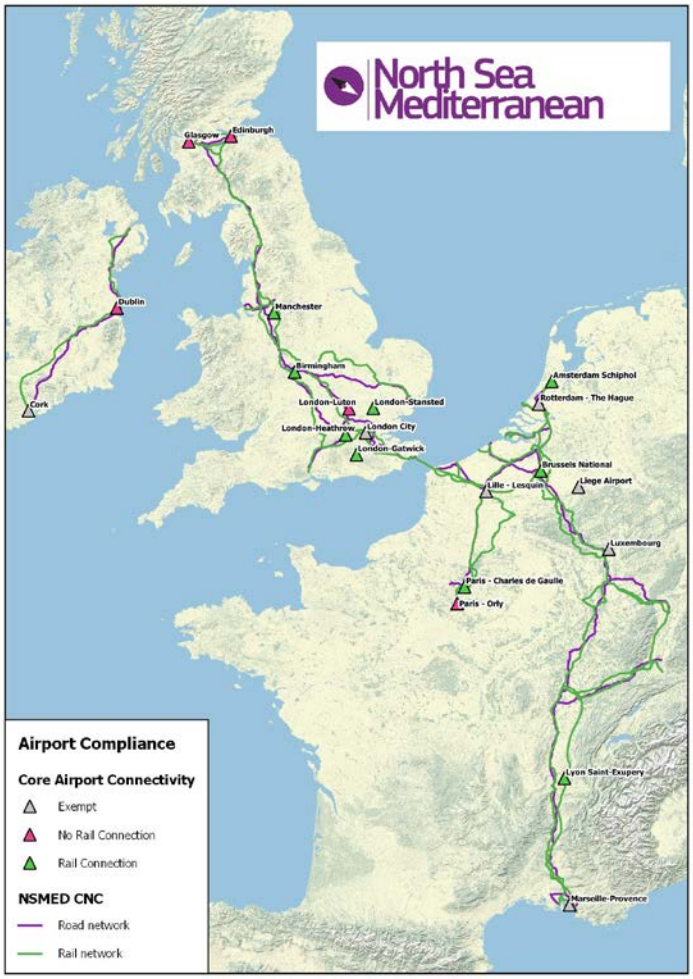
*(*Includes ports which are both inland ports and maritime ports)*

Where rail or waterway connections exist for either maritime or inland ports, shortage of capacity may be an additional bottleneck. The Port of Antwerp needs a second rail freight access and upgrade of bridges. For the Port of Zeebrugge rail investments are foreseen to improve the capacity and optimise the railway infrastructure inside the port with construction of new tracks. For the cross-border North Sea Port, rail access between Terneuzen (NL) and Ghent (BE) has been the subject of a feasibility study with the aim to further develop it. Moreover railway infrastructure upgrades allowing 740m trains are also necessary for the Belgian and Dutch seaports.

1.2.5 Airports

The main airports, following Article 41 of the TEN-T Guidelines are required to have rail connections by 2050 except where there are physical constraints. Although only 64% of the NSMED core network airports have a rail connection, most of those with no rail connection are exempt from this requirement, or are located in the UK.

Figure 11: Airport Characteristics



The principal exception is Dublin Airport in Ireland which is currently only connected to national networks by road. However, plans are being made for a new rail link between the airport and the city centre as part of the wider Metrolink project.

Orly Airport in Paris currently has a light rail connection to the RER and Metro networks in Paris. However, as part of the global project "Grand Paris Express" improved rail connections from the airport will be built, with a LGV station offering direct connections to the national high speed network.

2 Transport Market Study

The corridor market studies consist of a series of traffic-related analyses carried out by the corridor consultants which are updated periodically and disseminated via the Corridor Forum. The latest updates took place in 2019 and the general aim was to monitor current traffic developments on the corridor and to use available European and national studies as the basis for predicting market developments up to 2030.

2.1 Current flows along the Corridor

For the first time, a detailed traffic data collection exercise was carried out across all multimodal corridors in 2019, making it possible to quantify flows across the network of corridors. The maps below show the results for rail, road and inland waterway transport on all the TEN-T core network corridor sections, with the NMSED sections highlighted in green. Rail data is for 2015, while road data is for 2016.

Figure 12: Rail traffic – average daily trains, 2015.

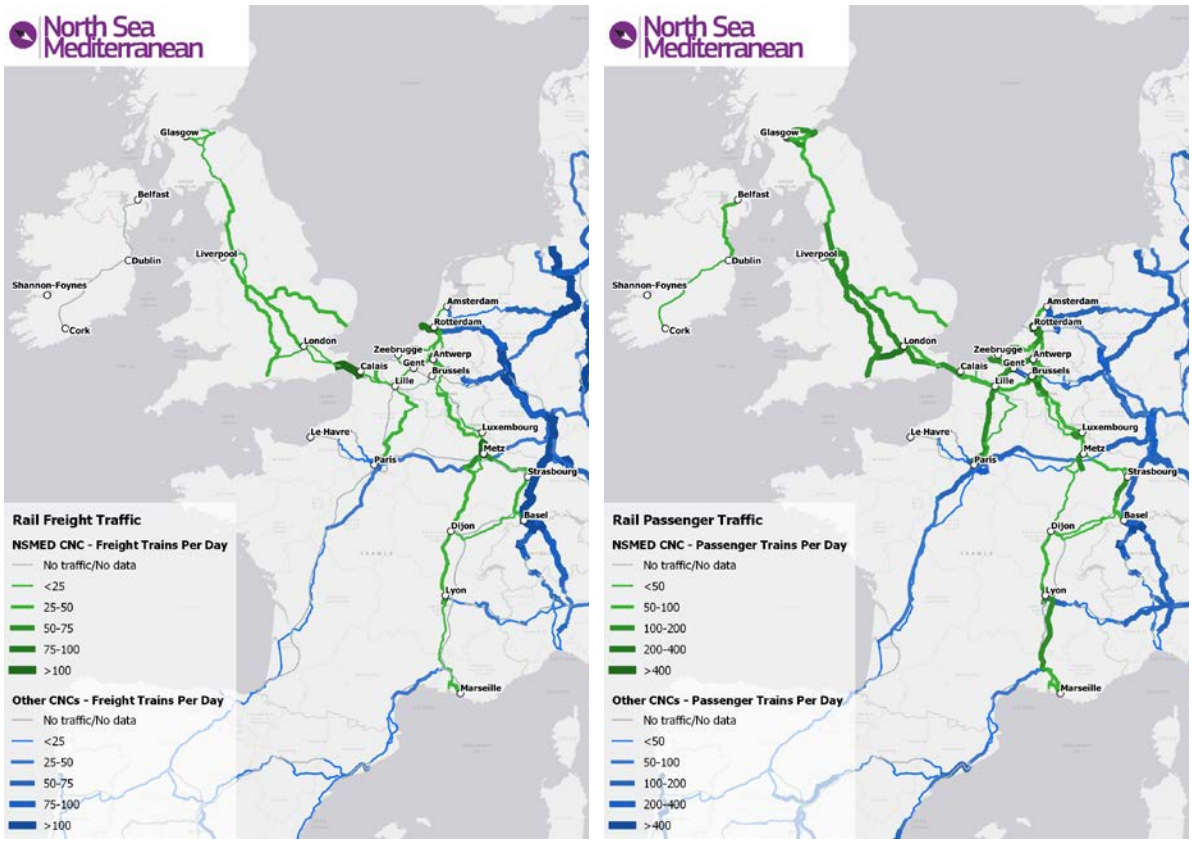


Figure 13: Road traffic – average daily vehicles, 2016.

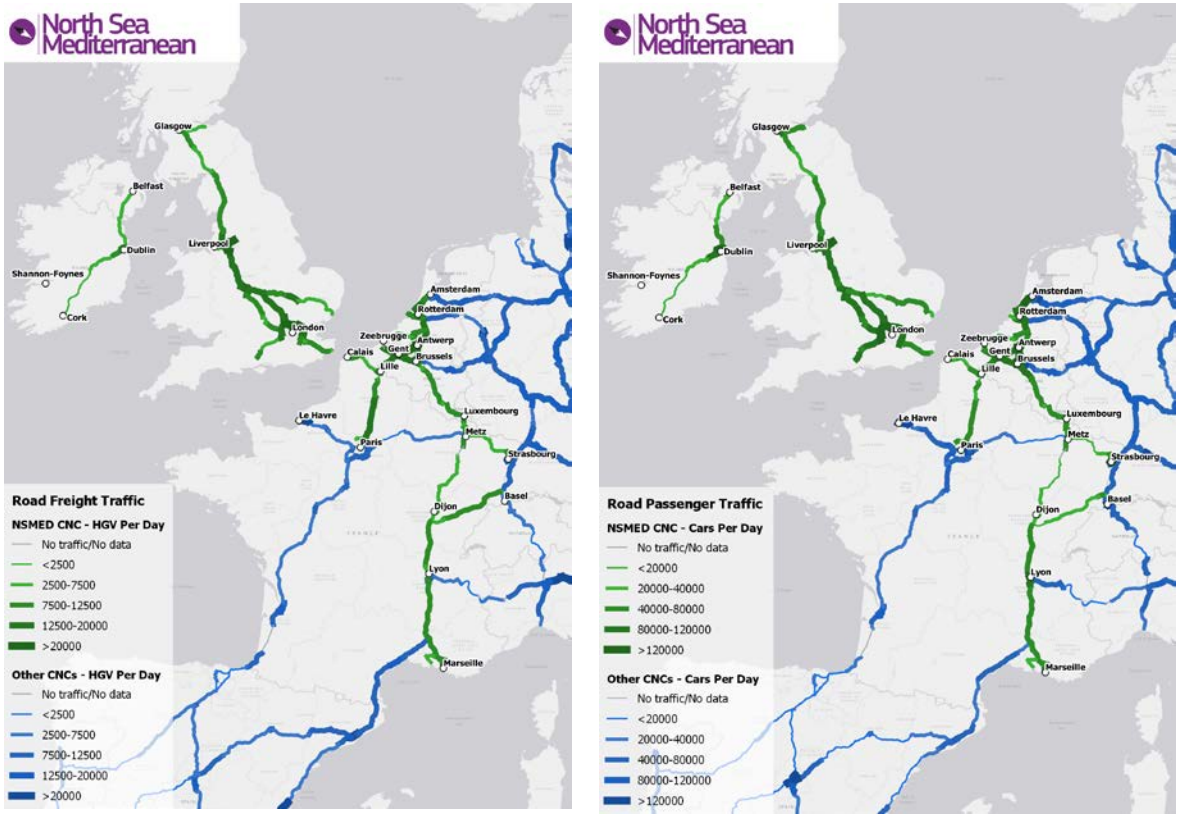
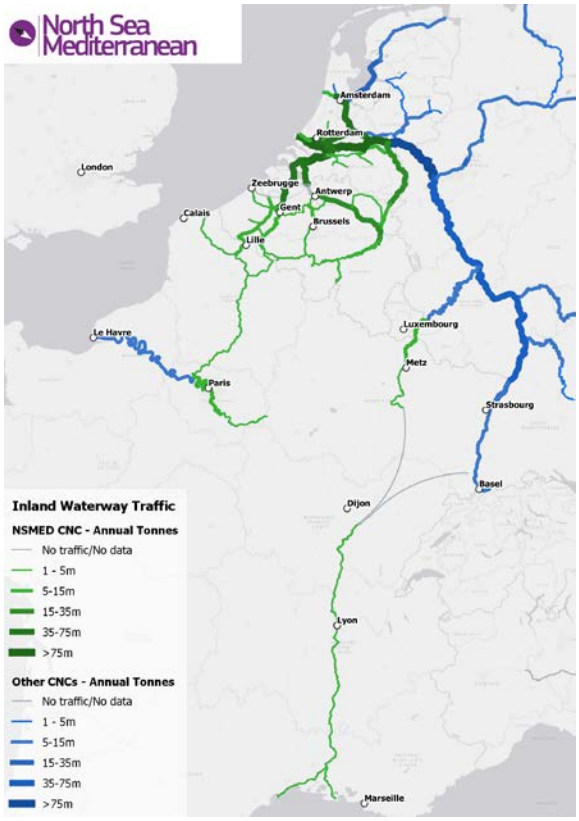


Figure 14: Inland waterway traffic – million tonnes per annum, 2015.



These maps, which cover all the corridors make it possible to make direct comparisons in terms of traffic levels on the corridor sections and modal shares. For example, by comparing the flows on the NSMED corridor (sections are indicated in green) with the neighbouring Rhine Alpine corridor it can be seen that road freight, road passenger and rail passenger have comparable levels, but that rail freight and inland waterway freight are much lower on NSMED. In future, with the realisation of the Work Plan, the potential exists to achieve a more equal balance across modes. In Belgium and the Netherlands, the key issue is how to use all modes of transport to relieve congestion, but for the corridor as a whole to achieve a measurable degree of modal shift, there is a need to achieve higher shares for both rail and waterway transport.

2.2 Market developments

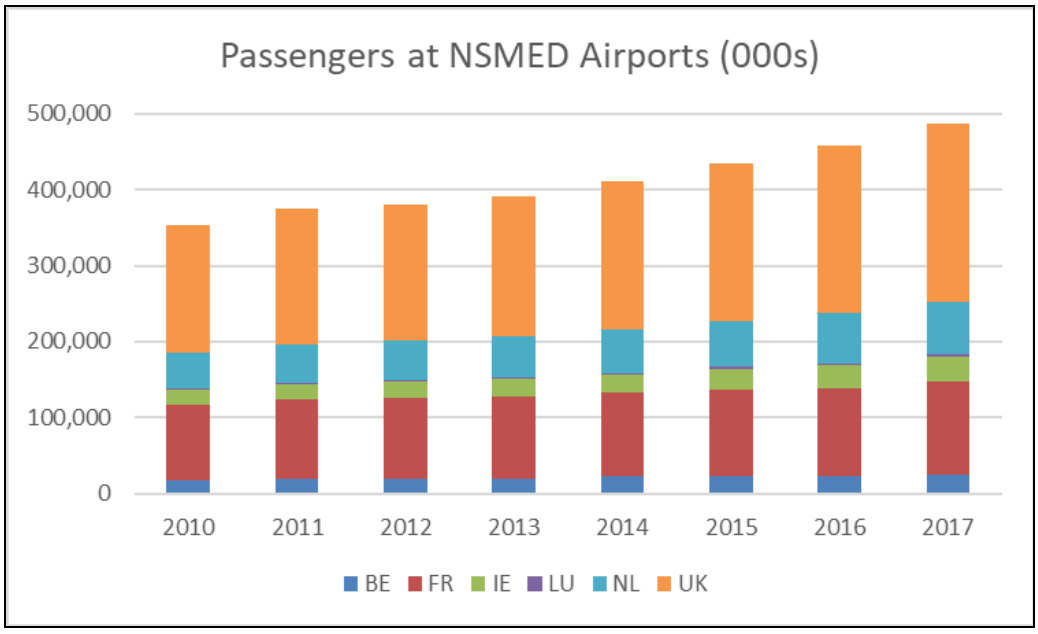
The relatively high traffic volumes across the NSMED corridor are heavily influenced by the fact that it covers many of the most economically active cities and regions in Europe and includes many of Europe's largest gateway ports, airports and logistical "hotspots". In the last decade, up to 2019, the GDP trend for the corridor regions has been positive, higher than the EU average and with relatively high growth in Ireland and the Netherlands. The corridor regions now contain an estimated 103 million people and have a combined GDP of €4.2 trillion, but a large part of the total activity is focused within the London-Paris-Brussels-Amsterdam range.

Freight volumes transported across the corridor amount to some 170 billion tonnes-kilometres annually, together with around 180 billion passenger kilometres across all land modes of transport, growing roughly in line with GDP growth rates. These flows

are also heavily concentrated within the central part of the corridor, including Southeast UK, North and East France, Belgium (especially the Flemish region) and the Netherlands. Road is the dominant mode of transport. Around 64% of all freight volumes on the corridor sections[13] are carried by road, 25% by inland waterways and 11% by rail. For passenger transport, the modal split for surface modes is 80% for road vehicles and 20% for passenger trains. During the last decade, traffic volumes have been growing but the shares of road freight and road passengers have remained static.

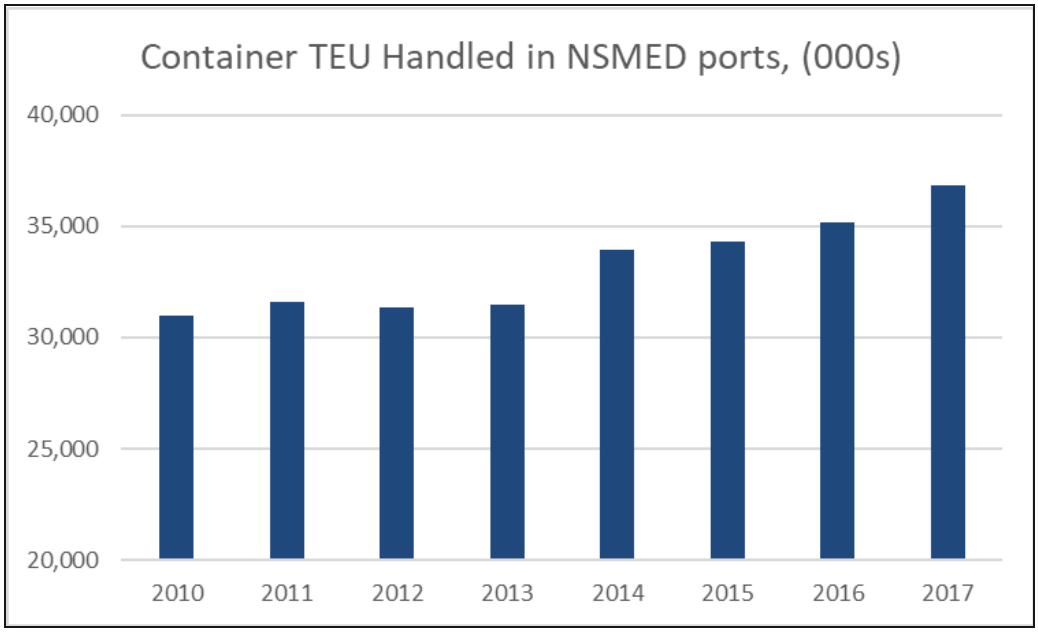
One of the main drivers for growth has been the expansion of long distance, intercontinental freight and passenger traffic arriving at the main international gateways. Maritime freight transport (especially deep-sea containers) and air passenger transport are both very important within NSMED, and these sectors have been experiencing consistent growth between 2012 and 2017, with further expected increases in 2018 and 2019.

Figure 15: Passengers at NSMED core airports (000s)



[13] TRUST Model baseline, tonne-kms on corridor macro-sections, 2016.

Figure 16: Container TEU handled in NSMED core seaports (000s)



The attractiveness of the major cities of the corridor and the increase in inter-continental container traffic with East Asia entering Europe through the gateway ports located on the corridor has resulted in above-average growth in transport volumes. Parallels can be found with air transport, where European long-haul passenger volumes are heavily concentrated upon London Heathrow, Paris Charles de Gaulle and Amsterdam Schiphol airports.

Inland transport from these international gateways within the NSMED corridor relies to a large degree on road transport, but multimodal services also play an important role, for example in moving containers via rail and inland waterways to alleviate pressure on roads. It is important to ensure that in future all seaports and airports have multimodal access comparable with the best examples in the corridor. A notable development in this regard is the Seine-Scheldt project which increases the number of corridor regions which can be connected via inland waterway services, as well as the range of projects being planned to improve last mile rail access.

2.3 Corridor scenarios

Besides the analysis of the current flows and available capacity of the corridor infrastructure, forecasts of future transport activity and their macro-economic impact were estimated in 2019 for three different corridor development scenarios:

1) Baseline scenario, assuming that no additional core TEN-T network investments take place beyond those started by 2016.

2) Reference scenario assuming full completion of the core TEN-T network, in line with the projects identified through the work of the European Coordinators.

3) Corridor specific scenarios highlighting particular aspects such as critical projects, special opportunities, specific sets of investments or measures of relevance for the individual corridor.

For all three scenarios, a combination of the ASTRA[14] and the TRUST[15] models have been used. For the scenarios relating to full corridor completion, this Work Plan draws on the results of the study the impact of TEN-T completion of growth, jobs and the environment published in 2019[16] by the European Commission. The corridor-specific scenario was elaborated separately as part of an additional study carried out to support the 2020 Work Plans.

2.4 Reference scenario

The impact analyses performed under the 2019 Growth and Jobs study provide a view of the direct effects of the new infrastructure developments in the transport sector and the indirect effects on supplying industries. The study also calculated the wider economic impacts induced by mechanisms such as higher productivity amongst other economic agents and provided forecasts at regional and national scale. For the NSMED corridor, according to this study, the implementation of the whole EU-wide core TEN-T (reference vs. baseline in 2030) will result, in the corridor Member States during the period 2017 - 2030, in an increase of cumulated GDP of about € 364 billion, and in the generation of a total of 1.0 million additional person-years of jobs.

These socioeconomic gains will be furthermore coupled with additional benefits in terms of reduction of external costs and environmental protection. The planned investments along the corridor, in accordance with the present Work Plan (notably in the field of rail, inland waterway and the improvement of intermodal transport) will enhance the environmental performance of the TEN-T, creating favourable conditions to increase the modal share of greener transport modes, mitigating greenhouse gas emissions, noise and, as appropriate, other negative environmental impacts.

Whereas the transition to innovative and sustainable transport technologies will generally make possible the decarbonisation of all transport modes, a positive contribution is also expected from the large-scale adoption of alternative clean fuels and zero-emission vehicles. The ongoing and planned projects on the TEN-T are expected to play an important enabling role by supporting the early adoption of such technologies.

2.5 Corridor specific scenario

In line with the analysis of the critical issues affecting the development of the NSMED Corridor, the specific scenario for this corridor relates to the assessment of the impact of the non-completion of the inland waterway projects encompassed by the Seine-Scheldt overall project, including the Canal Seine-Nord Europe and the related upgrades and modernisations on the other sections as set out in the Seine-Scheldt Implementing Decision[17]. In total this covers the combined investment of 39 separate

[14] ASTRA Model: TRT, M-Five, Fraunhofer. See http://www.astra-model.eu

[15] TRUST Model, TRT. See: http://www.trt.it/en/tools/trust/

[16] https://ec.europa.eu/transport/themes/infrastructure/studies/ten_t_en_en

[17] Commission Implementing Decision (EU) 2019/1118 of 27 June 2019 on the Seine–Scheldt cross-border project on the North Sea – Mediterranean and Atlantic Core Network Corridors

projects[18], all inland waterway investments within France and Belgium, representing a combined investment of approximately €9 billion on projects being undertaken and expected to be completed between now and 2030.

Testing the non-completion scenario and comparing it to the reference scenario[19] (the central forecast in which all corridor work plan projects are completed), shows that the Seine-Scheldt project as a whole, contributes to a cumulated GDP of about €97 billion, and in the generation of a total of 321 thousand additional person-years of jobs. This means that between a quarter and a third of the economic benefits associated with the TEN-T investments in the NSMED corridor are derived from the Seine-Scheldt project. Non-completion of these projects would reduce cumulative GDP by 27% and total job creation by 30% compared to the reference case for 2030. The economic benefits associated with the investments will mainly occur in the local regions bordering the project.

In addition, non-completion of the Seine-Scheldt project would negatively impact the ability of the corridor to reduce the overall share of road, and to support the development of the seaports with high capacity hinterland connections by inland waterway. Thus it would adversely affect the ability of the corridor to reduce the externalities associated with road transport in one of the most economically active regions of Europe.

[18] Projects and project data were sourced from the 2019 NSMED Corridor Project List.

[19] Reference scenario was calculated for all core network corridors in a separate study by TRT,M-Five, on behalf of DG-MOVE, 2019.

3 What has still to be realised by 2030

For the NSMED corridor, a list of 419 infrastructure projects was compiled in 2019 detailing the relevant ongoing, completed or future investments. The list and the analyses based on it, include 30 projects located in the UK, which have either been completed or which will in principle be completed during 2020. Overall, just under 40% of the projects will have been completed by the end of 2020, with a further 16% scheduled for completion by 2023. In terms of cost, these 419 projects amount to a combined investment of some €88.5 billion overall.

Figure 17: Projects by completion year (2019 Project List[20])

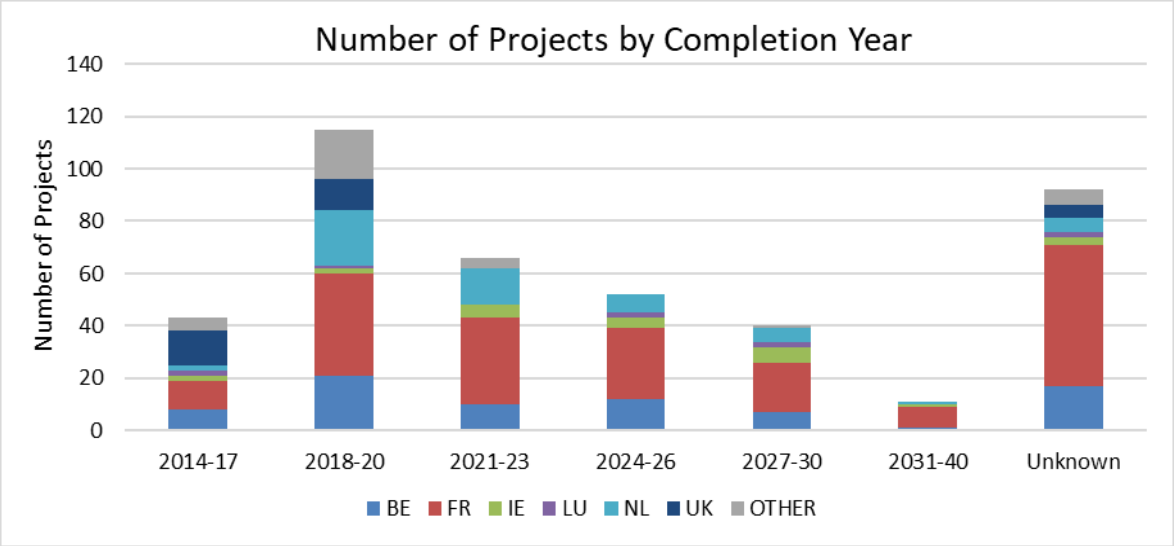


Table 5: Projects by mode of transport (number), (2019 Project List)

	ROAD	RAIL	RAIL ERTMS	IWT	MULTI	MARI-TIME	MOS	AIR	INNOV.	OTHER	TOTAL
BE	10	11	3	34	1	9		2	6		76
FR	18	42		65	36	19	1	1	5	4	191
IE	7	12				4					23
LU		9									9
NL	14	9	5	13	3	4		6	1		55
UK	12	11			2	2	1	1	1		30
OTHER	6	5	5	4	4	2	6	1	2		35
TOTAL	**67**	**99**	**13**	**116**	**46**	**40**	**8**	**11**	**15**	**4**	**419**

The largest number of projects are for rail (including ERTMS) and inland waterway transport, with the majority located in either France or Belgium. The innovation category consists mainly of projects related to alternative fuels.

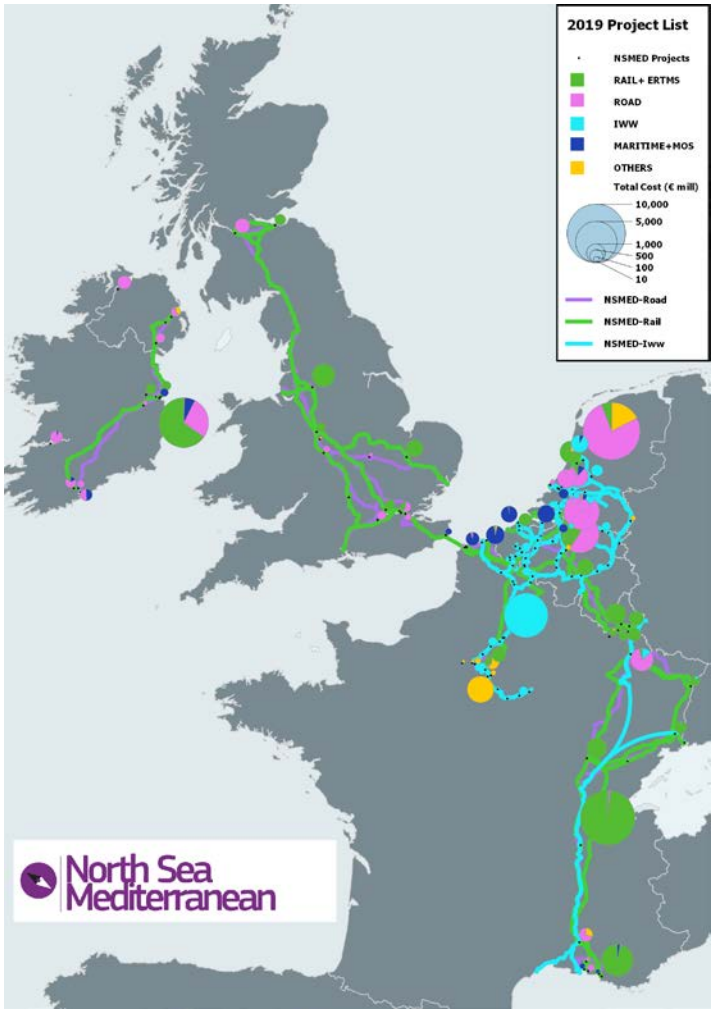
[20] Figures and tables include 30 UK projects, which were either completed or which are in principle being completed during 2020.

Table 6: Project costs by mode of transport (€m), (2019 Project List)

	ROAD	RAIL	RAIL ERTMS	IWT	MULTI	MARI-TIME	MOS	AIR	INNOV.	OTHER	TOTAL
BE	6,841	2,073	22	3,555	0	1,264		91	104		13,951
FR	2,183	18,308		7,348	3,195	1,775	41	4	50	32	32,936
IE	3,362	8,287				1,346					12,996
LU		2,748									2,748
NL	11,020	2,189	178	1,833	126	623		2,997	49		19,015
UK	2,233	3,540			130	175	26	2	33		6,138
OTHER	288	60	93	30	62	9	119	6	102		769
TOTAL	**25,928**	**37,206**	**293**	**12,766**	**3,513**	**5,191**	**186**	**3,099**	**339**	**32**	**88,553**

Compared to other European corridors the NSMED is investing heavily in inland waterway transport, especially in France and Belgium due to the Seine-Scheldt project and the related upgrades in the wider networks. The geographical distribution of projects is shown in Figure 18. In the following sections each mode will be analysed in turn to highlight recent developments in the project list.

Figure 18: Geographical distribution of projects, (2019 Project List)



**Includes 30 UK projects (completed or in principle to be completed by 2020).*

3.1 Rail

In the NSMED Work Plan, rail is the mode of transport attracting the largest aggregate investment, with €37 billion (excluding ERTMS and related projects such as investments in multimodal terminals), or 42% of the total for the corridor. Much of this is geared to solving capacity bottlenecks in urban and port nodes.

Rail investment in France is one of the largest elements in the project list, measured financially. One of the main focal points in terms of rail infrastructure investment up to 2030 is planned to be on the southern branch of the corridor, where it is necessary to reduce congestion in the urban nodes of Marseille and Lyon, as mentioned in chapter 2. For example, in the south of the corridor, there is a need to upgrade the coast railway between Estaque (North of Marseille) and Miramas so to improve freight activity between East and West basins of the Grand Port de Marseille Metropole (GPMM). Similarly, for the Lyon node, a number of actions are anticipated which will help long distance trains to bypass the city.

Into Belgium, key elements of the plan will be the infrastructure upgrade for 740m long trains, the upgrade of the line between Ghent and Bruges, the ETCS implementation on the entire Core Network and the modernisation (speed, capacity) of the railway line between Brussels/Leuven and the Luxembourg border. Further north in the Netherlands there are a cluster of railway upgrades focusing on Amsterdam metropolitan area and measures to increase capacity around Amsterdam Central station. Rail investments in Luxembourg include the construction of a new line between Luxembourg and Bettembourg, the transformation of the border-station of Bettembourg and the construction of a new signal box in Bettembourg in order to increase the capacity on this section of the corridor.

Since the previous Work Plan there is now a renewed investment programme in Ireland making significant enhancements to the public transport offering across the Greater Dublin Area through the MetroLink project connecting the airport with the city centre by rail and interchanging with other modes of public transport. The DART Expansion programme will double the capacity of the electrified heavy rail network in the Greater Dublin area and the BusConnects programme will deliver approximately 230km of high-quality bus infrastructure as well as improved active travel infrastructure.

3.1.1 P400 Loading gauge

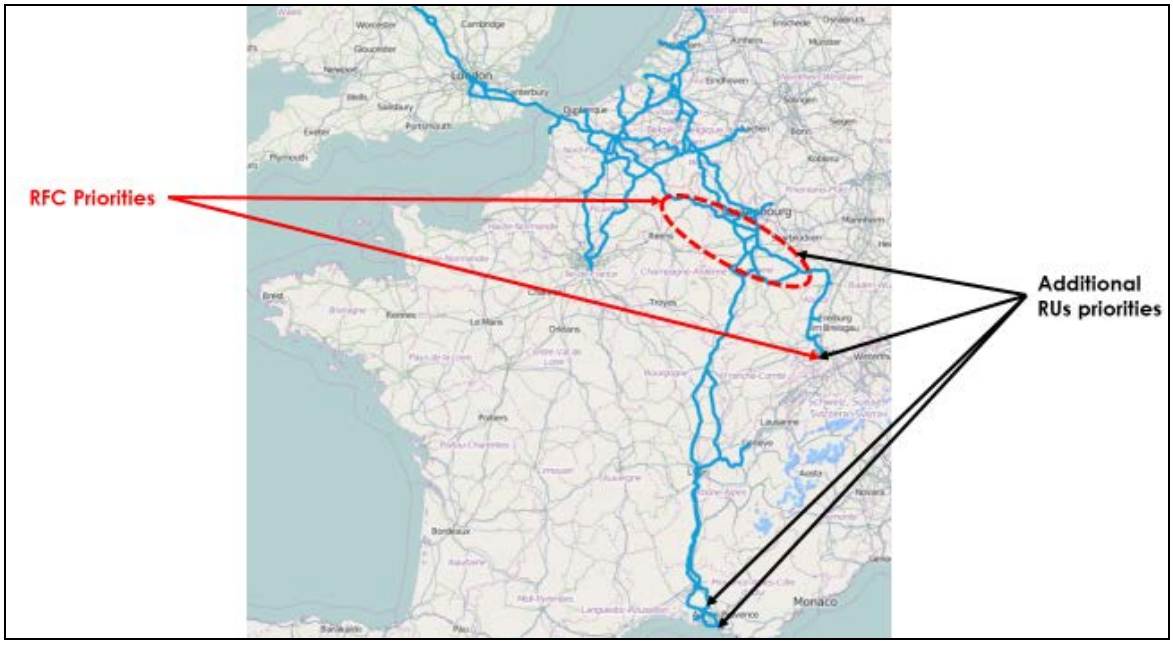
Although loading gauge (height and width restrictions for freight trains) is not one of the TEN-T compliance criteria for rail, it does play a significant role in enlarging the market for combined transport. Under current loading gauge specifications, the transport of maritime containers, typically from the major international gateway ports to and from logistics centres in the hinterland, is feasible along the NSMED corridor, but loading gauge restrictions acting as a barrier for the transport of standard road trailers on rail wagons have been identified. There is consensus in the market that greater potential for intermodal transport can be realised by extending the network of rail services capable of carrying P400 (4 metre high) standard road trailers on rail wagons.

P400 is considered to be the optimal target for the loading gauge profile, based on the fact that 4m is the usual height limit for road trailers in Europe. From the perspective

of the combined road-rail operators, there is a strong incentive to develop services for standard, unmodified trailers, in order to address the maximum possible market and expand the combined transport sector.

P400 loading gauge is currently feasible within the railway networks in the Netherlands, Belgium and Luxembourg along the NSMED corridor, but there are potential issues in France, most notably between Metz and Strasbourg, creating an obstacle for the development of a P400 route along the NSMED corridor towards Switzerland and Italy. Further loading gauge bottlenecks were identified close to Marseille.

Figure 19: Loading Gauge Upgrade Bottlenecks



Source: RFC-NSMED Presentation, Corridor Forum 14.

Following investigations in France, the upgrade of the Metz-Strasbourg line, to meet the standard P400 requirements before 2030 is under evaluation. Works on six tunnels in the Vosges region are required, and other supporting actions are underway on other (RFC but not CNC) French railway lines such as the Artère Nord-Est, including the Longuyon-Thionville section. Improvements on the French network also need to be compatible with the gauge clearance work necessary on two tunnels in Basel.

3.1.2 ERTMS deployment towards 2023

The following scheme shows the state of play and the deadlines for the ERTMS /ETCS deployment according to the ERTMS Deployment Plan (EDP) in the NSMED corridor:

Figure 20: Current status by country and deployment per status (ETCS)

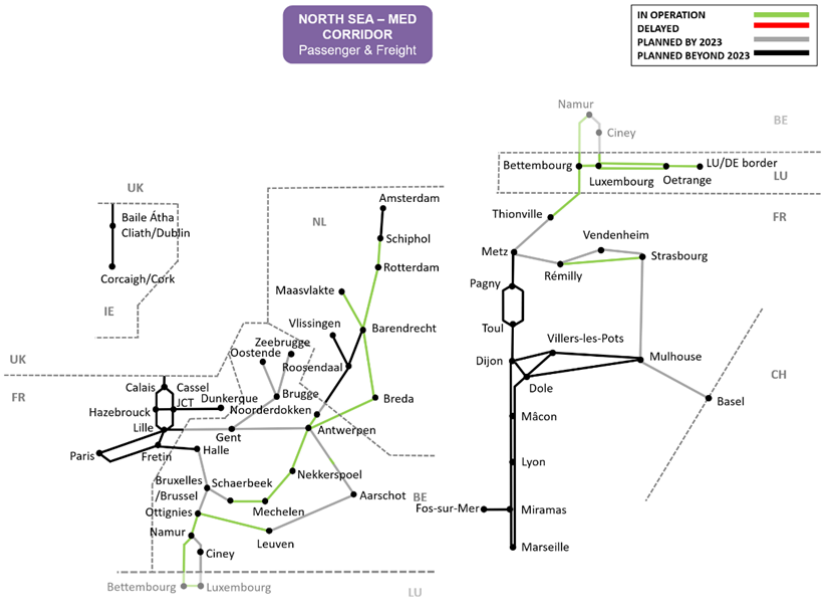
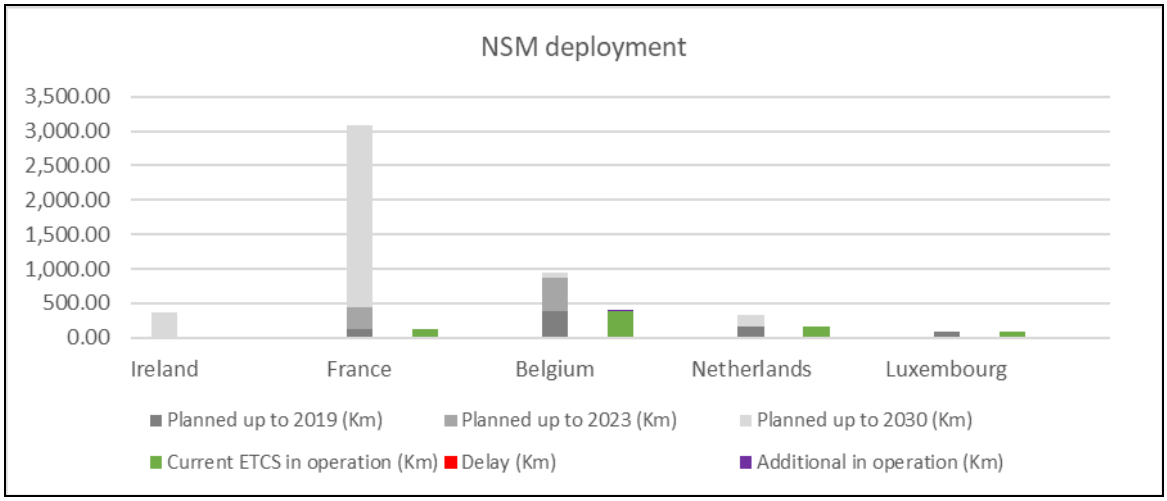


Figure 21: Kms of ETCS Deployment, NSMED CNC corridor.



Source: Technical support for the Deployment of ERTMS along the Core Network Corridors, INECO & EY

As illustrated in Figure 20 and Figure 21, both Luxembourg and the Netherlands are in an advanced position to achieve the 2023 objectives for ETCS. Luxembourg is already fully deployed and the Netherlands has 307.23 km with ETCS in operation (161.25 km of the NSMED corridor) and no more sections planned to be equipped before 2023. However, it will be more challenging for other NSMED Member States to complete all

the planned sections by 2023. Belgium plans to have all NSMED sections equipped for ETCS before 2023 (869.12 Km) with just 45% currently equipped, but it is now expected that some sections will be completed beyond 2023. Similarly, in France, the plan is to complete the route between Basel and the Luxembourg border by 2023, but only a few NSMED sections are currently equipped. The key ambition for NSMED is to achieve a continuous ERTMS route connecting the Netherlands, Belgium, Luxembourg and Eastern France to Basel, and the current outlook is that this will be achieved by the mid-2020s. Adjustment of rolling stock is covered by the ERTMS Deployment Plan (EDP) of the ERTMS coordinator.

3.2 Inland waterways

Inland waterway projects in the NSMED corridor account for over €12 billion within the project list, representing over 40% of the total investment in inland waterways across all nine corridors, as well as around 14% of all NSMED investments, in line with the clear aim of making a step-change in extending the network of high capacity waterways across the corridor and shifting traffic to this mode.

Around three quarters of this investment (€9bn)[21] is accounted for by a set of 39 individual waterway upgrades in France and Belgium, part of the Seine-Scheldt project. Many of these actions are already in progress. The Seine-Scheldt Implementing Decision gives an overview of all the constructions and upgrades to be implemented by 2030. As mentioned in chapter 1, the financing agreement for the largest single component of the project, the canal Seine-Nord Europe, was signed in November 2019.

Waterway infrastructure investments are also required in the wider network of connecting waterways, including the Albert Canal, where an extensive series of capacity upgrades are underway, and the Meuse River, which is being upgraded Class Vb/VIb. Works to increase the capacity of the Ampsin-Neuville lock in Belgium will be completed by 2023, as will the series of upgrades on the Maas route in the Netherlands.

In the area of RIS and traffic management on the waterways a wide and ambitious CEF project “RIS-COMEX” is underway to establish RIS and interoperability along navigation corridors and across borders, including on the NSMED corridor. The PEREX 4.0 project in Wallonia will additionally contribute in this area, offering services in the area of waterway infrastructure and traffic management.

3.3 Road transport and ITS deployment

Although road investments are less critical in terms of solving compliance issues, they still represent a high share of the total Work Plan with a combined cost of €26 billion, mainly in the Netherlands and Belgium, with major projects being planned to relieve road congestion in the cities of Amsterdam, Rotterdam, Antwerp, Brussels, and between Metz and Luxembourg.

For France, the main future investments on the road network will be devoted to improvement and maintenance of current infrastructure, with short term increases in capacity around main agglomerations (in Paris, Strasbourg, Lille, Lyon and Marseille)

[21] Information sourced from 2019 NSMED Project List

and smart traffic management such as variable speed limits, allowing use of the emergency lanes on motorways at peak times for public transport, carpooling, and traffic restriction management.

The main focus in Ireland up to 2030 is likely to be on enhancing capacity on key links (e.g. M7 Naas - Newbridge Motorway Widening Scheme) and enhancements to remove bottlenecks such as the N8/N25/N40 Dunkettle Interchange Upgrade near Cork. There are also projects being planned in Dublin and Cork to provide dedicated bus lanes, thus providing new public transport capacity for these urban areas.

Across the corridor there are also initiatives related to ITS deployment and amongst these projects is the C-ROADS/C-ITS (Co-operative intelligent transport systems) initiative being piloted in Netherlands, Belgium, France, Ireland and the UK. It aims to provide a harmonised system in which vehicles and infrastructure and communicate with each other to improve safety and road utilisation. ITS project Arc-Atlantique III, covering NSMED and Atlantic corridors, involves large scale deployment of (C-)ITS infrastructure and exchange of best practices.

3.4 Airports

There are relatively few projects in the Work Plan targeting air transport, but there are measures to improve multimodal connectivity and in the field of air traffic control. As mentioned in chapter 2, Dublin airport does not currently have a rail connection though this will be addressed in the development of the Metrolink project. Amsterdam, meanwhile does have a rail connection but is now increasing public transport access capacity by providing new metro connections and railway solutions (Airport Sprinter).

3.5 Maritime Ports

In addition to the fact that the NSMED corridor contains four of the top five maritime ports in Europe, maritime transport also plays an interconnecting role to ensure the cohesion of the whole corridor. Consequently maritime and Motorways of the Sea projects play a strong role in the overall strategy for the corridor and account for nearly 50 individual projects within the project list and a combined investment of €5.4 billion.

In Antwerp, Marseille and Rotterdam, a key element is the upgrade of rail hinterland connections, and in Zeebrugge the focus is on further development of the waterway connection in the framework of the Seine–Scheldt project. There are also two major investments being carried out in improving maritime access at Terneuzen (North Sea Port) and IJmuiden (Port of Amsterdam), which will both be open in 2022. Additionally, both Calais and Dunkerque are undertaking major projects in increasing handling capacities. There is a general effort being undertaken by the Channel ports to meet the challenges posed by Brexit, by expanding the waiting areas for RORO traffic for example.

3.5.1 Maritime links with Ireland

The Irish economy is highly dependent on maritime trade. Bilateral UK-Ireland trade, although decreasing, still accounts for around 20% of Irish imports and 10% of Irish exports by value, making the UK its second largest trading partner (after the USA) and the largest in Europe. In addition, around three million tonnes of Irish trade with Continental Europe is moved by road across the UK land bridge. Following Brexit it appears likely that economic dependence on the UK will continue to decrease, and that

there will be greater priority placed upon strengthening economic and transport links with the rest of the EU.

This has led policy makers to focus on strengthening maritime links and building up capacities in Irish seaports, as well as looking for opportunities to introduce digitalisation initiatives to support cross-border transport. Direct maritime links between Ireland and the Continent are currently well developed for container transport and for bulk products such as fuels. Direct ferry services to the Continent do exist for unaccompanied road trailers, either to Northwest France or to Benelux ports, but the majority of driver-accompanied road trailers use the UK land bridge route, and these may face more restrictions in the near future, as these intra-EU shipments would cross two UK/EU borders, and therefore be subject to additional delays or regulations.

In Ireland additional port capacity is being introduced at both Dublin (under its masterplan 2040 and in particular the Alexandra Basin Redevelopment and the MP2 strategic infrastructure projects) and at Cork (Ringaskiddy). These developments will cater for deeper drafted container and RORO vessels and support growth in trade between Ireland and the rest of the EU and the rest of the world. The core network corridor in Ireland will be extended to include the port of Shannon-Foynes, with its associated hinterland connections linked to the road and (in future) rail networks. Enhanced direct short sea and feeder connections via Motorways of the Sea between Ireland and the rest of the EU without a transit through Great Britain could become more urgent after Brexit and would require the provision of additional capacity (berths and storage) in Irish ports, although there is still uncertainty about how cross-border and transit arrangements will function in future. Under the new corridor alignment of the corridor, maritime links between Ireland and the northern continental range will become even more prominent.

3.6 Innovation and deployment of alternative fuels infrastructure

The innovative potential of the Corridor is reflected in its performance to apply better transport solutions that meet new and existing mobility needs. Innovative projects are considered those involving some form of sustainable and future-oriented mobility, such as the deployment of alternative fuels, digital solutions for transport, and the implementation of sustainable freight transport services.

According to the current project list, 3% of the funds are allocated to projects containing an innovative component, which is comparable with the average for all nine CNCs. Digital solutions for transport are receiving 45% of all investments that go into innovative projects, while 30% is going to the realisation of clean fuels infrastructure with 25% to sustainable freight transport services. Looking at the transport modes, most of the investment in innovative technologies will take place in inland waterways and road transport, while air, rail, multimodal or seaborne transportation represent a smaller share overall.

The corridor has made significant developments towards the deployment of alternative fuels, with implementation projects are ongoing for electricity, LPG, LNG or hydrogen refuelling stations. The share of cars on the road using electric propulsion in the Netherlands is among the highest in the EU, in particular for battery electric vehicles. However the supply of charging infrastructure needs to keep pace with this development. The number of alternative-fuelled cars is increasing significantly in Belgium, and projects such as BENEFIC offer new ways to co-ordinate the deployment of alternative fuel infrastructure between Belgium and the Netherlands. First trials with

exchangeable batteries for inland shipping will start shortly in the Netherlands. In France, many of the projects targeting the deployment of alternative fuels focus on LNG for freight modes. The number of electric cars has been doubling year-on-year since 2017 in Ireland, although its share remains low compared to the European average. In the future, further significant efforts are needed to reach the defined Member State targets and on the provision of re-charging infrastructure on the network for electric passenger vehicles and vans up to 2030.

Several corridor ports in France, Belgium and the Netherlands are now developing LNG and hydrogen bunkering facilities, with the potential to serve maritime, inland waterway and road sectors, but these are at different stages of completion.

Some initial steps are being taken towards the greater use of blended bio-fuels for aviation, but there are no specific measures included in the current project list. While several European airlines are using biofuels, the widespread feasibility of using alternative fuels for commercial aviation is still inhibited by factors such as the level of global fuel production and the costs which exceed those of traditional jet fuel.

4 Funding and Financing

4.1 Funding needs

This section of the document accounts for the financial aspects of the projects included in the NSMED project list. The following pages provide summaries of the projects' cost, maturity and financial sustainability. The first step in performing the financial analysis has been an assessment of the maturity status of the project pipeline, summarised in Figure 22. This exercise included counting the number of active projects and clustering them according to their contribution to the technical KPIs, their timing and the availability of an official cost figure.

Figure 22: Number of projects and values by category

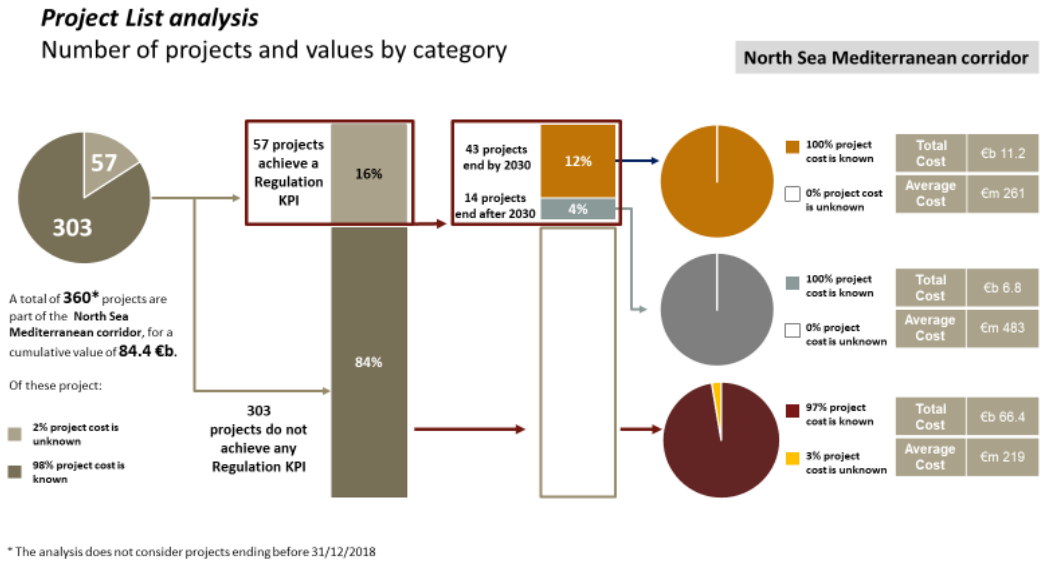


**Figure includes projects in the UK completed or in principle being completed up to 2020.*

The next step analyses the funding sources of the projects, with particular reference to the contributions coming from European Union sources. As shown in the next diagram, the project list contains complete information about the funding sources of projects accounting for €37.5 billion, or 44.5% of the project list. Out of this subset of projects €1.5 billion (4%) comes from EU funding, with the large majority of this (81%) coming from CEF/TEN-T grants, and the rest mainly via ESIF grants.

Figure 23: Funding and financing sources analysis

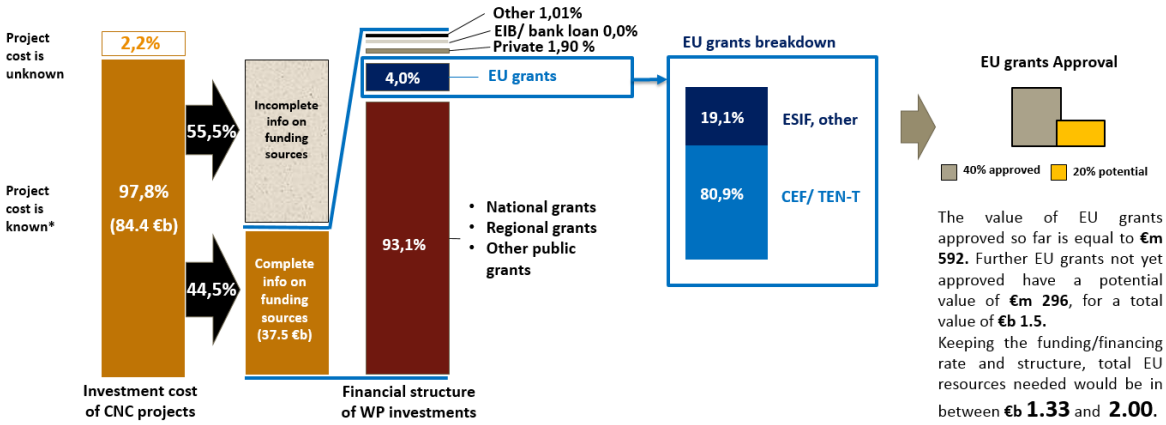


Figure includes projects in the UK completed or in principle being completed up to 2020.

Most of the total sum (around €57bn) represents long-term investment in public infrastructure requiring higher proportions of public funding, but it has been estimated that around a third of projects in the NSMED project list have potential to attract private financing and therefore possible to support with measures such as loans, blending instruments, de-risk instruments and so on.

4.2 The innovative financial tools

In line with the TEN-T CNC Coordinators' Work Plans, the aggregate demand for investment in the TEN-T corridors stands at about € 640 billion, which can only be supported with a substantial contribution of private financing.

Around 20% of the European Investment Bank's (EIB) total lending goes to the transport sector, representing more than EUR 150 billion of investment mobilized since 2014. In the period 2014-2018, about 60% of EIB transport lending went to the TEN-T. A share of EIB financing is backed by the EU budget, notably in the form of the EU financial instruments and budgetary guarantee, such as the European Fund for Strategic Investment (EFSI). While the EFSI delivered well in areas such as road and airports, mobile assets and rolling stocks, due to the economics and risk profile of transport infrastructure, the use of EU financial instruments for the financing of the TEN-T, in particular for rail projects, fell below expectations.

In the next budgetary period (2021-2027), the InvestEU will cover all financial instruments, as well as blending. The InvestEU will also offer a broader risk spectrum than the EFSI, allowing for both lower and higher risk projects to be financed. This, together with blending, is expected to lead to a higher uptake of innovative financial instruments for the financing of the TEN-T. Currently the CEF Transport Blending Facility is in place. The 3rd CBS report of September 2019 by Coordinators Bodewig and Secchi "Enabling the uptake of the TEN-T pipeline by the financial market" gives a more detailed insight into financing issues for the TEN-T networks[22].

[22] Available under the download section of TEN-T.
https://ec.europa.eu/transport/themes/infrastructure/downloads_en

5 The European Coordinator's recommendations and future outlook

Looking back towards the time of setting up our North Sea – Mediterranean corridor in 2014, based on an already well-developed TEN-T policy, we can measure significant progress. At the time, the corridor was fully interconnecting six Member States, including the UK. This Work Plan shows that the past two years have brought us a long way towards our objective of completing a truly European, multimodal and well-integrated, operationally efficient and above all sustainable transport system along the whole corridor. We see this progress clearly when we look at the projects completed, started or progressing, either hard infrastructure projects, or projects of another nature, such as the deployment of new technologies or accompanying measures. This is also the case when I consider, in the broad area of intervention of our corridor, the degree of maturity of the discussions, ideas and options, and the progress at the level of plans, strategies and initiatives, taking account of coordination and cross-border aspects. In brief, I can see that things are moving steadily forwards.

In this regard, I would like to warmly thank all the stakeholders, be they public authorities, managers of the infrastructure or market players, for their dynamism, and in particular all members of the North Sea – Mediterranean Corridor Forum for their valuable involvement and contributions. I would also like to show gratitude to the NSMED Rail Freight Corridor and to the governance bodies of the Seine-Scheldt project for their valuable cooperation, as well as to the INEA agency and our consultants for their important work.

At the same time, the Work Plan acknowledges that there is still a long way to go to meet our 2030 target of corridor completion. We need to hold on to the ambition of making our corridor able to offer efficient and sustainable transport solutions by then. All the more, we need to keep this ambition as we have to meet the immense challenge posed by **climate change**. This is a huge challenge for Europe, the EU and European policy for the coming decade, with transport having a significant role to play in achieving energy transition. Indeed, the transport sector, accounting for 27% of total EU-28 greenhouse gas emissions[23], will have to reduce its emissions by two thirds[24], and this needs to start as quickly as possible.

It is important to grasp the context in which we are placing our action. At corridor level and in the short-term we do not need to revolutionise our objectives and ways of working. This is because the 2011 White Paper on transport and the 2013 TEN-T policy were already moving in this direction, with a strong decarbonisation agenda, with ambitious objectives in terms of modal shift or deployment of alternative fuels in the different modes. We have the tools and we know what to do but nevertheless, we need to accelerate the implementation pace and the mobilisation of the necessary resources. Let me moreover underline that, looking at the current traffic flows, production and trade patterns, achieving carbon-neutrality will necessitate more coordination across the borders, not less.

We cannot miss the 2030 or 2050 targets. However we will be helped in this by the current momentum, strongly fuelled by the public opinion all over the continent, politically reflected in the debates e.g. around the elections of the European

[23] 2017, European Environment Agency.

[24] EEA, 2019, "Greenhouse gas emissions from transport in Europe"

Parliament and, above all, by the **Green Deal** of the European Commission. Each of us should **seize and use this momentum**.

The North Sea - Mediterranean corridor currently relies too heavily upon motorways. Changing this requires strengthening capacity across other transport modes, so large-scale sustainable and efficient multimodal transport solutions can physically be achieved. This is about removing the hard infrastructure bottlenecks and bridging the missing links, but it also means investing in the deployment of zero-emission vehicles, alternative fuels and intelligent transport systems. This needs to be accompanied by the removal of administrative, legal and technical **interoperability** barriers, by efficient cross-border coordination in terms of services offered (in particular for rail), as well as by boosting the availability of multimodal transport solutions. Moreover, for an efficient and optimal transition, a coordinated and synergy approach with the energy and digital sectors is necessary. At corridor level, I therefore see two main pillars for our contribution to the **Green Deal implementation**: on the one hand, to achieve an ambitious modal shift from road to the more energy efficient transport modes (rail, inland waterway, and sea) and, on the other hand, to accelerate the greening of transport across all modes, primarily road, maritime and air transport through the more widespread use of clean fuels and the application of more stringent emissions standards.

As we head towards a likely revision of the TEN-T guidelines, reflections are ongoing to see how to strengthen our policy and tools, based on our experience so far. But for now, I am calling the Member States, the managers of the infrastructure and all stakeholders to concentrate on progress according to our current plans. From my point of view, this concerns, in particular, the following:

- The NSMED corridor is generally meeting the standards of the TEN-T guidelines and the infrastructure is of good quality and well maintained.
- As regards **passenger rail**, the existing high-speed network already connects virtually all corridor urban nodes on continental Europe and further to the UK. There is an ongoing initiative started by the Netherlands and supported by 25 Member States, on how to improve the quality and frequency of cross-border rail services. I encourage such reflections in the broader perspective of completing a network of high-performance, long-distance rail passenger services as a real alternative vis-à-vis air or road transport. In terms of infrastructure, let me only mention the EuroCapRail link between Brussels and Luxembourg and further to Strasbourg, which is still to be completed and which is expected by many citizens.
- **Rail freight** is, today, the only clean mode enabling the movement of goods from one end of this European North-South axis to the other, without transhipment, as well as providing the long-distance interconnections to the neighbouring Rhine-Alpine, Atlantic and Mediterranean corridors. Rail has therefore a very significant modal shift potential across all branches of the corridor. Positive traffic development figures for cross-border rail freight are encouraging, but a large part of this potential is still to be realised, both within the corridor, and in relation to the connected markets in Italy and Iberia. We therefore need to exploit all the possibilities that rail is offering. This can only happen if the quality, punctuality, reliability and productivity of rail freight services are improved.
    - For this, there is a need to continue developing the infrastructure. Firstly, **decongestion of the main rail nodes** is needed in order to ease current traffic and to accommodate future traffic growth of both passengers and freight. I am for example thinking of the Lyon, Marseille and Strasbourg nodes, but also of the access to Antwerp port.

      Secondly, the possibility of running **740m trains** along the whole corridor and the **deployment of ERTMS** are essential to ensure continuous operation and

important productivity gains. As regards the former, there are mainly restrictions in Belgium during the day time, which need to be solved through infrastructure enhancements. The ongoing study into evaluation of the infrastructure is a first step towards a swift decision on the investment and I am looking forward to the results. The situation in the Netherlands, should also be considered. The follow up at political level of the study concluded in 2019 on this topic should be encouraged. While ERTMS deployment is progressing, let me recall the importance of sticking to the deadlines as set in the European Deployment Plan, which covers both infrastructure and rolling stock. Moreover, in the short-term, finalising the deployment on the Longuyon-Basel section by the mid-2020s is a priority. When this is realised, the key rail freight route from Benelux to Switzerland and further to Italy will be the first in Europe to be fully interoperable with ERTMS, meaning that trains will circulate on this axis with a single safety and signalling system.

Thirdly, the **"loading gauge" bottlenecks** preventing free circulation of trains carrying P400 freight units is another critical issue for the corridor, limiting the potential for additional combined transport and further road to rail modal shift. Moreover, removing this bottleneck would bring the NSMED corridor closer into line with the neighbouring Rhine-Alpine corridor, a key outcome to reduce disruptions. While there are loading gauge issues on the southern part of the corridor, the main bottlenecks are caused by the profile of several tunnels in Eastern France between Lille and Strasbourg. There is currently progress on the question, with a study by SNCF Réseau ongoing to identify and analyse these obstacles (in the framework of COOPERE), conducted in close cooperation with the French Ministry and the Rail Freight Corridor organization. This socio-economic study is taking into account the European and cross-border dimension, looking at the benefits at corridor level, and I am very much looking forward to see its results. I am therefore calling the different parties not to delay possible investment decisions on loading gauge enhancement, and I would like to remind stakeholders that I am ready to bring my support, if needed.

- For trains to cross the borders in a smooth and efficient way, progress on non-infrastructure issues is equally essential. This requires, inter alia, the provision of enough high-quality paths coordinated across the borders, coordination of traffic management, coordination of maintenance and construction works, removal of administrative and technical barriers, and the reliable exchange of real-time information.

  I therefore call the Member States to strengthen their work in the framework of the **Rail Freight Corridor** governance structure (RFC). In setting the objectives of the RFC and supervising its progress and results, the Member States, who compose the RFC Executive Board, have indeed, the central role in driving the RFC forward.

  Eliminating operational barriers is not only absolutely necessary to the development of rail freight, but it is also a prerequisite for the success of our infrastructure development policy, since issues of an operational nature put at risk the realisation of the benefits expected as a result of investments. In other words, we should think in a holistic way: when designing and implementing solutions to eliminate the barriers hampering cross-border rail freight, we should always consider together operational and infrastructure measures, which are the two complementary sides of the same policy. Certain operational measures can often be implemented much faster than large infrastructure projects. This is why the role of the RFC is so important.

In this spirit, I intend to pursue my close **cooperation with the RFC** governance to define fields where we can act swiftly. It concerns of course taking advantage of their expertise when it comes to identifying infrastructure needs with a view to boosting rail freight. It also concerns the political help I could bring on more operational issues.

Finally, I am carefully considering the extent to which the RFC could play a more prominent catalysing role in directly encouraging the creation of new rail freight services, since they work so closely with terminal operators, port authorities and railway undertakings. This is a topic I would propose to study further.

- In addition, we should not overlook the **areas of common interest between the NSMED corridor and the Rhine-Alpine corridor**, for which we share much of the same economic hinterland. In view of recent disruptions on this latter (e.g. Rastatt in 2017, Müllheim in 2020) and to mitigate the effects of further ones, I encourage the Member States and infrastructure managers to address the shortcomings in terms of interoperability between the two corridors, making it possible to exploit the potential network benefits, in particular the potential for new effective diversionary lines, improve reliability and maximise the combined capacity. This applies both to infrastructure parameters and to operational aspects (e.g. the question of language requirements). The Rastatt disruption has indeed shown that trains cannot easily switch from one corridor to the other. This could also help to accommodate transport growth on that axis since the Rhine Alpine corridor comprises some of the most congested railway lines in the EU.

- **Inland waterway**, has a very significant place within the North Sea – Mediterranean corridor, and although it is constrained to the two main river networks in the corridor (Seine-Scheldt-Maas, and Rhône-Saône), it is highly suited for handling large freight volumes, over medium to long-distances, and as such is the leading clean transport mode for freight in the corridor, in terms of tonne-kms performed. Furthermore inland waterway transport can also offer opportunities for shorter distance freight movement, and for smaller shipments, such as urban distribution. In that respect it is important to acknowledge the potential of smaller waterways.

  As regards the main inland waterway project, **Seine–Scheldt**, the completed and ongoing works on the one hand, and the Commission Implementing Decision on the other hand, constitute a good basis for future progress. I can only ask that all parties respect the commitments they have taken in the context of that Decision and therefore adhere to the timeline for the different project components. This is essential with a view towards having a coherent and fully functional waterway network operational by 2030. Concerning the sections to be realised for which an investment decision has not yet been taken, e.g. the link to Zeebrugge, I encourage the relevant authorities to maintain progress. The **modernisation on other parts of the Belgian and Dutch networks** should continue as well, for example as regards bridge heights or capacity restrictions in locks. This will generate major network benefits, opening up high capacity routes linking the Seine basin to the Scheldt and onwards to the Rhine/Maas waterways.

  In parallel, the **deployment of alternative fuels for inland shipping**, in an integrated and coordinated way across the borders of the three concerned Member States, needs to be accelerated to meet the 2030 deadline. All the relevant parties, including the transport operators, port authorities, shippers and other market players, should be associated in the discussions about the technologies and deployment strategies. Lastly, I would encourage the development of other

opportunities related to inland waterways, such as realising possible synergies for the production of renewable energy, or for the development of tourism.

- For rail and inland waterway, I would especially like to emphasise that the corridor is only as strong as its weakest link. This is particularly true as regards infrastructure parameters (long trains, loading gauge, ERTMS, CEMT standards).

  Last but not least, and for both modes, I encourage the Member States, public authorities and market players to reflect on how to boost traffic development and how to best use the infrastructure through efficient and innovative transport solutions. Indeed, the availability of the infrastructure alone will not be enough to achieve our very ambitious modal shift objective, which is justifying our huge investments. For inland waterway and rail to be, again, the main modes for long-distance transport of goods, the **right framework conditions**, including internalisation of external costs and appropriate taxation, should be in place at EU level.

- As on all corridors, the deployment of **alternative fuels** on our roads and in our ports should be accelerated. The greening of transport within road and maritime will both make a substantial contribution towards achieving our goals.

- For **road**, **ITS** will help to increase efficiency and safety, and we must work together to ensure seamless operations across borders. Furthermore, we need to ensure that **safe and secure parking facilities** are offered at a consistently high standard across the full length of the corridor.

- The corridor is a network system of both modal links and nodes. Among the latter, the **urban nodes** concentrate economic activity, traffic and congestion, energy consumption and pollution. Reflections on their place within the TEN-T policy are maturing. I particularly welcome this, as on the North Sea - Mediterranean corridor there are issues to be tackled, both as regards congestion and connection between the public transport systems and the long-distance networks. Urban nodes will take a more prominent place in the period to come.

To contribute implementing those ambitious plans and projects, we can count on the **Connection Europe Facility (CEF)**. Since 2014, CEF has contributed to the decarbonisation of the European economy by investing heavily in environmentally friendly modes. This is also true on the North Sea – Mediterranean corridor, where 79% of the allocated funding went to inland waterway and rail projects, higher than the overall CEF average of 72%. The agreement reached in 2019 by the Council and the European Parliament on the non-budgetary provisions of the Connecting Europe Facility for the period 2021–2027 foresees a **70-80% budget target for climate expenditure**. The new CEF will therefore be instrumental to deliver on the Green Deal objectives. Most of the supported actions will relate to sustainable modes of transport (railways, inland waterways, maritime), intermodality and efficiency of the transport system, clean urban transport and the deployment of alternative fuels in all transport modes. Among these priorities, the share dedicated to intermodality, efficiency and alternative fuels will double compared with the 2014-2020 period. This will create additional funding opportunities for projects located on the North Sea - Mediterranean corridor. However, although the new CEF programme will play its catalyser and lever role in realising our corridor, it is obvious that it cannot satisfy the high investment needs, which for our corridor alone exceed €88 billion. Where possible, project promoters should thus turn to alternative and innovative financing instruments.

Since the adoption of the Action Plan on **Military Mobility**, the Commission is working to improve movements of military forces by addressing shortcomings in the transport infrastructure. Under the military mobility envelope in the Connecting Europe Facility 2021-2027, the Commission would fund transport infrastructure built or upgraded for military purposes provided it is also useful for civilian transport (this is the so-called

dual-use infrastructure). It would be a win-win initiative for both civilian transport and defence in the sense that it will contribute to the completion of the TEN-T network, while allowing a smooth mobility of armed forces within and beyond the EU.

A last word concerning Brexit. It is too soon to predict the nature of the new partnership between the EU and the UK. We will however be particularly vigilant as regards the **connectivity situation of Ireland** with respect to continental Europe and towards maintaining connections with the UK market.

Beyond all this, to face challenges that are becoming ever more complex, we will also certainly have to think about the role of transport in our society and how it interacts with our production and trade habits.

As these lines are written, the world is being affected by the **SARS-CoV-2 pandemic**, which is having a huge impact on our lives, our health systems and our economies. We only know part of the dramatic effect it is having. As far as transport is concerned, the sector has been heavily impacted and this crisis represents a new risk factor. Measures to contain the outbreak have resulted in significant reductions in transport activity. Passenger transport has been drastically hit in aviation, rail, maritime and public transport. Freight flows have also been significantly affected although to a lesser extent. Patterns of distribution between near and remote locations might be reconsidered by economic actors, along with decisions concerning global versus local production. It could lead to an increase in the demand for shorter distance transport capacities. At the same time, the transport sector and the development of transport infrastructure will be crucial in supporting the social and economic recovery.

Meanwhile, as European Coordinator, I will not lose sight of our common objectives and wish to continue working with all corridor stakeholders in the best cooperative spirit.

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