European Commission

CEF support to

Rhine – Alpine Corridor

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Innovation and Networks Executive Agency

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1. Introduction

This report presents the contribution of the Connecting Europe Facility (CEF) Transport Programme to the development of the Rhine-Alpine Core Network Corridor in line with the latest Work Plan of its European Coordinator Paweł Wojciechowski. More specifically, it describes the contribution to the implementation of the Work Plan of CEF funded Actions selected under the INEA Calls for Proposals carried out as from 2014 to 2018[1].

The Rhine-Alpine Corridor is situated in the so-called "Blue banana", i.e. the region which counts as the most densely populated and economically strongest in Europe. This region includes major EU economic centres such as Brussels and Antwerp in Belgium, the Randstad region in the Netherlands, the German Rhine-Ruhr and Rhine-Neckar regions, the Basel and Zürich regions in Switzerland and the Milan and Genoa regions in Northern Italy. Annually more than one billion tonnes of freight are transported along the Corridor. This represents 19% of EU's total GDP (based on 2010 figures).

This multimodal Corridor constitutes one of the busiest freight routes in Europe, connecting the main North Sea ports of Rotterdam and Antwerp to the Mediterranean basin in Genoa, while providing connections to several east-west axes. It runs through five EU Member States (BE, NL, DE, FR, IT)[2] and Switzerland. Eleven sections and nodes of the Corridor overlap with five other corridors, more specifically with the North Sea-Baltic (7 sections), North Sea-Mediterranean (4), Rhine-Danube (1), Atlantic (1) and Mediterranean (1) Corridors.

In the Work Plan the Coordinator identifies the Rhine-Alpine Corridor as one of the most mature corridors with a well-developed infrastructure. It encompasses all modes of transport over a total length of about 6,200 km. With about 3,000 km rail is the backbone of the Corridor. Road accounts for about 1,500 km. Inland Waterways (IWW) accounts for about 1,700 km[3], including the Rhine River as an important route. The Corridor includes 8 seaports and 22 inland ports, 13 airports, 72 Core intermodal terminals and 13 Core urban nodes.

However, for the full compliance with the TEN-T standards and to allow for a seamless connectivity throughout Europe by 2030 the Work Plan identifies the critical issues which have to be addressed, such as rail capacity bottlenecks, restrictions to run 740 metre trains across the corridor, operational barriers in cross-border rail services, road congestion, noise and pollution in urban areas, insufficient availability of alternative fuels infrastructure, incomplete ERTMS deployment, fairway depth on the Rhine River, insufficient lock capacity and vast maintenance issues of existing infrastructure.

[1] The figures provided in this Corridor Report 2020 are extracted from INEA's new reporting tool. This new tool allows a more detailed allocation of the many different elements of Actions to the TEN-T network, thus producing a more accurate picture of the CEF funding allocation. This explains any differences with figures provided in previous reports.

[2] Luxemburg's inland port of Meltert has been included in the Corridor.

[3] In agreement with the Member States, the French inland ports on the Rhine have been integrated in the IWW network, while IWWs in Belgium are not included.

2. Action portfolio: State of play[4]

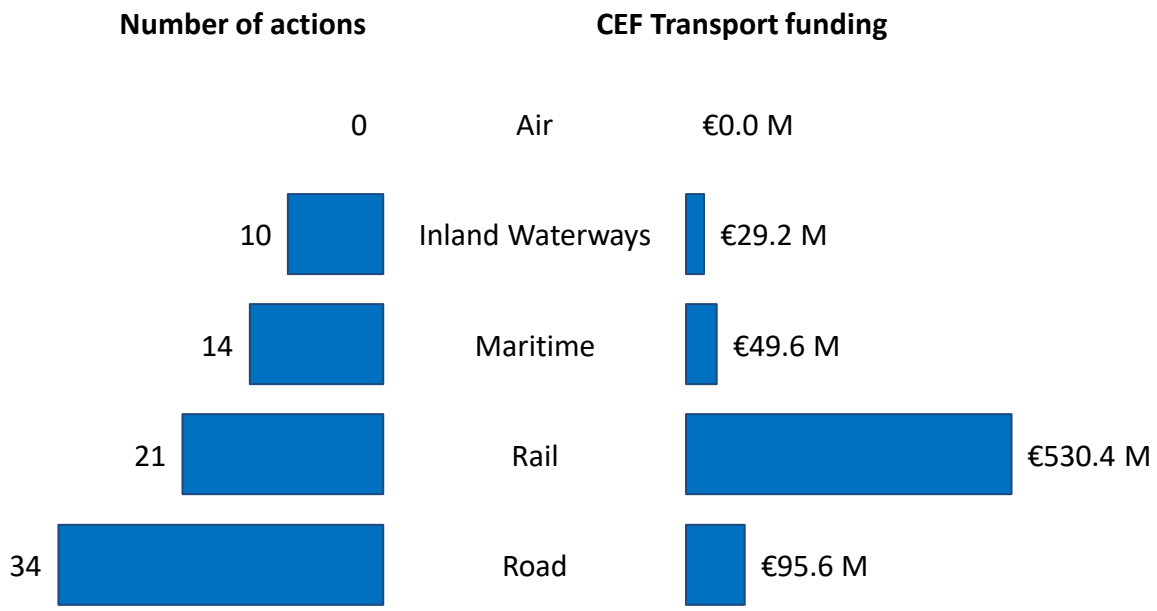
CEF Transport has so far funded grants worth €21.1 billion with a total investment in the European economy of €45 billion. The current portfolio of Actions in the Rhine-Alpine Corridor comprises 79 grant agreements allocating €705 million of CEF Transport Funding (corresponding to 10% of the total number of CEF Transport Actions and 3% of the total CEF Transport funding). So far one grant agreement has been terminated and 13 have been closed.

2.1. Operational Implementation

For the Rhine-Alpine Corridor, the 'Core Network Corridor' priority (under Funding Objective 1) represents 65% of CEF Transport funding. Other priorities, such as Innovation under Funding Objective 2 and ERTMS under Funding Objective 1, also significantly contribute to the development of the Corridor. Due to its location, all of the funding for the Rhine-Alpine portfolio is from the General envelope. Around 90% of the grants allocated to this Corridor are implemented by national Actions (i.e. one or more beneficiaries of the same Member State). These Actions, however, obviously have a positive impact along the Corridor.[5] 60% of the CEF funding is for mixed Actions combining works and study elements. Most of the funding in this Corridor is allocated to sections on the Core TEN-T network (€636 million), while Nodes receive €69 million. See the Statistical Annex for more details.

The highest number of Actions are to be found under the road transport mode (34) (mainly Actions in the area of Innovation and Intelligent Transport Systems), while rail Actions receive most of the actual funding (75%).

Figure 1: Statistics by transport mode



[4] As of May 2020.

[5] See for example the rail Action Karlsruhe-Basel

Map of Works Actions under the Inland Waterways, Maritime and Roads portfolios:

2.1.1. Inland Waterways

In total the inland waterways portfolio in the Rhine-Alpine Corridor is composed of 10 Actions, receiving €29.2 million in CEF Transport funding.

The CEF funded Actions in this IWW portfolio contribute to the following issues and objectives mentioned in the Work Plan:

- increase of lock capacity and improvement of maritime access to the Corridor via the port area of Amsterdam
- a more efficient use of the available capacity of the Rhine River
- improvement of reliability of navigation along the Rhine River

The Action in this portfolio receiving the largest amount of CEF funding (€11.1 million) concerns the Amsterdam Sea Lock's preparatory works and project management overseeing the actual construction works. The Action shows good progress as the preparatory works (including the permitting, necessary demolition works and relocations of civil engineering structures) are already completed and the subsequent construction works (not part of the Action) are ongoing as planned. This new large and tide-independent **maritime lock** will solve the current bottleneck of the lock complex in Amsterdam and accommodate throughput growth from the current limit of 95 million tons to 125 million tonnes per year.

Visualisation and actual construction site new Amsterdam Sea Lock in IJmuiden (NL) © Rijkswaterstaat

Belgium, the Netherlands, Luxemburg, France and Germany are participating in a twinned works Action concerning the River Information System Corridor Management Execution project (RIS COMEX). In this multinational initiative 13 partner countries are joining forces to improve cross-border cooperation with a view to achieving more harmonised **River Information Services (RIS)** for several inland waterway corridors. These Actions will significantly contribute to increasing the efficiency of inland water transport, including transport on the Rhine River. This twinned Action under the General Call is receiving €1.6 million CEF funding. A second RIS Action concerns a study aiming at the development of a Masterplan Digitalisation of Inland Waterways that will be a joint, uniform and integral digitalisation strategy for IWT, ready for the execution in the period from 2022 until 2032, under the responsibility of the participating fairway authorities in Belgium, the Netherlands, France, Germany and Austria (€0.5 million CEF funding).

Another study Action aimed at increasing the **efficiency of navigation** on the Upper Rhine (i.e. the section Ludwigshafen/Mannheim-Strasbourg-Basel) has been finalised and has develop an ICT traffic management platform which integrates various stakeholders that are involved in the logistic processes, like terminal operators, barge operators, port authorities, customs, freight forwarders, trucking companies, marine ports,

etc. After implementing the platform at 3 inland ports operating 7 terminals, the platform was rolled-out to 6 other inland ports along the Upper Rhine (€0.9 million CEF funding)[6].

Three Actions are contributing to a **more efficient use of the available capacity of the Rhine river**. Two finalised Actions carried out restoration and reinforcement works of the waterfront walls in the port of Köln in order to cope with today's larger and more powerful ships (€1.92 million CEF funding), and new multimodal terminals have been constructed in Strasbourg/Lauterbourg (€2 million CEF funding). In the core port of Moerdijk the multimodal terminal's rail interconnection and capacity are being upgraded in order to increase its transhipment capacity and efficiency of operations, which includes the handling of 740m long trains (€3.7 million CEF funding).

Opening event at the new multimodal terminal Lauterbourg (FR) © Port Autonome de Strasbourg

The Work Plan indicates that the dissemination of **clean fuel alternatives** has to be regarded as a critical issue along the Corridor and recommends that sustainability measures, such as the deployment of LNG, should be encouraged.

In this regard, CEF funding of €7.5 million supports two Actions that are contributing to this aim. One works Actions aims at the deployment of LNG as fuel for shipping and logistics in Germany (€4.1 million CEF funding). In the mean time, one study Action (€3.5 million CEF funding) is being carried out with the objective of standardising the most common components and configurations (tank, tank connection space,

[6] This Action includes the German comprehensive ports of Kehl and Ludwigshafen. Although both ports are located along the Rhine-Alpine Corridor, they are strictly speaking not part of it. For this reason, investments made in comprehensive inland ports located on Core Network Corridors are not being counted towards the overall Corridor CEF funding level. Nevertheless, such comprehensive ports on Corridors are important as they contribute to the development of the Corridor and inland navigation transport, as they allow quick and easy access to the hinterland, especially where core ports are further apart.

engines/engine rooms) resulting in an absolute reduction of the investment costs for the deployment and use of LNG for inland water transport. Pilots including 6 vessels and 4 bunkering stations are carried out to fine-tune an innovative business case which should unlock the roll-out to the potential market of 300 vessels

The map on page 5 above indicates the location of Works Actions under the Inland Waterways portfolio (excluding RIS and Innovation Actions).

2.1.2. Maritime

In total the maritime portfolio in the Rhine-Alpine Corridor is composed of 14 Actions, receiving €49.6 million in CEF Transport funding.

There are 8 Core maritime ports along the Rhine-Alpine Corridor, namely the ports of Amsterdam, Rotterdam, Moerdijk and Vlissingen in the Netherlands, the ports of Antwerp, Ghent and Zeebrugge in Belgium and the port of Genoa in Italy. Besides the port of Genoa, which is the only maritime port situated at the Mediterranean Sea in the Southern part of the Corridor, all other 7 maritime ports are accessed via the North Sea in the Northern part of the Corridor.

The maritime ports infrastructure complies with almost all technical criteria. Nevertheless, the CEF funded Actions in this maritime portfolio contribute to the following future development priorities mentioned in the Work Plan (derived from the Motorways of the Sea (MoS) Detailed Implementation Plan):

- 'greening' of the maritime transport by promoting the use of alternative fuels (LNG) or the upgrade/introduction of more environmental friendly vessels;
- integration of maritime transport in the logistic chain;
- safety and traffic management and human element.

The majority of CEF funding (€24 million) in this portfolio is allocated to 5 MoS Actions, all aimed at **improving the environmental performance of maritime transport**.

The port of Rotterdam is involved in 3 works/mixed Actions – of which 1 is already finalised – on connections towards the UK (Harwich, Teesport), Germany (Lübeck) and Finland (Helsinki). Combined, these 3 Actions receive €21.1 million CEF funding and will contribute to:

- the deployment and use of alternative fuels (LNG) through equipping vessels with LNG engines, and providing a LNG bunkering vessel and LNG related port infrastructure
- the reduction of air pollution by limiting sulphur emissions in the Sulphur Emission Control Area (SECA) through the use of LNG and closed loop scrubbers
- the improvement of efficiency of ports operations by piloting/upgrading an IT terminal management system (container tracking)

In a 4th MoS Action along the Biscay Line, the port of Antwerp was involved in an already finalised, mixed Action on the connection towards Spain (Bilbao). This Action received €2 million CEF funding and contributed to:

- equipping 3 vessels with a wet-type open-loop hybrid ready exhaust gas cleaning (EGC) system (scrubber) in order to ensure compliance with the MARPOL Convention, together with a significant reduction of sulphur oxides (SOx) and particle matters (PM) emissions from ship operations
- the deployment, commissioning, fine-tuning and operational follow-up of a power management system licence and the required hardware configurations in order to improve the energy efficiency while operating the 3 vessels and to minimise bunker consumption related to the operation of the scrubber system

The 5th MoS Action is a Synergy Action in which the port of Zeebrugge receives €0.9 million CEF funding for its part in a sea link connection with Sweden (Gothenburg). In this Action, the port of Zeebrugge will study the further development of its small scale LNG services and carry out a life-trial which will lead to the construction of an LNG supply line for the maritime transport sector.

Scrubber installations on the Stena Hollandica ferry © INEA

Another €3.3 million CEF funding is awarded to 2 Actions aimed at improving the environmental performance of the port of Genoa. Being located very close to urban areas, the port of Genoa addresses waste management efficiency as well as the reduction of air pollutants and noise by constructing a new facility for port oil and waste reception, treatment and disposal, which will include a shore-side electricity component. Moreover, Genoa's port is part of the Thyrrenian-Ligurian LNG grid being defined, prototyped and tested in order to contribute to the deployment of LNG as an alternative fuel for both maritime and road transport.

The ports of Genoa, Savona/Vado and Antwerp are also involved in 2 innovative study Actions aimed at an improvement of the ports' operational efficiency and capacity through the digitisation and automation of port operations and management (respectively €6.1 million and € 0.9 million CEF funding).

The Work Plan also mentions the importance of **establishing efficient connections from the seaports to the existing rail and IWW network** as being essential for the further development of the Corridor. In this respect, 4 works Actions in Belgium and the Netherlands are receiving a combined €11.1 million CEF funding. In 3 of those Actions, the port of Zeebrugge (€1.6 million CEF funding), the North Sea Port Ghent (€2.2 million CEF funding) and the port of Rotterdam (€1.8 million CEF funding) are carrying out investments in order to increase the efficiency of operations and the transhipment capacity for an increased modal shift to rail. For the first 2 ports mentioned, these investments include measures to accommodate 740 metre long trains.

Additionally, the port of Rotterdam is also upgrading combined transport facilities in order to support a modal shift between sea shipping and inland waterway transport (€5.6 million CEF funding).

Day and night view on the new Zwankendamme railyard in the Port of Zeebrugge (BE), including four tracks for 740 metre long trains © Infrabel SA

In terms of **safety and traffic management**, 1 mixed Action containing studies and works concerning Safe and Secure truck parkings within the Ports of Zeebrugge and Antwerp (€4.2 million CEF funding) concludes the maritime portfolio. In order to provide a full overview of all Actions concerning Safe and Secure truck parkings, this Action has been included in the analysis mentioned under the road portfolio.

The map on page 5 above indicates the location of Works Actions under the Maritime portfolio (excluding MoS and Innovation Actions).

2.1.3. Rail

In total the rail portfolio in the Rhine-Alpine Corridor is composed of 21 Actions, receiving €530.4 million in CEF Transport funding. Representing 75% of the total CEF funding awarded to all Actions in the Corridor, this is by far the most supported transport mode.

The focus lies on the removal of bottlenecks in 4 different cross-border sections and 1 access point of the Corridor (i.e. the port of Rotterdam), and on implementing ERTMS. All Actions are aimed at increasing capacity, efficiency, safety and/or interoperability of the rail network. The objective is to cope with existing congestion and to address expected future increase of rail traffic.

In this respect, the CEF funded works Actions in this rail portfolio are contributing to removing several of the most important **capacity bottlenecks** identified as such in the Work Plan, and recommended by the European Coordinator as sections that deserve particular attention.

One single works Action is receiving about 45% of all CEF funding awarded to all Actions in the Rhine-Alpine Corridor, i.e. the upgrade and new rail line between Karlsruhe and Basel (€315.3 million CEF funding). Located at the central part of the Corridor, this cross-border section also known as the 'Rheintalbahn' will see its number of tracks doubled to 4 tracks. The 2 new tracks will run parallel to the existing 2 tracks and will be designed for high speed traffic (250 km/h), leading to a travel time reduction of 31 minutes for high speed passenger trains between these two cities.

Visualisation of the future North entrance of the Rastatt tunnel (below) and finished works North of the Rastatt tunnel near Ötigheim (above) © BMVI

Another 3 works Actions in the Netherlands, Germany and Italy are receiving a total CEF funding of €126.7 million, i.e. 18% of all CEF funding awarded to all Actions in the Corridor:

- In the Netherlands the rail connection of the port of Rotterdam with its European hinterland along the Corridor is being improved by rerouting rail freight transport via the new Theemsweg railway section, an alternative route of 4.5 km double track, in order to be able to cope with the increased capacity of the port after the seaport terminals at Maasvlakte 2 became operational (€59.9 million CEF funding).
- In Italy the capacity and efficiency of the cross-border rail connection between Milan and Chiasso (Switzerland) is being improved with new signalling/distancing systems and prepared for the implementation of ERTMS (€40.9 million CEF funding).
- In Germany a mix of works and studies will increase the capacity and efficiency of the cross-border line NL/DE border – Emmerich – Oberhausen (€25.9 million CEF funding). While the works will tackle capacity at the Emmerich station and install ERTMS Level 2 equipment at the cross-border section, the studies will prepare the upgrade of this line from 2 to 3 tracks, the installation of ERTMS on the whole line and the removal of level crossings along the route.

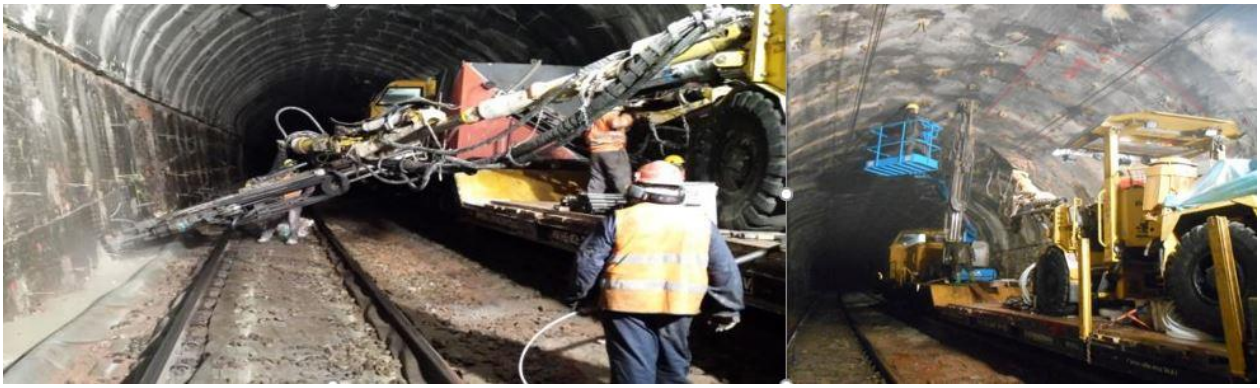
One of two new steel bridges and the continuation on the concrete substructure of the new Theemsweg rail section in the Port of Rotterdam (NL) © PoR

The aforementioned efforts in preparing **ERTMS implementation** contribute to another important objective mentioned in the Work Plan: currently only 12% of the Corridor's rail network is equipped with ERTMS infrastructure. Especially Germany and Italy are identified as critical bottlenecks in the Corridor-wide ERTMS rollout, both with 0% implementation. Also Belgium currently has only 18% ERTMS implementation.

A significant cluster of Actions are aimed at improving the efficiency and interoperability of the railway system along the Corridor. One Action has supported the Rhine-Alpine Rail Freight Corridor (RFC) in facilitating the efficient functioning and sustainable development of the RFC (€2.9 million CEF funding). Additionally, 6 Actions in Germany, Italy and Belgium receiving a total CEF funding of €64.3 million are implementing trackside deployment of ERTMS over a length of 767 km of railway tracks. This represents 23.8% of the Corridor's total railway network length (3,225 km).

The most important CEF funded ERTMS works Actions are located in Germany and Italy:

- The largest Action (€46.2 million CEF funding) covers the preparatory phase and trackside deployment on about half of the German part of the Corridor of ERTMS Level 1 and 2, including GSM-R and interlocking adaptations. The second German Action (€1 million CEF funding) covers the trackside deployment of ERTMS Level 2 Baseline 3 on 2 cross-border sections with the Netherlands and Belgium and 1 gap along the Corridor.
- In Italy 2 Actions (combined €11.3 million CEF funding) cover the trackside deployment of ERTMS Level 2 Baseline 3 on the majority of the Italian part of the Corridor. The Actions concern both cross-border sections from Milan to Switzerland and the section between Milan and Tortona.
- In Belgium 2 Actions (combined €5.8 million CEF funding) concerns the (finalised) trackside deployment of ERTMS Level 1 Baseline 2 on 30 km of the section Ans – Angleur, and trackside deployment of ERTMS Level 2 Baseline 3 on 4 sections of the Corridor: Bruges-Ghent, Beveren-Berchem (near Antwerp), Leuven-Aarschot and Aarschot-Lier.



Adaptation to the needed loading gauge capacity in the Cucciago tunnel (IT) on the Milano-Chiasso line © RFI

Additionally, 1 works Action is aimed at increasing **safety and efficiency** of the railway traffic on the North-South tunnel line in Antwerp (Belgium) by installing a tunnel safety system that will allow early detection of potential hazards, as well as time-saving when dealing with false alarms (€5.8 million CEF funding).

The Work Plan also mentions a number of rail challenges for the present multimodal terminals and urban nodes. Multimodal terminals should improve their access link with the rail network (currently often organised via a single and/or non-electrified line), while urban nodes should achieve a seamless connection between the long-distance infrastructure and regional/local traffic and urban freight delivery on the last-mile.

In this respect, 1 **multimodal terminal** Action (€1.7 million CEF funding) is aimed at optimising and upgrading the last-mile and intermodal connections of the Vado rail-road terminal with short sea shipment services in the port of Vado Ligure (Genoa).

Within the Corridor, 3 **urban nodes** study Actions receiving a combined €10.1 million CEF funding concentrate on passenger transport in compliance with the priorities mentioned in the Work Plan:

- The most important Action in terms of CEF funding (receiving €7.7 million) aimed at preparing all required planning documents and carrying out the public consultation process for the creation of a direct rail link connecting the area West of Frankfurt (Germany) with the airport and the city in general, enhancing the intermodality of the airport.
- In Italy a missing rail link has been designed between Malpensa airport and the Simplon line towards the north of the airport (€1.6 million CEF funding).
- The third study on urban node accessibility aims at optimising access and travel times within and between nodes across the Corridor. This by considering infrastructure and operational aspects such as station configuration, way finding, integrated ticketing and amenities for transferring passengers, to organise an integrated and seamless travel chain. It concerns the nodes of Arnhem, Nijmegen and Utrecht in the Netherlands, the nodes of Düsseldorf, Frankfurt am Main, Karlsruhe, Köln and Mannheim in Germany, the node of Basel in Switzerland and the nodes of Genoa and Milan in Italy (€0.8 million CEF funding).

Furthermore, the Work Plan specifies real-time information in the transport chain and communication to the users at the stations as part of the Corridor's **technical infrastructure parameters** to be complied with. These are crucial to ensure efficient and reliable transport chains for intermodal services throughout Europe. In this respect, 2 study Actions related to freight transport services are receiving a total of €2 million CEF funding:

- Partners from the Netherlands, Germany and Italy have developed an innovative European Rail Freight Line System (ERFLS) which will connect the different regions along the whole Corridor with regular rail freight line services in combined traffic through a system of 'smart hubs' (€0.6 million CEF funding).
- Partners from all Member States along the Corridor will implement a demonstration of a real-time Tracking Information and Estimated Time of Arrival (ETA) sharing software in a series of existing rail freight services run by intermodal operators, i.e. railway infrastructure managers, railway undertakings, intermodal operators, terminals and end-users (shippers) (€1.4 million CEF funding).

To conclude, 2 Actions complement the rail portfolio:

- The Dutch province of Limburg has developed a plan and tender documents (ready for construction) for infrastructure improvements on 3 cross-border Intercity rail connections towards Germany (Aachen and Düsseldorf) and Belgium (Liège). While most of the foreseen measures are part of the comprehensive network, a part in Germany (near Aachen) is located on the Corridor. Additionally, specifications for an ICT application have been defined for the development of a joint ticketing system valid for all 3 cross-border connections (€0.7 million CEF funding).
- A follow-up works Action based on these study results is aimed at executing a set of infrastructural measures on the comprehensive network section between Heerlen (NL) and Aachen (DE) in order to create an improved, reliable and direct cross-border connection. These measures include electrification of about 6.3 km and construction of an electrified double track along 3.3 km of the Dutch part of this comprehensive network cross-border connection. Despite that only some signalling works in Aachen station are located on the Corridor (€0.3 million CEF funding), this Action is worth mentioning because of its importance in providing a reliable alternative route for freight traffic between the port of Rotterdam and the German Ruhr area, which is necessary due to the ongoing and planned works on the German part of the Betuwe line between Zevenaar (NL) and Oberhausen (DE). This **important rail bypass** is mentioned in the Work Plan by the European Coordinator as a necessity, in particular during the works on the ongoing and future works on the Betuwe line.

As a result of CEF Transport funding in Rail Actions, an additional 8.3 km of railway line tracks or sidings will be electrified and 17.2 km of freight lines improved along the Corridor.

The map on page 12 below indicates the location of Works Actions under the Rail portfolio (excluding ERTMS Actions and Actions under horizontal priorities such as Freight Transport Services and Innovation). Also several Actions allocated to the IWW or maritime portfolios which have a component of rail access improvement have been added in order to show their contribution to the use of rail on the Corridor.

Map of Works Actions under the Rail portfolio:

2.1.4. Road

In total the road portfolio in the Rhine-Alpine Corridor is composed of 34 Actions, receiving €95.6 million in CEF Transport funding.

All but 5 Actions concern Actions being carried out in multiple corridors. Approximately 77% of the CEF funding in this portfolio is allocated to Actions encouraging the use of alternative fuels (52%) and ITS Actions (25%).

All of the Actions receiving CEF funding are contributing to the objectives for road transport as identified in the Work Plan. They concern the reduction of congestion, interoperability on the network, road safety, availability of clean fuels and reduction of emissions.

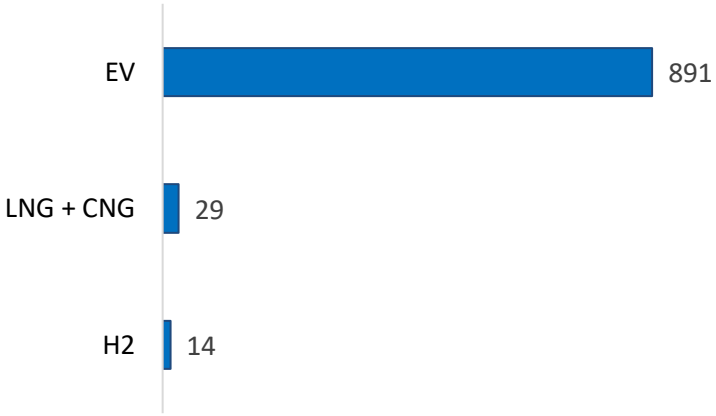
The Work Plan mentions that the Corridor's extensive road network fulfils to a great extent the TEN-T requirements, but that the availability of clean fuels' infrastructure is still underdeveloped.

The majority of the CEF funded road Actions (23 out of 34, totalling €49.9 million CEF funding) are Innovation Actions targeting the deployment of **alternative fuels infrastructure** (gas, hydrogen and electricity) in the framework of EU Directive 2014/94/EU:

- Nine Actions (6 works and 3 study Actions) are focused on electro-mobility for Electric Vehicles, more specifically the deployment of multi-standard fast chargers (0-50 kW) and ultra-fast chargers (150-300 kW) across the Corridor (€14.2 million CEF funding). The more recently selected Actions all focus on the ultra-fast chargers to be used for medium to long distance travel along the Corridor. There is equal involvement of all Member States along the Corridor.
- Four study Actions (including one Synergy Action) are contributing to the deployment of Hydrogen refuelling infrastructure in the Netherlands, Belgium and Germany (€16.5 million CEF funding).
- Six Actions (1 works and 5 study Actions including pilots) are aimed at deployment of LNG/CNG infrastructure for freight traffic (€11.1 million CEF funding). Also here there is involvement of all Member States along the Corridor.
- Two Actions (1 works and 1 study Action) are focused on the deployment of multiple types of alternative fuels infrastructure (Electric Vehicle chargers, LNG/CNG and Hydrogen) in Italy, Belgium and the Netherlands (€3 million CEF funding).
- Two works Actions in the Netherlands are aimed at the deployment of sustainable public transport by organising large scale electric public bus transport systems (zero emission bus fleet and charging infrastructure), one within the Urban Node of Rotterdam (NL) and one in the Amsterdam city, Schiphol and Amsterdam port area (€5.1 million CEF funding).

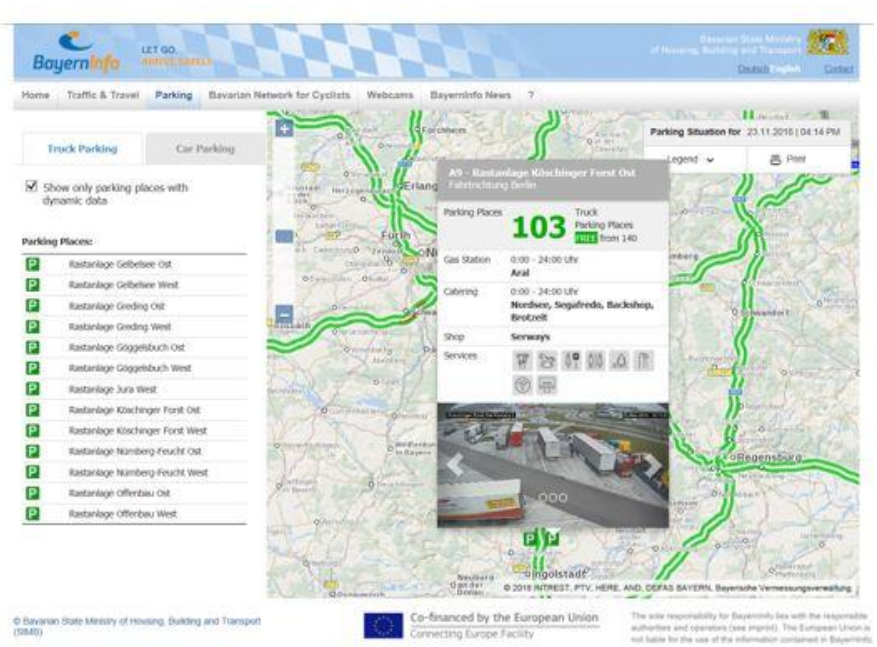
As a result, 934 supply points for alternative fuel for road transport are expected to be installed on the Rhine-Alpine Corridor with the support of CEF.

Figure 2: Number of supply points for alternative fuel for road transport



In the Work Plan, **Intelligent Transport Systems (ITS)** are mentioned as supportive and innovative services relating to transport and traffic management that are beneficial for overall efficiency and safety for road transport. ITS focuses on the implementation of the priorities of EU Directive 2010/40/EU and its delegated regulations. ITS services provide for example real-time traffic information, information on the availability of Intelligent Truck Parkings, real-time safety related alerts on road works, road accidents, adverse weather, etc. for various road users, allowing them to make safer, more coordinated and smarter use of the road transport networks.

Two Actions in the field of ITS on roads account for a total CEF funding of €23.7 million. Its ITS services are harmonised, interoperable and deployed at Corridor level. Both Actions, URSA MAJOR neo (€14.5 million CEF funding) and URSA MAJOR 2 (€9.2 million CEF funding), have as main added value the provision of services to international truck drivers and hauliers (better truck parking, better navigation, less delays and less uncertainties, increased safety).



Information on parking availability for trucks in the Ursa Major ITS project © BMVI

Furthermore, the Work Plan mentions that the Rhine-Alpine Corridor's extensive road network fully fulfils the TEN-T regulations compliance check, except for one road section in the Netherlands which is not classified as a motorway yet: the **missing link on the A15 south of Arnhem (NL)**. This area between Nijmegen and Arnhem is also indicated in the Work Plan as an important bottleneck dealing with structural capacity issues (not just peak hour congestion). Two Actions are contributing to solving this bottleneck. Both Actions concern the ViA15 Global Project, which aims to remove the missing link and to ensure the continuity of cross-border flows on the Corridor between the Netherlands (Nijmegen) and Germany (Ruhr area). The finalised Action carried out the necessary studies and public consultations in the spatial planning procedure, while the works Action is preparing the actual construction works for the new 12.5 km road in the Netherlands planned to take place in 2021-2023, by for example carrying out the necessary procurement and preparatory works. Together these Actions receive €8.7 million CEF funding.

Relocation of cables and pipelines before the start of the construction works of the ViA15 highway missing link © Rijkswaterstaat

As a contribution to the safety priority mentioned in the Work Plan under the road (and rail) policy, the road portfolio includes six '**Safe and Secure Infrastructure**' Actions, all in Belgium and the Netherlands. Combined, these Actions, related to secure truck parking, the removal of level crossings and increase of road safety, receive €13.1 million CEF funding.

The scarcity of secured parking is especially mentioned in the Work Plan as a critical issue: in border crossing sections and around important multimodal nodes as well as ports, there is a substantial unmet demand for **secure truck parking**. This jeopardises compliance with the applicable driving time regulations, increases the pressure on available rest areas and forces trucks to park off-ramps and outside the designated areas, creating a safety and security hazard. Three Actions (2 works and 1 study Action), plus one works Action allocated to the Maritime portfolio, are contributing to resolving this issue, and are ensuring the construction

of 5 new certified parking areas for trucks, the upgrade and enlargement of 3 existing parking areas and the planning of 1 future new area, all along the Corridor in Belgium (Antwerp and Zeebrugge) and the Netherlands (Rotterdam, Vlissingen, Duiven, Venlo and Dordrecht). Together these 4 Actions receive €7.6 million CEF funding – of which €3.4 million is allocated to this road portfolio – and they are expected to provide an additional 1,474 secure track parking spots in close proximity of ports and rail-road terminals.

Two works Actions in Belgium are aiming in total at 17 **level crossings removals** along the road and rail Corridor (€4.6 million CEF funding). It concerns the removal of 8 level crossings on the section Ghent-Antwerp, 6 level crossings on the section Bruges-Ghent, 2 level crossings on the section Liège-Visé and 1 level crossings on the section Antwerp-Lier-Aarschot.

To conclude the road portfolio, one Action is aimed at **increased road safety** along the Belgian highways. For this purpose, nine black spots on the Brussels Ring road will be removed and the tunnel and fire safety in three tunnels in Antwerp and Brussels will be enhanced by installing traffic control techniques guiding the traffic on the access routes to the tunnels (€5 million CEF funding).

The map on page 5 above indicates the location of Works Actions under the Roads portfolio (excluding ITS and Innovation Actions).

2.2. Financial Progress

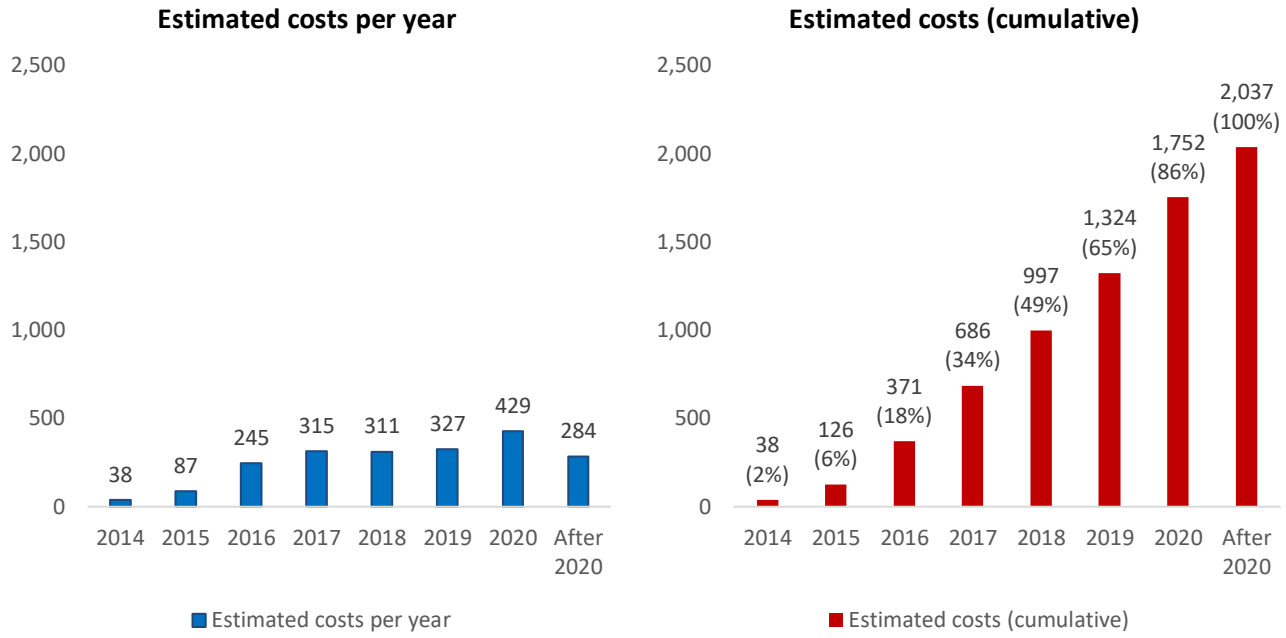
CEF Transport funding for Actions in the Rhine Alpine Corridor was initially[7] €744 million, corresponding to €2.1 billion in eligible costs. Following closures and amendments due to scope reductions, the actual funding going to this Corridor is €705 million, corresponding to €2 billion in eligible costs. It is important to note that the major part of the reductions is re-injected in the 2019 CEF Transport call.

When taking into account the latest information available[8], the costs necessary to implement CEF Transport Actions are estimated at €2 billion. The charts below give an overview of the respective financial progress (in terms of estimated costs) of the overall Corridor portfolio. By the end of 2019 the financial progress reached was 65%.

[7] i.e. grant agreement signature stage

[8] i.e. action status reports and received but not yet approved final payment claims.

Figure 3: Estimated budget implementation (€ million)



Whilst the above financial progress charts are based on cost estimates provided by the beneficiaries (updated annually in Action status reports), the budgetary absorption of the allocated funding can also be analysed by assessing the payments made and interim/final costs claims processed. In fact, out of the €705 million of CEF Transport funding:

- 62% or €435.5 million has already been paid (including pre-financing)
- 48% or €341.7 million of contribution has already been accepted (following the introduction of interim/final cost claims by beneficiaries).

3. Challenges affecting the implementation of Actions

In general, the most common implementation issues faced by Actions are related to governance and the technical complexity of co-funded activities. Delays due to technical complexities are recurrent in implementing large infrastructure projects and are a common challenge for CEF Actions.

The technical complexity of Actions can have an impact on the timing and create unexpected delays in the approval of concept and design studies due to extra research needed into the layout of the infrastructure, the cost and reduction of its impact on the local population and (environmental) surroundings. Actions located in urban and industrial areas may face administrative spatial planning, permitting and authorisation procedures that take longer than expected due to public consultations unveiling issues which complicate and lengthen the approval process. In certain cases this complexity also has an impact on the planned timing required to carry-out and conclude procurement procedures, subsequently delaying the start of works. Governing these challenges becomes even more complex and cumbersome for cross-border Actions needing political decisions, permits, approvals and authorisations in more than one Member State where procedures and requirements differ.

For Innovation Actions the main challenge in most Actions addressing alternative fuels is to secure locations of charging points/refuelling stations on or as close as possible to the Corridor. Especially for LNG in a fast

developing market the competition between different operators on securing locations may impact the duration of the implementation of the Actions. In addition, some Actions establishing LNG and CNG stations have faced issues related to the safety and security requirements linked to their on-site installation. Actions installing charging stations for electric vehicles have encountered delays due to the necessity to obtain approvals to connect the stations to the local electricity network.

The most challenging issue regarding ERTMS deployment along the Corridor is the implementation on cross-border sections where the difference in technical, operational and administrative requirements for each Member State makes the successful completion of the Actions rely on a constructive cooperation between the different stakeholders, notably the infrastructure managers.

For ITS one of the main challenges for public authorities and road operators in this area is to ensure the efficient and cross-border communication among the various traffic management centres. In this regard, the implementation of national access points and the use of the DATEX II communication standard have started and are funded by past and ongoing CEF Actions.

4. Conclusion and Outlook

This report highlights the contribution of CEF funded Actions – selected under the INEA Calls for Proposals carried out from 2014 to 2018 – to the development of the Rhine-Alpine Corridor in line with the objectives and priorities as defined in the latest Work Plan by its European Coordinator Paweł Wojciechowski.

To implement the Rhine-Alpine Corridor by 2030 the Work Plan identifies 318 infrastructure projects proposed by the Member States and other stakeholders, with an investment need of around €97.3 billion.

The Connecting Europe Facility (CEF) is one of the EU instruments established to provide financial support for the implementation of the corridors. Currently, for the Rhine-Alpine Corridor there are 79 Grant Agreements in place allocating €705 million of actual CEF Transport Funding related to a total investment of €2.01 billion.

It is evident that the CEF Transport funding alone cannot cover the total investment needs of the Corridor. Nevertheless, as this report indicates, the Actions along the Corridor receiving CEF funding contribute significantly to the most important priorities and objectives mentioned in the Work Plan which are crucial for the development of the Corridor.

While some of the Actions are receiving a large portion of the EU funding for the whole Corridor, it is important to recognize that many smaller Actions are having a significant impact on (i) improving multimodal connections and information systems, (ii) providing safer and more interoperable infrastructure, and (iii) the availability of alternative fuel for road and waterborne transport.

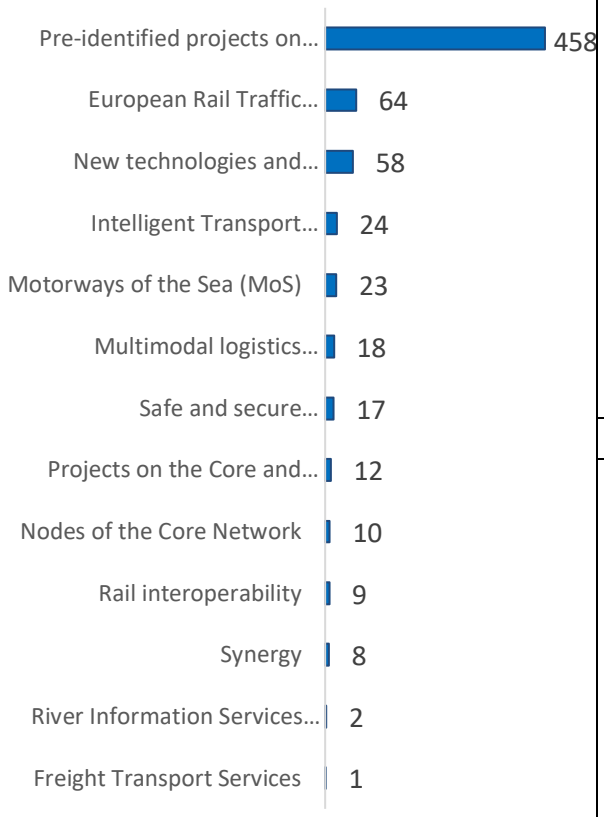
In conclusion, the past 6 years of CEF implementation have shown that CEF funded Actions have already made and will continue to make a significant contribution to the development of the Rhine-Alpine Corridor in line with the latest Work Plan. Further progress is expected through the upcoming Calls for Proposals. INEA will continue making implementation happen through regular monitoring of the progress of the Actions and close cooperation with the Rhine-Alpine Corridor European Coordinator, the Member States and other stakeholders.

Finally, it should be noted that, at the moment of drafting this report, the consequences of the health crisis caused by COVID-19 could not be assessed or quantified.

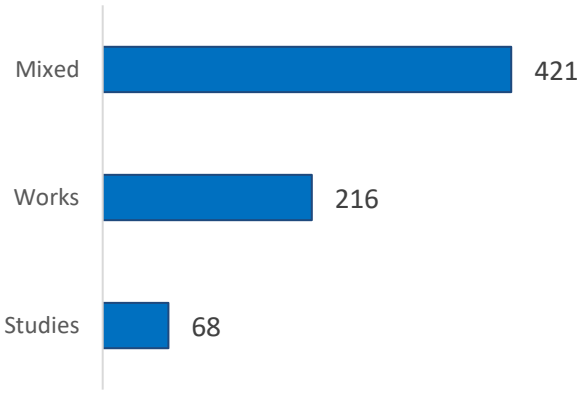
5. Statistical Annex

CEF Transport funding in the Mediterranean Corridor: €705 million

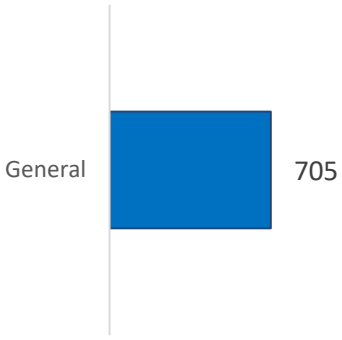
Corridor funding per priority
€ million



Corridor funding per type
€ million

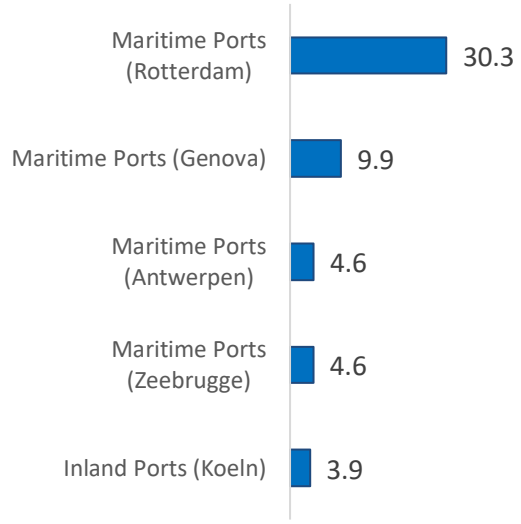


Corridor funding per envelope - € million



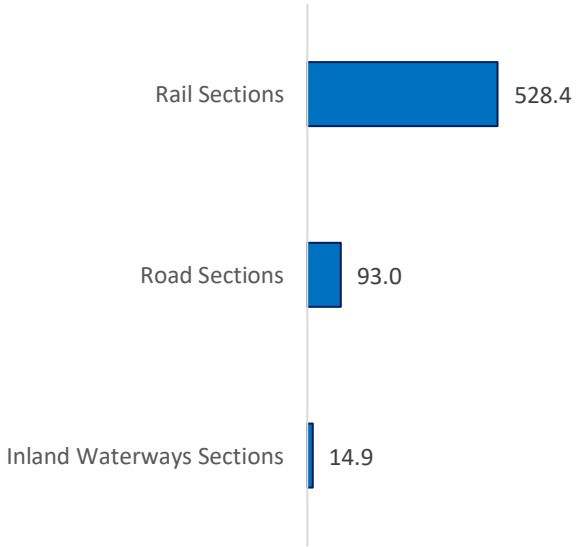
CEF Transport funding in Nodes: €68.5 million

Corridor funding per TOP 5 Nodes
€ million



CEF Transport funding in Sections: €636.3 million

Corridor funding per Mode of Section
€ million



6. List of actions on the Rhine Alpine Corridor

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Inland Waterways	2014-DE-TA-0113-M	Safeguarding and adaptation of waterway access to the Rhine-Alpine and North Sea-Baltic corridors from the port of Cologne	Closed	Projects on the Core and Comprehensive Networks	Mixed	01/01/2014	31/12/2017	100%	1,911,879	9,167,575
Inland Waterways	2014-EU-TM-0210-S	Pilot implementation of an Upper Rhine traffic management platform	Closed	New technologies and innovation	Studies	01/07/2014	30/06/2018	90%	893,250	1,786,500
Inland Waterways	2014-FR-TM-0260-W	New Multimodal Terminal of the Port of Strasbourg / Lauterbourg site	Closed	Multimodal logistics platforms	Works	01/04/2015	31/07/2018	100%	1,995,277	9,976,385
Inland Waterways	2014-NL-TM-0241-W	Preparatory activities and project management for the new large Amsterdam lock	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/01/2014	31/12/2019	100%	11,095,628	27,739,070
Inland Waterways	2014-NL-TM-0394-S	Breakthrough LNG deployment in Inland Waterway Transport	Ongoing	New technologies and innovation	Studies	01/01/2016	31/12/2019	70%	3,461,329	6,922,657
Inland Waterways	2015-DE-TM-0376-M	LNG for shipping and logistics in Europe	Ongoing	New technologies and innovation	Studies	01/03/2016	31/12/2020	100%	4,056,000	8,112,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Inland Waterways	2015-EU-TM-0038-W	River Information Services Corridor Management Execution (General Call)	Ongoing	River Information Services (RIS)	Works	15/02/2016	31/12/2020	16%	1,581,869	3,163,737
Inland Waterways	2017-DE-TM-0040-W	LNG Rollout in Central Europe - for a greener transportation sector	Terminated	New technologies and innovation	Works	01/01/2018	30/06/2021	10%	-	-
Inland Waterways	2018-EU-TM-0020-S	Masterplan Digitalisation of Inland Waterways	Ongoing	River Information Services (RIS)	Studies	01/07/2019	02/12/2022	36%	525,600	1,051,200
Inland Waterways	2018-NL-TM-0096-W	Upgrade of the Combined Cargo terminal rail infrastructure at the Port of Moerdijk	Ongoing	Multimodal logistics platforms	Works	01/11/2018	31/12/2020	100%	3,688,711	18,443,557
Inland Waterways Total									29,209,542	86,362,681
Maritime	2014-EU-TM-0095-W	ReaLNG: Turning LNG as marine fuel into reality in the North Sea-Baltic region	Closed	Motorways of the Sea (MoS)	Works	01/01/2014	30/09/2017	97%	12,204,363	37,375,728
Maritime	2014-EU-TM-0451-M	Scrubbers: Closing the loop	Ongoing	Motorways of the Sea (MoS)	Mixed	21/04/2014	31/12/2018	50%	3,172,200	10,041,500
Maritime	2014-EU-TM-0487-M	Biscay Line - Multiple port Finland-Estonia-Belgium-Spain long distance MoS, relevant to many core network corridors	Closed	Motorways of the Sea (MoS)	Mixed	01/01/2014	31/12/2016	46%	1,992,592	6,641,974

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Maritime	2014-IT-TM-0276-W	INES - Implementing New Environmental Solutions in the Port of Genoa	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/07/2015	30/06/2021	100%	2,433,500	12,100,000
Maritime	2014-IT-TM-0450-S	GAINN4CORE	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	01/06/2015	31/03/2019	25%	888,357	1,776,715
Maritime	2015-BE-TM-0248-W	Improving of the multimodal logistic platform of the port of Zeebrugge, in order to accommodate long freight trains	Closed	Multimodal logistics platforms	Works	01/03/2016	31/01/2019	100%	1,598,000	7,990,000
Maritime	2015-EU-TM-0098-M	DOOR2LNG - Upgrade of the maritime link integrated in the multimodal container transport routes	Ongoing	Motorways of the Sea (MoS)	Mixed	16/02/2016	30/06/2020	34%	5,733,296	18,952,321
Maritime	2016-EU-SA-0010	Go4Synergy in LNG	Ongoing	(blank)	Studies	15/12/2016	31/08/2019	33%	867,735	1,446,225
Maritime	2018-BE-TM-0139-M	Secure Parking Opportunities for Trucks (SPOT) in Flanders	Ongoing	Safe and secure infrastructure	Mixed	01/11/2018	30/05/2021	100%	4,188,172	20,295,860
Maritime	2018-BE-TM-0146-W	Extension and upgrade of combined transport Mercatordok	Ongoing	Multimodal logistics platforms	Works	24/10/2018	31/12/2020	100%	2,155,400	10,777,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		Multimodal Terminal								
Maritime	2018-EU-TM-0135-S	Application of Industry 4.0 Technologies towards Digital Port Container Terminals – iTerminals 4.0	Ongoing	New technologies and innovation	Studies	01/03/2019	31/12/2021	25%	925,063	1,850,125
Maritime	2018-IT-TM-0134-S	E-BRIDGE. Emergency and BRoad Information Development for the ports of GEnoa	Ongoing	New technologies and innovation	Studies	25/10/2018	31/10/2021	100%	6,092,525	12,185,050
Maritime	2018-NL-TM-0007-W	Upgrade of the combined transport RSC terminal Rotterdam	Ongoing	Multimodal logistics platforms	Works	24/10/2018	31/12/2022	100%	1,759,550	8,797,750
Maritime	2018-NL-TM-0144-W	Upgrade of combined transport Rotterdam World Gateway terminal	Ongoing	Multimodal logistics platforms	Works	25/10/2018	31/12/2022	100%	5,589,000	27,945,000
Maritime Total									49,599,753	178,175,247
Rail	2014-BE-TM-0660-W	Deployment of ETCS Level 1 on the rail section Ans - Angleur	Closed	European Rail Traffic Management System (ERTMS)	Works	01/07/2015	01/05/2018	100%	2,367,500	4,735,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Rail	2014-DE-TM-0006-S	Planning of Regionaltangente-West (RTW) in Frankfurt am Main	Closed	Nodes of the Core Network	Studies	01/01/2014	31/12/2018	100%	7,680,500	15,361,000
Rail	2014-DE-TM-0057-W	ERTMS Deployment on the German part of the Core Network Corridor Rhine - Alpine	Ongoing	European Rail Traffic Management System (ERTMS)	Works	01/01/2014	31/12/2020	86%	46,199,492	93,938,615
Rail	2014-DE-TM-0094-M	Upgraded line / New-build line (ABS/NBS) Karlsruhe - Basel with partial upgrade measures on the existing line	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	01/01/2014	31/12/2021	100%	315,251,814	768,362,234
Rail	2014-DE-TM-0252-M	Upgraded line (ABS) (Amsterdam) D/NL border - Emmerich - Oberhausen	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	01/01/2014	31/12/2021	100%	25,875,457	53,857,713
Rail	2014-DE-TM-0299-S	Support and coordination of Rail Freight Corridor Rhine-Alpine for its long term sustainable operation as required by the EU Regulations 913/2010, 1315/2013 and	Ongoing	Rail interoperability	Studies	01/01/2015	31/12/2018	100%	2,855,000	5,710,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		1316/2013.								
Rail	2014-EU-TA-0131-S	European Rail Freight Line System on the Rhine-Alpine Corridor	Ongoing	Projects on the Core and Comprehensive Networks	Studies	01/12/2015	30/11/2018	100%	625,000	1,250,000
Rail	2014-IT-TM-0058-W	ERTMS Deployment on the Italian part of the Rhine - Alpine Core Network Corridor	Ongoing	European Rail Traffic Management System (ERTMS)	Works	19/11/2014	31/12/2020	53%	7,256,230	14,512,460
Rail	2014-IT-TM-0174-S	MXP-AT Railink	Closed	Pre-identified projects on the Core Network corridors	Studies	01/04/2015	31/03/2018	100%	1,600,237	3,200,474
Rail	2014-IT-TM-0176-M	Upgrading of the Chiasso - Milano railway line	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	01/01/2014	31/12/2020	100%	40,903,600	135,786,400
Rail	2014-NL-TA-0680-S	3EUStates2cross (Study, Rail, Limburg S-E Netherlands)	Closed	Projects on the Core and Comprehensive Networks	Studies	16/11/2015	15/11/2018	15%	713,625	1,427,250

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Rail	2014-NL-TM-0233-W	Removing the bottleneck on the rail freight corridor between mainport Rotterdam and the European hinterland by realising the Theemsweg railway section.	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/10/2015	31/03/2021	100%	59,892,117	199,640,390
Rail	2015-DE-TM-0363-W	Design and equipment of ERTMS for six border crossing corridor sections as well as two gap closings on German TEN core network corridors	Ongoing	European Rail Traffic Management System (ERTMS)	Works	16/02/2016	31/12/2020	4%	996,578	2,069,731
Rail	2015-EU-TM-0028-S	Rhine-Alpine Integrated and Seamless Travel Chain (RAISE-IT)	Ongoing	Nodes of the Core Network	Studies	01/09/2016	31/12/2019	100%	836,348	1,672,696
Rail	2015-IT-TM-0312-M	Vado Multimodal Platform rail/road terminal (core RRT node of the TEN-T network) intermodal connections optimization and Upgrading (VAMP UP)	Ongoing	Multimodal logistics platforms	Mixed	01/03/2016	31/10/2020	100%	1,658,224	10,406,049

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Rail	2016-EU-TA-0108-W	2EUStates2cross	Ongoing	Projects on the Core and Comprehensive Networks	Works	07/02/2017	31/12/2020	1%	286,800	717,000
Rail	2016-EU-TA-0185-S	Sharing of train tracking & ETA information	Ongoing	Freight Transport Services	Studies	01/09/2017	31/12/2019	100%	1,429,076	2,858,152
Rail	2016-IT-TM-0244-W	ERTMS on strategic sections of 3 CNCs	Ongoing	European Rail Traffic Management System (ERTMS)	Works	07/02/2017	31/12/2020	15%	4,087,500	8,175,000
Rail	2018-BE-TM-0101-W	ETCS L2 track-side deployment on 4 sections of the Core Network Corridors	Ongoing	European Rail Traffic Management System (ERTMS)	Works	07/12/2019	30/11/2022	100%	3,425,000	6,850,000
Rail	2018-BE-TM-0116-W	Technological migration of the tunnel safety systems of the North-South railway tunnel in Antwerp	Ongoing	Rail interoperability	Works	01/11/2018	31/03/2023	100%	5,792,000	14,480,000
Rail	2018-IT-TM-0032-S	InGE - Innovative solutions for Intermodal node “Genoa Erzelli”	Ongoing	New technologies and innovation	Studies	01/10/2019	31/12/2021	100%	700,963	1,401,925
Rail Total									530,433,060	1,346,412,089
Road	2014-EU-TM-0196-S	FAST-E (DE/BE)	Ongoing	New technologies and innovation	Studies	01/09/2014	30/09/2018	18%	1,576,773	3,153,546

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Road	2014-EU-TM-0318-S	Connecting Hydrogen Refuelling Stations (COHRS)	Ongoing	New technologies and innovation	Studies	01/09/2015	31/12/2020	20%	2,595,557	5,191,115
Road	2014-EU-TM-0365-W	URSA MAJOR 2	Ongoing	Intelligent Transport Services for road (ITS)	Works	01/01/2014	31/12/2020	50%	9,228,060	46,140,300
Road	2014-EU-TM-0579-M	UNIT-E	Closed	New technologies and innovation	Mixed	01/07/2015	30/06/2018	19%	329,355	658,710
Road	2014-EU-TM-0630-S	Connect2LNG	Ongoing	New technologies and innovation	Studies	01/10/2015	31/12/2020	25%	1,136,563	2,273,125
Road	2014-NL-TA-0072-S	ViA15 road project, missing link study – Rhine-Alpine Core Network Corridor	Closed	Projects on the Core and Comprehensive Networks	Studies	01/01/2014	31/12/2016	100%	2,844,968	5,689,935
Road	2014-NL-TM-0153-W	Safe & Secure Truck Parkings on core network in the Netherlands	Closed	Safe and secure infrastructure	Works	01/01/2015	31/12/2017	67%	825,268	4,126,342
Road	2015-BE-TM-0244-W	Elimination of level crossings on the Core Network Corridors in Belgium in order to increase safety and remove bottlenecks for both rail and road	Ongoing	Safe and secure infrastructure	Works	01/03/2016	31/12/2020	39%	2,788,500	13,942,500
Road	2015-EU-TM-0316-S	Models for Economic Hydrogen Refuelling	Ongoing	New technologies and innovation	Studies	01/07/2016	31/12/2020	41%	2,258,895	4,517,790

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		Infrastructure								
Road	2015-EU-TM-0367-S	ULTRA-E	Ongoing	New technologies and innovation	Studies	01/03/2016	31/12/2019	20%	1,308,530	2,617,060
Road	2015-EU-TM-0415-S	EVA+ (Electric Vehicles Arteries in Italy and Austria)	Ongoing	New technologies and innovation	Studies	01/07/2016	31/08/2019	24%	1,016,795	2,033,590
Road	2015-EU-TM-0422-S	LNG motion: Fuelling trucks with LNG/CNG along the core network	Ongoing	New technologies and innovation	Studies	16/02/2016	30/06/2021	30%	3,723,423	7,446,847
Road	2016-DE-TM-0332-S	LNG4Trucks	Ongoing	New technologies and innovation	Studies	07/02/2017	31/12/2020	7%	670,960	1,341,920
Road	2016-EU-SA-0012	TSO 2020: Electric “Transmission and Storage Options” along TEN-E and TEN-T corridors for 2020	Ongoing	(blank)	Studies	13/02/2017	31/12/2020	100%	7,063,700	11,772,833
Road	2016-EU-TM-0044-M	URSA MAJOR neo	Ongoing	Intelligent Transport Services for road (ITS)	Mixed	07/02/2017	31/12/2020	45%	14,458,225	67,257,770
Road	2016-EU-TM-0121-W	High speed electric mobility across Europe	Ongoing	New technologies and innovation	Works	01/07/2017	31/12/2020	9%	915,120	4,575,600
Road	2016-EU-TM-0175-S	H2Benelux	Ongoing	New technologies and innovation	Studies	07/02/2017	31/12/2020	63%	4,547,891	11,015,266

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Road	2016-EU-TM-0277-S	BENEFIC	Ongoing	New technologies and innovation	Studies	01/07/2017	31/12/2020	32%	2,425,600	11,888,000
Road	2016-IT-TM-0284-S	GAINN4MED	Ongoing	New technologies and innovation	Studies	01/03/2017	30/09/2020	11%	511,500	1,023,000
Road	2016-NL-TA-0019-W	ViA15: solving the missing link in the cross-border road infrastructure on the Rhine-Alpine corridor	Ongoing	Projects on the Core and Comprehensive Networks	Works	01/03/2017	31/12/2020	100%	5,884,616	58,846,156
Road	2016-NL-TM-0339-S	BIOLNG4EU	Ongoing	New technologies and innovation	Studies	07/02/2017	31/12/2022	25%	2,050,000	4,100,000
Road	2017-DE-TM-0064-W	EUROP-E: European Ultra-Charge Roll Out Project - Electric	Ongoing	New technologies and innovation	Works	15/07/2017	31/12/2021	12%	4,692,645	23,463,227
Road	2017-EU-TM-0065-W	Central European Ultra Charging	Ongoing	New technologies and innovation	Works	01/01/2018	31/05/2021	8%	987,808	4,939,042
Road	2017-EU-TM-0068-W	MEGA-E: Metropolitan Greater Areas - Electric	Ongoing	New technologies and innovation	Works	01/08/2017	31/12/2021	11%	3,223,036	16,115,182
Road	2017-EU-TM-0080-W	BioLNG EuroNet	Ongoing	New technologies and innovation	Works	12/04/2018	31/12/2023	12%	3,049,152	15,245,760
Road	2017-IT-TM-0106-W	CRE8: Creating the station of the future	Ongoing	New technologies and innovation	Works	12/04/2018	31/12/2022	18%	549,784	2,748,920
Road	2017-IT-TM-0110-W	AMBRA-E lectrify Europe	Ongoing	New technologies and innovation	Works	01/09/2018	31/12/2022	1%	141,509	707,547

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Road	2017-NL-TM-0060-W	REMETBUS2 Rotterdam	Ongoing	Nodes of the Core Network	Works	01/01/2018	31/12/2021	33%	1,077,971	13,802,448
Road	2017-NL-TM-0143-W	Zero emission public transport services for Schiphol Amsterdam Airport and along the core corridors.	Ongoing	New technologies and innovation	Works	15/04/2018	31/03/2022	30%	4,062,729	20,313,644
Road	2018-BE-TM-0068-M	Improving Road Safety in Flanders	Ongoing	Safe and secure infrastructure	Mixed	24/10/2018	31/12/2023	80%	5,045,120	13,225,600
Road	2018-BE-TM-0108-W	Removal of 11 level crossings on 2 Core Network Corridors in Belgium	Ongoing	Safe and secure infrastructure	Works	24/10/2018	31/12/2022	44%	1,824,680	9,123,400
Road	2018-NL-TM-0036-W	Innovative and digital bike storage solutions in urban nodes for efficient passenger transfer and last-mile connections	Ongoing	New technologies and innovation	Works	24/10/2018	31/12/2023	7%	197,575	987,875
Road	2018-NL-TM-0091-W	Secure Truck Parking on the Topcorridors in the Netherlands (SecureNL)	Ongoing	Safe and secure infrastructure	Works	01/11/2018	31/12/2022	48%	1,809,146	9,086,621
Road	2018-NL-TM-0111-S	Central Gate	Ongoing	Safe and secure infrastructure	Studies	01/11/2018	31/05/2021	100%	796,500	1,593,000
Road Total									95,617,955	400,963,670

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