



Mission 3: Infrastructures for a sustainable mobility

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Mission's main objectives:



Boost freight and passenger rail transport and introduce the European Rail Transport Management Systems (ERTMS)

Speed-up connections along the country's TEN-T axes: North-South and East-West

Increase capacity in key national lines and nodes, in particular in the South, and implement the ERTMS



Implementation of an advanced digital monitoring system

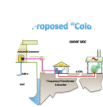
Application of an integrated system of risk classification and management of bridges, viaducts and tunnels on national network

Seismic safety of the A24-A25 highway



Environmental sustainability and energy efficiency of ports

"Green Ports" integrated with "Cold Ironing" dock electrification projects.
Reduce the impact of vessels on the maritime and environmental ecosystem
Reduce energy consumption related to goods handling



Land and sea side accessibility

Develop infrastructure
Dams and dredging
Last mile rail/road connections
Capacity adaptations



Digitalization of Italian logistics systems

Digitalization of the logistic chain

Digitalization of air traffic management

Mission's financing snapshot:

M3 - Infrastructures for a sustainable mobility

	Resources (euro/mld)				
	Existing (a)	New (b)	Total (c) = (a)+(b)	REACT-EU (d)	TOTAL NGEU (e) = (c) + (d)
M3C1 - High speed railways and safe roads 4.0	11.20	17.10	28.30	-	28.30
M3C2 Intermodal connections and integrated logistics	0.48	3.20	3.68	-	3.68
TOTAL	11.68	20.30	31.98	-	31.98

Note: (b) includes existing resources under national FSC, to be devoted to specific measures.

1 M3C1 - High speed railways and safe roads

Summary box

Policy area: National rail and road mobility

Objectives: The objectives of this component are: (i) the decarbonization and reduction of emissions through the shift of passengers and freight traffic from road to rail; (ii) the increased territorial connectivity and cohesion by reducing travel times; (iii) the digitalization of transport networks and improved security of bridges, viaducts and tunnels; (iv) the increased competitiveness of the productive systems in the South by improving railway links. These objectives are in line with the nationwide strategy on mobility of the Ministry of Infrastructure and Transport outlined in “#ItaliaVeloce”.

The component is focused on the rail network known as Integrated National Transport System of 1st level (SNIT), with a clear priority on the TEN-T network (core and comprehensive). The implementing entity is primarily the public national company “Rete Ferroviaria Italiana” (RFI), besides some works to be carried out by regional railways.

In the railway sector the interventions are focused on: (i) High-speed railway connections to the South for passengers and freight; (ii) High-speed lines in the North connecting to Europe; (iii) Diagonal connections; (iv) Introducing the European Rail Transport Management System (ERTMS); (v) Strengthening metropolitan nodes and key national links; (vi) Strengthening regional railway lines; (vii) Upgrading, electrification and resilience of railways in the South; (viii) Upgrading railway stations in the South; (ix) Renewal of the rolling stock.

In the road sector the focus will be on the digitalization and smart maintenance of numerous bridges, viaducts and tunnels on the A-24/A25 highways (crossing Italy from west to east) and on parts of the ANAS network.

This component is linked to the one on “Smart districts and integrated logistic inter-modality”, since it includes railway connections to ports and airports.

Twin transition: by supporting the transfer of passengers and freight from road to rail (RFI expects an increase of +10% passenger kilometres by rail in the long run and of +20% in freight), and investing in the digitalization of rail traffic and road maintenance to ensure safety and climate resilience, this component promotes both the green and the digital transition.

Jobs and growth: a more connected, safe and environmentally sustainable national rail and road transport network will boost the competitiveness of businesses, territories and cities, supporting the presence and growth of production sites and commercial activities. Overall, RFI has estimated that its investment programme up to 2026 could create on average an employment level of around 60,000 people per year.

Social resilience: re- the increase of capacity at key railway nodes in metropolitan areas will have positive spill-over effects on regional trains, making the city centres more accessible and improving the quality of life of commuters. Also, the railway investments establishing links with and/or within the South of Italy will reduce the railway infrastructure gap and travel times, improving social cohesion.

Reforms and investments:

Outcome 1: Transfer passengers and freight traffic from road to rail, increase rail speed/capacity/connectivity and improve service quality along key national and regional links, strengthen cross-border connections and EU railway interoperability

Reform 1.1: Simplify the approval process of the 5-yearly and annual updates of the *Contratto di Programma* between the MIT and RFI

Reform 1.2: Acceleration of the project authorization process

Investment 1.1: High-speed railway connections to the South for passengers and freight;

Investment 1.2: High-speed lines in the North connecting to Europe;

Investment 1.3: Diagonal connections;

Investment 1.4: Introducing the European Rail Transport Management System (ERTMS);

Investment 1.5: Strengthening metropolitan nodes and key national links;

Investment 1.6: Strengthening regional lines;

Investment 1.7: Upgrading, electrification and resilience of railways in the South;

Investment 1.8: Upgrading railway stations in the South;

Investment 1.9: Renewal rolling stock.

Outcome 2: Improve the safety and climate/seismic resilience of bridges, viaducts and tunnels

Reform 2.1: Implementation of the recent “D.L. Semplificazioni” (converted into Law n.120 dated 11 September 2020) by issuing a decree concerning the adoption of “Guidelines for the classification and management of risks, the evaluation of security and the monitoring of existing bridges”

Reform 2.2: Transfer the property of the bridges and viaducts from the lower level ranking roads to the higher ranking ones (highways and main national roads), in particular to ANAS

Investment 2.1: Implementation of a technological monitoring system to remotely control the bridges, viaducts and tunnels of the highways A24 and A25 and perform extraordinary maintenance investments into their resilience and safety

Investment 2.2: Implementation of a technological monitoring system to remotely control the bridges, viaducts and tunnels of the roads infrastructure of ANAS and plan extraordinary maintenance investments

Estimated costs:

Cost of EUR 28,300 million to be covered by RRF

M3C1 - High speed railways and safe roads 4.0

	Risorse (euro/mld)				
	Existing	New	Total	REACT-EU	TOTAL NGEU
	(a)	(b)	(c) = (a)+(b)	(d)	(e) = (c) + (d)
Railways works for the mobility and the fast connection in the country	11.20	15.50	26.70	-	26.70
- High-speed railway for passengers and freight, to increase the frequency and the capacity of existing railway connections	8.66	6.13	14.79	-	14.79
- European Rail Transport Management Systems (ERTMS) programs	0.27	2.7	2.97	-	2.97
- Strengthening metropolitan nodes, diagonal connections and key national links - Infrastructural and technological development and upgrading.	2.27	0.7	2.97	-	2.97
- Renewal rolling stock and freight transport infrastructures	-	0.2	0.2	-	0.2
- Strengthening regional lines - Integration of High Speed railways with regional transport (interconnected railways), including some urban connections	-	2.67	2.67	-	2.67
- Upgrading, electrification and resilience of railways in the South	-	2.4	2.4	-	2.4
- Upgrading railway stations in the South	-	0.7	0.7	-	0.7
Improve the safety and climate/seismic resilience of bridges, viaducts and tunnels	-	1.60	1.60	-	1.60
- Implementation of a technological monitoring system to remotely control bridges, viaducts and tunnels of the highways A24 and A25 and perform extraordinary maintenance investments into their resilience and safety	-	1.15	1.15	-	1.15
- Implementation of a technological monitoring system to remotely control bridges, viaducts and tunnels of the roads infrastructure of ANAS and plan extraordinary maintenance investments	-	0.45	0.45	-	0.45
TOTAL	11.20	17.10	28.30	-	28.30

2. Main challenges and objectives

a) Main challenges

Current passenger traffic in Italy is heavily skewed towards roads

- At present passenger traffic in Italy is 90% on roads (860 billion passenger kilometres per year), while the railway represents only 6% of passengers (vs. 7.9% in Europe). The national transport sector is hence responsible for significant GHG emissions, with fossil fuels still representing the main source of energy.
- Most railway lines (72%) are electrified, while some diesel lines remain mainly at the regional level.

Freight volumes by road are concentrated in the North and at cross border links

- Freight volumes travel 51% on roads (1.05 billion tons in 2019) and 13% by rail (vs. 18.7% in Europe). Most of the freight volume (65%) is concentrated in Northern Italy (20% in Lombardy). As a result, in the North the traffic of heavy vehicles exceeds 30% of total vehicles in circulation, creating congestion and security problems.
- Road transport is especially relevant for Italy-EU imports (80% share) and exports (90% share), passing through the following key border links: Italy-France with 92% of freight volume on roads; Italy-Switzerland with 30% of freight on roads; Italy-Austria with 72% of freight on roads; and Italy-Slovenia with 94% of freight on roads.
- The total freight traffic crossing the Alps represents 223 million tons, whereby the situation of congestion is particularly critical along the Brenner cross border link, which handles 25% of the Italian trade through the Alps.
- In order to increase freight volumes by rail, an increase in the capacity of the network and nodes is necessary. Also the connectivity of railways to ports and airports needs to be increase. In the long run (by 2050) Italy aims to raise the share of freight traffic by rail up to 50% (for trips exceeding 300 km).

Limited railway connectivity to and within the South and in the Centre

- The high-speed network of Italy runs primarily from North to the South (along the Scandinavian-Mediterranean corridor), until Naples/Salerno.
- The population living south of Salerno is hence disconnected from the high-speed network. Overall in the South the capacity, reliability and frequency of the railway services is limited, resulting in long travel times.
- Also in the Centre of the country, West-East rail connections (e.g. from Rome to Pescara and from Orte to Falconara) are in need of upgrading, and the population living in the internal areas does not have access to a modern rail network.

Limited climate-resilience and poor status of maintenance of bridges, viaducts and tunnels along the road network

- There is insufficient knowledge of the status of the bridges, viaducts and tunnels along the national road network (of ANAS and/or of highway Concessionaires). In addition, the property and responsibility for the maintenance of the bridges and viaducts is not clearly allocated. An in-depth analysis and evaluation, the transfer of the responsibility for all bridges and viaducts to highway operators, and the setting up of maintenance guidelines and a maintenance plan are hence necessary to ensure the resilience of the infrastructure versus climate and seismic risks.
- The situation is particularly critical along the A24 and A25 highways (from Rome to Ancona and to Pescara), which include numerous bridges, viaducts and tunnels that are in danger, since they are located in a seismic area. These highways are

operated by a private concessionaire, but are amongst the most expensive ones in Italy. The required extraordinary maintenance works could hence not be financed through an increase of highway tariffs. Public financing is proposed given the public good nature of the proposed investments in security.

b) Objectives

The objectives of the component are:

- (i) the decarbonization and reduction of emissions through the passage of passengers and freight traffic from road to rail;
- (ii) the increased territorial connectivity and cohesion by reducing travel times (an objective of the national strategy is that 80% of the population should be at most 1 hour away from a high-speed connection);
- (iii) the digitalization of transport networks and improved security of bridges, viaducts and tunnels;
- (iv) the increased competitiveness of the productive systems in the South by improving traffic links.

In particular, in order to increase the attractiveness and competitiveness of the railway network, the focus of this component will be on:

- High-speed railway connections to the South for passengers and freight: three high-speed railway lines will be extended towards the South of Italy, i.e. the Naples-Bari (funded so far from ERDF), the Palermo-Catania and some functional lots of the Salerno-Reggio Calabria (the completion of which could be funded from national funds and ERDF). These lines will also increase the capacity to transport freight from the ports of the South.
- High-speed lines in the North connecting to Europe: the freight transport capacity of the Brescia-Verona-Padova line will be increased, in parallel to an increase of freight capacity of the Verona-Brenner link. In addition, the freight transport capacity from Genoa and its port through the Alps will be strengthened.
- Diagonal connections across Italy: investments are foreseen in the following three lines crossing Italy west to east: Orte-Falconara (focused on freight traffic, linked to the ports of Ravenna and Ancona); Rome-Pescara (mainly passenger traffic along the line, including commuters); and Salerno-Battipaglia-Taranto (focused on passenger traffic in internal areas of Basilicata and Puglia regions and on freight traffic from the port of Taranto).
- Introducing the European Rail Transport Management System (ERTMS) to ensure interoperability and security: the focus will be on the TEN-T network, starting with passenger traffic lines and then extending the ERTMS also to freight traffic lines.
- Strengthening metropolitan nodes and key national links: a nationwide investment programme of RFI will be dedicated to improve the capacity, reliability, safety and

service levels at 12 metropolitan nodes and along key railway links.

- Strengthening of regional railway lines: upgrading investments will also concern a series of regional railway lines (both transferred to RFI and/or owned by regional operators), including some “urban connections” used by numerous commuters.
 - Upgrading railway stations in the South of Italy by improving their accessibility.
- In the road sector the focus of the interventions proposed under the Recovery Fund will be exclusively on climate and seismic resilience and on the safety and security levels of critical infrastructures (bridges, viaducts and tunnels).

The investments foreseen in the railway and road sectors are in line with the 2020 and 2019 Country Specific Recommendations (CSR) for Italy. In particular, 2020 CSR mention the need to “front-load mature public investment projects and promote private investment to foster the economic recovery, focusing investments on the green and digital transition, including sustainable public transport”.

Also the 2019 CSR mention that “investment is needed to raise the quality and sustainability of the country’s infrastructure” and that “in the transport sector, Italy has not delivered on its infrastructure investment strategy (Connettere l’Italia)”, with the result that “the EU transport scoreboard shows that the quality of Italy’s infrastructure is below the EU average”.

Twin transition:

By supporting the shift of passengers and freight traffic from road to by rail and reducing road congestion, the component will reduce GHG emissions. In particular, RFI estimates that an increase of the share of passengers using the railway from 6% to 10% could result in annual CO₂ saving of 2.3 million tons by 2030.

In addition, the digitalization of railway services through the ERTMS and of bridges, viaducts and tunnels on the A-24/A25 highways and on the ANAS network will increase the safety levels of these transport modes, allowing to improve the planning of effective maintenance activities and reducing life cycle maintenance costs, while increasing the resilience of the network.

Jobs and Growth:

In an increasingly connected world with raising trade flows, a digitalized, green and efficient transport network is a necessary condition for economic growth. The investments in smarter, quicker and safer connectivity across Italy will hence improve the competitiveness and productivity of the connected territories.

People will spend less time traveling for work, including commuters. Tourist flows will be able to move more quickly across the country, discovering new areas of cultural interest and reducing the pressure on the main tourist centres.

Freight transport services will be more competitive, facilitating imports and exports of

goods, and attracting companies to locate their production sites and/or services close to efficient transport nodes. The increase of rail connectivity to ports in the North, Centre and South of the country will improve the competitiveness and environmental sustainability of the logistic corridors across Italy.

Social resilience:

The investments in national and regional railway networks and nodes in the South of Italy (including the accessibility of railway stations) will reduce the gap in terms of the existing railway infrastructure, reducing travel times and improving social cohesion. The increase of the capacity of key railway nodes in 12 metropolitan areas will have positive spill-over effects on regional trains, making the city centres more accessible and improving the quality of life of commuters. In addition, some investments will be directly targeted at regional/urban lines that are primarily used by commuters.

c) National strategic context

The component is fully aligned with the priorities of the national strategy for mobility, which are outlined in the document “#ItaliaVeloce”. The proposed investments and related reforms focus on the key links of the rail network of national and international interest, known as the Integrated National Transport System of 1st level (SNIT). A priority is given to the TEN-T network.

In the rail sector, the 1st level SNIT covers 8,800 km (around 50% of the national network) and 48 lines. The focus of the component is on the following TEN-T corridors:

- the Mediterranean Corridor crossing Northern Italy from West to East (Lyon-Turin-Milan-Verona-Venice-Trieste).
- the Rhine-Alpine Corridor from Genova to the Alps;
- the Scandinavian-Mediterranean corridor connecting Italy from North to South (Brenner-Trento-Florence-Rome-Naples-Bari-Messina-Palermo).

In terms of cross-border links, the ones included under the RFF are Italy-Switzerland (Genoa-Alps) and Italy-Austria (the Brenner). The Lyon-Turin line has not been included, since its completion is envisaged beyond 2026.

In terms of interoperability to favour the EU Single Market, priority will be given to the roll out the ERTMS along 3,400 km of the railway lines.

In terms of investments in regional railway lines, a distinction has to be made between lines that will be transferred to “Rete Ferroviaria Italiana” (RFI), and those that will remain regional, with regional companies as counterparts. In terms of operations, the services on these lines will be allocated following open, non-discriminatory and competitive procedures, as established by the access rules and monitored by the National Authority for Transport (“Autorità di Regolazione dei Trasporti” - ART).

Overall, railway investments in the South of Italy under the RRF are estimated to amount to around 45-50% of total investments. The decision on the use of additional ERDF funds for the railway sector in the South has to be taken, but will in any case be complementary to the RRF (e.g. to finance other regional railway lines).

In the road sector the focus proposed under the RRF is on the digitalization, safety and climate resilience of bridges, viaducts and tunnels in seismic areas. In particular, priority will be given to the A-24 and 25 highways in central Italy, which are considered to be in a critical status. In addition, a digitalization and maintenance plan will be launched also for bridges and viaducts in critical areas of the ANAS network.

Most of the investments proposed under the RRF are based on the Investment plans of the two key national public companies in the rail and road sectors, respectively “Rete Ferroviaria Italiana” (RFI) and the National Authority for Roads (ANAS). Both companies operate under “Contratti di Programma” with the Italian Ministry of Infrastructure and Transport (MIT), which are renewed at regular intervals. In order to accelerate the start of the investments, it is being considered that all works inserted in the Recovery Plan should be automatically included in the “Contratti di Programma” with RFI and ANAS, without the need for a separate approval process.

3. Description of the reforms and investments of the component

1) High speed/capacity railway network.

Reform 1.1: Acceleration of the approval process of the Planning Agreement (*Contratto di Programma*, CdP) between MIT and RFI

Challenges: The current long approval times of the CdP between MIT and RFI do not allow for adequate scheduling-planning-implementation of the interventions by RFI in set times.

Objectives: This reform provides for the acceleration of the five-year CdP approval procedure between MIT and RFI and subsequent annual updates, with the consequent speeding up of the implementation of the interventions.

Implementation: The MIT will propose a legislative amendment by 2021. A possible proposal provides that the competent Parliamentary Commissions express an opinion on the strategic guidelines of the CoP, prior to the opinion of the CIPE, and that the Court of Auditors (*Corte dei Conti* carries out, at the request of the Government or the competent Parliamentary Commissions, the concomitant control over the CoP (as recently introduced by the "DL Semplificazioni" 2020).

Target population: RFI and railway users.

Timeline: the legislative change for the acceleration of the approval procedures of the Planning Agreement between MIT and RFI will be presented by the end of 2021.

Reform 1.2: Acceleration of the project authorisation process.

Challenges: The uncertainties concerning the duration of the authorisation processes of projects, as well as the time required for the adaptation of the final project design to the prescriptions made by the various administrations, cause delays and cost increases.

Objectives: The MIT will propose a regulatory change, in order to allow to anticipate the geographic location of the works at the time of the “Progetto di fattibilità Tecnica Economica” (PFTE), instead of waiting for the definitive project design phase. The location will hence be included as a variation of the urban planning instruments, with a constraint linked to expropriation. The additional authorizations, which cannot be acquired on the PFTE, would be obtained in subsequent project design phases, without convening the “Conferenza dei Servizi”, as an exception to Law no. 241/1990.

The following positive effects are expected from the proposed regulatory change:

- all the observations of the various administrations will be collected at the stage of the PFTE, allowing to incorporate them, with savings in terms of time and resources, in the subsequent phases of the project design process;
- the land affected by the works will be reserved from the urban planning point of view, inhibiting building activities by third parties and allowing economic savings for future expropriations;
- the overall time for the authorization process of projects would be reduced from currently 11 months to 6 months.

Implementation: The MIT, in coordination with the Ministry of the Environment (MATTE) and the Ministry of Cultural Goods (MiBACT), will propose a legislative amendment of art. 13 of Law no. 120/2020 (Simplification Decree Law), and of related regulations included in the Code of Contracts, in the Environmental Code and in administrative procedures.

Target population: RFI and rail users.

Timeline: Legislative amendment to expedite permitting process will be proposed by mid 2021.

Investment 1.1: High-speed railway connections to the South for passengers and freight

Challenges: In order to ensure territorial cohesion and equity, there is a need to improve the connection of the inhabitants in the regions of the South to the high-speed railway network.

Objectives: The proposed investments in the High Speed Network (AVR) allow to develop the long-distance railway passenger and freight services in an effective manner, consistent with the structure of the Italian territory and with the connectivity needs of the southern regions. The proposed interventions will be integrated with the regional transport systems, which play a primary role in supporting the demand of local mobility, and also feed the system of High Speed connections at the national level.

In particular, the High-speed network interventions planned in the South will make it possible to reduce journey times and increase capacity, as illustrated below:

Naples-Bari: upon completion of the project the Naples-Bari section will be covered in 2 hours, instead of the current 3 hours 30 minutes; there will be an increase in capacity from 4 to 10 trains/hour on the sections with double tracks, and an adjustment of the performance to allow the transit of freight trains;

Palermo-Catania: upon completion of the entire project there will be a reduction in the journey time of 60 minutes on the Palermo-Catania section, and an increase in capacity from 4 to 10 trains/hour on the sections being doubled;

Salerno-Reggio Calabria: upon completion of the entire project, the journey time will be reduced by 60 minutes on the Rome-Reggio Calabria section, with a recovery of up to 40 minutes on the priority lots of the Salerno-Battipaglia-Paola section; in addition, there will be a performance upgrade to allow the transit of freight trains.

Implementation: the interventions are part of the current RFI Investment Programme in the Contratto di Programma, approved by the MIT. The Naples-Bari intervention proposed for funding by the RRF (a section of 90 km) is under construction, with completion of approximately 32 km foreseen in December 2023. The Palermo-Catania intervention proposed under the RRF (a section of approximately 150 km) is mainly in design phase, while the Bicocca-Catenanuova section (approximately 37 km) is planned for completion by December 2023. The priority lot of the Salerno-Reggio Calabria intervention (approximately 50 km) is in design phase with completion in December 2026.

RFI has demonstrated over the years a strong capacity to implement investments, starting from the planning phase, design, obtaining the necessary permits, launching calls for tenders, selecting and supervising contractors. Furthermore, it is expected that for the works included in the RRF, which still need to start the authorization process, further simplifying procedures will be activated through specific legislative procedures, in order to compress the time required for the authorization procedures foreseen in the planning process (Conferenza dei Servizi - environmental authorizations - cultural heritage superintendence authorizations, etc.).

Target population: users of the indicated railway lines.

Timeline: by 2026.

Investment 1.2: High-speed lines in the North connecting to Europe

Challenges: In order to increase the freight traffic by rail and to ensure the modal shift from road to rail in the cross-border trade, it is necessary to increase the capacity of railway connections in the North of Italy and with the rest of Europe.

Objectives: The proposed High Speed Network (AVR) interventions will allow to strengthen freight transport services by rail, according to an intermodal logic and by establishing connections with the system of existing ports and airports. In particular, the planned High-speed interventions allow the reduction of travel times and the increase of capacity, as indicated below:

Brescia-Verona-Vicenza-Padua: the proposed interventions refer to the Brescia-Verona section (of 47 km) and the Verona-Bivio Vicenza section (of 44 km). Upon completion of the entire project up to Padua, the journey time on the Milan-Venice section will fall by 10 minutes. The main benefits will be an increase in capacity and in the regularity of traffic due to a specialisation of the services (traditional vs. HS), a significant improvement in the regional transport system due to the higher capacity on the historic line, and a better accessibility of the new station at Vicenza Fiera;

Liguria-Alpi: the intervention will allow the transit of freight trains with as length up to 750 meters. Upon completion of the entire project, journey times will be reduced by 60 minutes on the Genoa-Milan section (compared with the current time required of 1h 30 minutes) and on the Genoa-Turin section (compared with the current time required of 1h 35 minutes). In addition, capacity will be increased from 10 to 24 trains/hour on the sections subject to quadrupling close to the node of Milan (Rho-Parabiago and Pavia-Milano-Rogoredo). The proposed intervention will allow the elimination of bottlenecks at the node, due to the separation of long-distance passenger and freight traffic flows from metropolitan-regional flows, and due to the increase in the transport offer and of the frequency of regional and metropolitan trains (from 10 to 12 trains/hour on the Voltri-Brignone link);

Verona-Brennero - adduction works: the section that will be built is the Trento bypass. It is part of the project which includes the quadrupling of the Fortezza-Verona line, the bypass of Bolzano and Rovereto city centers and the rationalization of flows from the north entering the node of Verona. Upon completion of the entire project there will be a significant increase in the capacity of trains in transit at the Brenner connection (target 400 trains/day).

Implementation: The implementing entity is RFI. The Brescia-Verona-Vicenza line is in the implementation phase with completion foreseen in June 2026 for the Brescia-Verona section, and in December 2026 for the Verona-Bivio Vicenza section. The Liguria-Alpi project is under construction for the Genoa Node and Third Giovi Crossing section (of 53

km), with completion foreseen in August 2025, and in December 2026 for the remaining sections. The Verona-Brenner adduction works (of 15 km), related to the Trento bypass, are in design phase with completion expected in December 2026.

Target population: users of the indicated railway lines.

Timeline: by 2026.

Investment 1.3: Diagonal connections

Challenges: In the center-south of the country there is the need to improve the connectivity to the High speed railway network through diagonal lines.

Objectives: the objective of the proposed interventions is to reduce the time required to travel by rail and to transport freight from the Adriatic and Ionian seas to the Tyrrhenian Sea, through an improvement of the speed, frequency and capacity of existing diagonal railway lines. In particular, the envisaged upgrading interventions are expected to allow a reduction in travel times and increases in capacity that can be summarized as follows:

Rome-Pescara: upon completion of the entire project there will be a time saving of 80 minutes on the Rome-Pescara stretch and an increase in capacity from 4 to 10 trains/hour on the doubled stretches (with the possibility to set up metropolitan services between Chieti and Pescara); in addition, the performance of the line will be adjusted to allow for the development of freight traffic;

Strengthening Orte-Falconara: upon completion of the entire project there will be a reduction in travel times of 15 minutes on the Rome-Ancona section and of 10 minutes on the Rome-Perugia section, an increase in capacity from 4 to 10 trains/hour on the sections subject to doubling of the tracks, and a performance adjustment to allow the transit of freight trains;

Taranto-Metaponto-Potenza-Battipaglia: upon completion of the entire project, journey times will be reduced by 30 minutes on the Naples-Taranto section (via Battipaglia) compared with the current time required of 4 hours, capacity will be increased from 4 to 10 trains per hour on the sections being upgraded, and the railway line will be adjusted to allow the passage of freight trains.

Implementation: The implementing entity is RFI. The selected interventions are in project design phase, with expected completion by end 2026: Rome-Pescara (about 32 km), the Orte-Falconara upgrading (about x km), and the priority lot of the Potenza-Metaponto section (around 35 km) of the Taranto-Metaponto-Potenza-Battipaglia line.

Target population: users of the indicated railway lines.

Timeline: by 2026.

Investment 1.4: Introducing the European Rail Transport Management System (ERTMS)

Challenges: At present the coverage of the ERTMS, which allows interoperability between European railway networks and an improvement of the performance of the railway systems in terms of safety, capacity and maintenance, is limited to a few railway sections.

Objectives:

- Upgrade of the existing safety and signalling systems to the European ERTMS standard;
- Guarantee of full interoperability with European railway networks;
- Increase and optimization of network capacity and performance;
- Higher efficiency of maintenance operations;
- Improvement of safety standards.

Implementation: RFI will proceed with the roll-out of ERTMS mainly in stand-alone mode, starting with the passenger transport sections, in order to allow freight operators time to adapt to the new standard. In particular, from 2022 to 2026 the ERTMS coverage is expected to be extended over 3,400 km of the RFI network. RFI has defined an accelerated plan for the extension of ERTMS, which envisages equipping the core trans-European railway network by 2030, anticipating the time objectives set by EU Regulation no. 1315/2013.

Target population: users of lines with ERTMS and related traffic catchment areas.

Timeline: by 2026.

Investment 1.5: Strengthening metropolitan nodes and key national links.

Challenges: Besides developing new railway sections (see investments 1.1-1.3 above), RFI also carries out a nationwide investment programme to upgrade its key railway nodes and national links. The railway nodes at 12 metropolitan cities require an increase of capacity to handle the connections between the national and the regional networks. In addition, existing key national railway links are also in need of upgrading, since they exhibit bottlenecks and low performance, due to reduced capacity and the interference between passenger and freight traffic.

Objectives: RFI envisages an investment programme regarding nodes and key links on the national territory with the following objectives:

- infrastructural development (doubling/quadrupling) and technological enhancement of key links of national interest, of connecting lines to the main freight terminals and of last mile connections to ports;

- adaptation of performance levels (module, gauge, axle weight) to allow the transit of higher freight volumes on the TEN-T corridors, on freight lines, and on the connecting lines with the main ports and intermodal terminals;
- mitigation of bottlenecks for the development of passenger and freight traffic, including punctual interventions to manage interferences between passenger and freight traffic flows;
- increases in capacity and reduction in journey times through the elimination of critical points;
- increases in the capacity of lines close to saturation;
- increase in the capacity of the suburban access lines to the nodes being doubled;
- renovation of stations.

As outlined in the national strategy in the document "Italia Veloce", the interventions on the nodes can be distinguished as follows:

- aim to enhance "metropolitan" or "suburban" connections, in order to guarantee capillary services with high frequencies, thereby supporting the demand for mobility expressed by large metropolitan cities (and also by medium-sized urban areas);
- focus on "fast regional" connections, capable to guarantee medium-range travel services, supporting the demand for mobility expressed by large diffuse urban areas, with competitive speed and comfort levels compared to the use of private cars;
- improve the accessibility and interchange between railway stations and other mobility systems.

The interventions foreseen on key national links concern the following geographic areas:

Liguria-Alps link (strengthening of connections with the swiss border passes, speeding up of the line Turin/Milan-Genoa, infrastructural and technological upgrading of the lines Genoa-Ventimiglia and Genoa-La Spezia);

Transversal link (infrastructural and technological upgrading of the line Turin-Venice);
Bologna-Venice-Trieste/Udine link (connections to the eastern border crossings);

Central and North Tyrrhenian link (infrastructural and technological upgrading of the Central Dorsale HS line and of access lines to the Tyrrhenian ports);

Adriatic-Ionian link (doubling of Termoli-Lesina line, upgrading and speeding up of Bologna-Lecce, infrastructural and technological upgrading Adriatic link);

Southern Tyrrhenian link (technological upgrading of the node of Naples);

Sicilian network: upgrading of Caltagirone-Gela line and electrification of Palermo-Trapani line;

Sardinian network (infrastructural and technological upgrading of Cagliari-Sassari/Olbia lines).

Implementation: The investment programme of RFI includes numerous works all over the country. RFI will closely follow the implementation of this national programme, including the phases of project design, works award and works supervision.

Target population: mainly users in the 12 metropolitan cities and users throughout the country affected by the upgrading of key links.

Timeline: by 2026.

Investment 1.6: Strengthening of regional lines.

Challenges: There is a need to upgrade regional railway infrastructures in various areas of the country. Regional railway lines can be distinguished as follows: interconnected lines with the national network (as described in Annex 1 of Ministerial Decree dated 5 August 2016) and non-interconnected lines. The fragmented management of the regional rail networks has caused connection problems with the main national network. The separate management of the national and regional lines has led to the adoption of different technological and operating systems; this has created overall safety problems of the railway network and a potential risk of accidents.

Objectives: The interventions foreseen on the regional lines have the following objectives:

To strengthen the interconnected regional railway lines, in order to reach the safety levels set by the National Agency for Railway Safety (ANSF);

To upgrade the non-interconnected regional rail transport system, which plays a primary role in supporting the demand for local and metropolitan mobility;

To support the connection of regional lines with the national high speed network.

As concerns the **interconnected regional lines**, which are expected to be transferred and managed by RFI, interventions are planned in the following regions:

Piedmont: upgrading and modernisation of the Torino Ceresse-Canavesana: improving the regularity of traffic flows;

Friuli Venezia Giulia: FUC railway: infrastructural and technological works on the Udine-Cividale line: improvement of the regularity of traffic flows;

Umbria:

- (i) Umbrian Central Railway (FCU): track renewal and replacement of the switches on the Perugia-Terni and Sansepolcro-Città Castello lines; improvement of safety standards for railway operations;
- (ii) FCU: Implementation of the ERTMS: improvement of traffic performance, optimisation of capacity and performance, improvement of safety standards; Campania

(EAV): Strengthening and modernisation of the Cancellone-Benevento line: improvement of safety standards for railway operations;

Puglia:

- (i) Bari-Bitritto line: infrastructural upgrading: compliance with technical/regulatory standards of the National Railway Infrastructure;
- (ii) Ferrovie del Sud Est (FSE): infrastructural upgrading of the Bari-Taranto line: the intervention will allow the adaptation to the performance standards of RFI and to the technical specifications of interoperability;
- (iii) FSE: Completion of SCMT/ERTMS equipment on the network: improvement of traffic performance, optimisation of capacity, improvement of safety standards;
- (iv) FSE: Realisation of intermodal Hubs and upgrading of 20 stations: the intervention aims at improving the accessibility of the stations and creating areas for exchanges rail-bus, rail-private car and rail-bike;

Calabria: Rosarno-S. Ferdinando line: upgrading of the equipment of the Rosarno and San Ferdinando lines for connection to Gioia Tauro.

As concerns the **non-interconnected regional railway lines**, some of which are connected to metropolitan lines, the following interventions are foreseen:

Lombardy: renewal of the rolling stock for the regional network;

Lazio: renewal of the rolling stock for the Roma Lido and Roma Viterbo lines;

Abruzzo: upgrading of safety standards for the Archi-Castel di Sangro section and renewal of the rolling stock on the regional network;

Campania: renewal of trains (underground lines, Linee Vesuviane, Linee Flegree, suburban line Naples-Piedimonte Matese) and technological development (Linee Vesuviane, Linee Flegree, EAV network);

Basilicata: upgrading of safety standards, renewal of equipment on several sections of the Appulo-Lucane railway lines;

Puglia: upgrading and modernisation works of the Ferrovie del Gargano and Ferrovie Appulo-Lucane;

Calabria: works to upgrade and modernise the regional railway lines of Cosenza-Catanzaro and Cosenza-San Giovanni in Fiore;

Sicily: upgrading of safety standards and renewal of the rolling stock on the Circumetnea line.

Implementation: In order to ensure the safety of the interconnected regional railway lines, regulatory provisions have identified RFI as the entity responsible for managing these lines and carrying out the technological interventions required to adapt these regional lines to the technological and safety standards of the national railway network.

So far, the FCU (Umbria) and the FSE Ferrovie del Sud Est (Puglia) have been transferred to RFI, while the other interconnected regional lines are still in the process of being

transferred from the Regions to RFI.

Pending the formal transfer of the above-mentioned interconnected lines to RFI, the interventions will be carried out through specific agreements between RFI, the Regions and the current infrastructure managers, with the exception of the interventions related to the Bari-Bitritto and Rosarno-San Ferdinando lines, which will be included in the MIT-RFI *Contratto di Programma*.

The upgrading of the non-interconnected regional lines and metropolitan lines will instead be the responsibility of the respective owners (Regions and/or Municipalities).

Target population: users of the lines indicated and their associated traffic areas.

Timeline: 2026

Investment 1.7: Upgrading, electrification and resilience of railways in the South.

Challenges: Several railway lines in the South of Italy are in need of upgrading and electrification, and present bottlenecks in their connection to the rest of the railway network and at key traffic nodes.

Objectives: Specific investments are foreseen to upgrade the railway network in various critical points in the South of Italy, to increase the competitiveness and connectivity of the intermodal logistic system (railways-airports-ports) and the connections with the major cities. In particular, investments are planned on the following lines:

- Molise region: Rome-Venafro-Campobasso-Termoli;
- Apulia region:
 - Upgrading of Bari – Lamasinata;
 - electrification Barletta – Canosa;
 - Pescara-Foggia.
- Calabria region: Upgrading Ionian Sibari-Catanzaro Lido-Reggio Calabria/Lamezia Terme
- Sicily:
 - Node of Catania
 - Ring road of Palermo
 - Upgrading Palermo - Agrigento - Porto Empedocle
 - Intermodality and accessibility to Trapani Birgi airport
 - Link to the port of Augusta
- Sardinia:
 - Olbia airport railway link
 - Track-doubling Decimomannu-Villamassargia

Implementation: RFI will implement the above investment plan, following the vari-

ous phases of project design, getting authorizations, tendering the works, awarding and supervising the works.

Target population: users of the upgraded railway lines.

Timeline: by 2026.

Investment 1.8: Upgrading railway stations in the South

Challenges: Numerous railway stations in the South present problems in terms of accessibility and integration with the territory. Investments are needed to upgrade the stations, improve the functionality of their buildings, the quality of the services provided to users and the energy efficiency levels.

Objectives: The proposed investment programme includes the following types of interventions:

Urban hubs and metropolitan lines (15 stations): interventions aim at the development, upgrading, accessibility and energy efficiency of individual stations and railway nodes, which act as mobility hubs (Messina, Villa S. Giovanni, Taranto, Salerno, Benevento, etc.) or metropolitan lines (e.g. the stations of the L2 metro line in Naples, etc.), which need to be upgraded/renovated in order to guarantee their centrality as a transport hub and service centres;

Enhancing the accessibility, attractiveness and energy efficiency of medium-large sized stations with high traffic volumes (30 stations): interventions related to stations of strategic importance from a transport and/or touristic point of view, described as Easy&Smart circuit stations (including Chieti (Abruzzo), Potenza Centrale and Potenza Superiore (Basilicata), Lamezia Terme, Cosenza, Sibari and Catanzaro Lido (Calabria), Sapri, Scafati, Nocera Superiore, Torre del Greco and Sarno (Campania), Termoli (Molise); Foggia, Polignano a Mare, San Severo and Barletta (Puglia), Macomer and Oristano (Sardinia), Palermo Notarbartolo, Acireale and Marsala (Sicily));

Functional requalification, improvement of accessibility and intermodality, and energy efficiency of small-medium sized stations (10 stations): all the interventions aim at improving the accessibility and attractiveness of the stations, as well as its energy efficiency and environmental sustainability.

Implementation: RFI will implement the above investment plan.

Target population: the users of the upgraded stations.

Timeline: by 2026.

Investment 1.9: Renewal of rolling stock.

Challenges: A part of the fleet of the rolling stock dedicated to freight transport is composed of old and polluting vehicles, which need to be substituted.

Objectives: The project foresees the renewal of obsolete freight wagons and locomotives, or their modernisation through revamping and retrofitting.

Implementation: The procedures to provide incentives for the replacement of the wagon fleet will be defined by the competent General Directorate for Railway transport of the Ministry of Infrastructure and Transport (MIT) and by the Rete Autostrade Mediterranee (RAM S.p.A. , an in-house company of the State, fully owned by the Ministry of Economy and Finance). For the renewal of a wagon, a contribution will be provided on the value of the new vehicle in exchange for the scrapping of an old vehicle, requiring proof of the freight traffic conducted with the old wagon. As part of the modernisation process, support will also be provided for the revamping and retrofitting of the existing rolling stock, introducing innovative and/or improved components.

Target population: rail freight operators.

Timeline: by 2026.

2) Safe roads.

Reform 2.1 Fulfilment of the recent D.L. Semplificazioni (Law Decree no. 76 of 16 July 2020, converted into Law no. 120 of 11 September 2020) concerning the adoption of the "Guidelines for the classification and management of risk, safety assessment and monitoring of existing bridges". **Reform 2.2:** Transfer the ownership of the works of art (bridges, viaducts) related to lower type roads to the owners of higher type roads (motorways and main suburban roads), in particular from the Municipalities, Provinces and Regions to the State.

Challenges: in the absence of a binding standard for bridge safety assessments and classification, each operator applies non-homogeneous and non-standard criteria to classify the risk level of the bridges. A further issue is the unclear ownership of some overpasses of road infrastructures.

Objectives: The reform foresees:

- the adoption of "Guidelines", which will allow the application of common standards and methodologies on the entire national road network;
- the transfer of the ownership of the bridges, viaducts and overpasses from the lower type roads to the higher type roads (motorways and main suburban roads): this will allow an increase in the overall safety of the road network, as the bridges,

viaducts and overpasses will be maintained by ANAS and/or the motorway concessionaires, who have better planning and maintenance capacities than the individual municipalities or provinces.

Implementation: the transfer of the ownership of the works of art will have to take place within six months of the entry into force of Law 120/20. It is expected to be completed in 2021, with a special "handover report" according to the rules of the Codice della Strada (Legislative Decree 285/1992) and its Regulations (Presidential Decree 495/92), which dictate provisions on the transfer of ownership between road-owning entities.

Target population: entire national territory.

Timeline: the transfer of ownership of bridges and overpasses from lower type roads to higher type roads will take place by 2021.

Investment 2.1: Provision of a technological monitoring system for remote control and investments into major safety interventions on main structures (bridges, viaducts and tunnels) on the A24-A25 motorways.

Challenges: The A24 and A25 highways are key road connections crossing the center of Italy from Rome to Pescara. The bridges, viaducts and tunnels on the A24 and A25 motorways present significant static criticalities - due not only to the seismicity of the area, but also due to their age and consequent deterioration - which require investments for adaptation and safety.

Objectives: Preparation and implementation of a dynamic monitoring system for remote controls on the structures (bridges, viaducts, overpasses and tunnels) of the A24-A25 highways, necessary to plan the interventions in a cost effective way and to improve the levels of maintenance; Implementation of an extraordinary plan for checking and putting into security the structures on the A24-A25 motorways: initially a survey of the state of maintenance of the structures will be conducted, and subsequently the required investments into safety measures will be implemented.

Implementation: The interventions will followed by the MIT. The motorway concessionaire of the "Strada dei Parchi" will have no gain from these interventions, which are required for safety, but will not be included in the economic and financial plan of the concession.

Target population: road users.

Timeline: - in-depth surveys on 50% of the viaducts by 2022; - first tendering of safety works by 2022; - completion of works by 2026.

Investment 2.2: Setting up of a technological monitoring system on the ANAS network for remote control of engineering works (bridges, viaducts, overpasses and tunnels) and implementation of interventions at the most critical points

Challenges: At present there is insufficient information, data and knowledge about the state of maintenance of bridges, viaducts, overpasses and tunnels on the road network. This prevents cost-effective planning of the maintenance works required to ensure safe connections between the country's main economic centres.

Objectives: The project envisages the application of an integrated census, classification and risk management system to 11,000 bridges and 1,600 tunnels of the ANAS national network. On this basis, the structures in the most critical conditions will be selected, on which technological monitoring will be applied and for which repair, safety or replacement works will be designed. A number of pilot projects will be developed, characterised by the use of innovative intervention techniques and materials.

The main goals of the proposed intervention are:

- the preparation and implementation of a dynamic monitoring system with remote controls, necessary to improve the planning of maintenance interventions and to identify the most vulnerable points, considering seismic and landslide risks and the useful life;
- the management of the safety of the road infrastructure in a structural way and through an iterative process (analysis of the network, inspections, management of the digitalised system, classification of priorities, implementation of the interventions), resulting in a better knowledge of the status of network with a consequent improvement in its safety.

Implementation: The interventions will be included in the Contract of ANAS with the MIT (*Contratto di Programma*), and will then be implemented by ANAS. The activities related to the census, data acquisition and data processing activities will feed into the national archive of public works (AINOP), set up at the MIT and that includes data from various administrations concerning the execution of public works. The survey campaigns will provide useful data and experiences, also for the monitoring and maintenance of bridges/viaducts/overpasses/gates of other road infrastructures.

Target population: road users throughout the country.

Timeline:

- Definition of the sample of bridges, viaducts, overpasses and tunnels to be monitored
- by the end of 2021
- Definition of the integrated digital platform for risk management and completion of the risk classification - by the end of 2023;
- Assessments of the most critical elements, installation of the technological monitor-

- ing systems, planning of the priority restoration/improvement/replacement/safety measures - by the end of 2024;
- Start-up of the integrated technological platform made available to the operators, implementation of some priority restoration/improvement/safety measures - by 2026.

4. Green and digital dimensions of the component

a) Green Transition:

The EU Regulation 2020/408 establishes, as a binding target, that at least 37% of the total budget of the PNRR must be allocated to the green transition.

This Action contributes significantly to the green transition, about 75% (see Table 1), by promoting a more efficient and sustainable use of transport and in particular of the railway mode.

In particular, investments 1.1, 1.2, 1.3 relating to the *High-speed railway network* and the intervention 1.5 *Strengthening metropolitan nodes and key national links* have a Green (climate) impact of 100%, while the remaining railway investments have a Green impact (climate) equal to 40%.

On the other hand, investments in the road sector have a green (climate) impact of 0%. With reference to the climate and environmental objectives defined in the EU Regulation 2020/852 (*Taxonomy Regulation*), this Action provides an important contribution to the prevention and reduction of pollution (in particular of atmospheric pollution, thanks to the important transfer of road traffic, both passengers and freight, to rail) and consequently on the mitigation of climate change.

b) Digital Transition:

The EU Regulation 2020/408 establishes, as a binding target, that at least 20% of the total PNRR allocation must be allocated to the digital transition. This Action contributes to the achievement of the aforementioned target, presenting a Digital impact of 16%.

In particular in the **railway sector**, only the investment 1.4 *Introducing the European Rail Transport Management System* (ERTMS) has a digital impact equal to 100%.

In the **road sector**, investment 2.1 *Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (A24-A25)* and investment 2.2 *Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (ANAS network)* both have a digital impact of 100%.

Table 1. Green and digital impact							
MISSIONE 3: "Sustainable mobility infrastructures" COMPONENT 1 - High speed/capacity railway network and safe road	Green objectives				Digital objectives	Transition challenges	
	Climate	Environmental	Intervention field	DNSH		Green	Digital
	Tag	Tag					
Investment 1.1: High-speed railway connections to the South for passengers and freight							
<i>High-speed railway network (Napoli - Bari)</i>	100%	40%	064	yes	0%		
<i>High-speed railway network (Palermo-Catania)</i>	100%	40%	064	yes	0%		
<i>High-speed railway network (Salerno-Reggio Calabria)</i>	100%	40%	064	yes	0%		
Investment 1.2: High-speed lines in the North connecting to Europe							
<i>High-speed railway network (Brescia-Verona-Padova)</i>	100%	40%	064	yes	0%		
<i>High-speed railway network (Liguria-Alpi)</i>	100%	40%	064	yes	0%		
<i>High-speed railway network (Verona-Brennero - opere di adduzione)</i>	100%	40%	065	yes	0%		
Investment 1.3: Diagonal connections							
<i>High-speed railway network (Roma-Pescara)</i>	100%	40%	068	yes	0%		
<i>High-speed railway network (Orte-Falconara)</i>	100%	40%	068	yes	0%		
<i>High-speed railway network (Taranto-Metaponto-Potenza-Battipaglia)</i>	100%	40%	068	yes	0%		
Investment 1.4: Introducing the European Rail Transport Management System (ERTMS)	40%	40%	071	yes	100%		
Investment 1.5: Strengthening metropolitan nodes and key national links							
<i>Technological development and infrastructural upgrading of key nodes</i>	100%	40%	068	yes	0%		
<i>Technological development and infrastructural upgrading of key links</i>	100%	40%	068	yes	0%		
Investment 1.6: Strengthening regional lines	40%	40%	069	yes	0%		
Investment 1.7: Upgrading, electrification and resilience of railways South	40%	40%	069	yes	0%		
Investment 1.8: Upgrading railway stations in the South	40%	40%	069	yes	0%		
Investment 1.9: Renewal rolling stock	40%	40%	072	yes	0%		
Investment 2.1: Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (A24-A25)	0%	0%	063	yes	100%		
Investment 2.2: Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (ANAS network)	0%	0%	063	yes	100%		

5. Milestones, targets and timeline

Related reform or investment			Milestone or target name & number	Qualitative indicators (for milestones)	Quantitative indicators (for target)			Timeline for completion (indicate the quarter and the year)	Data source /Methodology	Responsibility for reporting and implementation	Description and clear definition of each milestone and target	Assumptions/ risks	Verification mechanism
					Unit of measure	Baseline	Goal						
Component 1 - High speed/capacity railway network and safe road													
Investment 1.1: High-speed railway connections to the South for passengers and freight	High-speed railway network (Napoli - Bari)	High-speed railway network (Palermo-Catania)	high speed/high capacity network km built		Km	0	69.5	4 Q 2023	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	Conclusion of the process of award of works contracts (permissions, tenders, contracts) and implementation of 70 km of AV/AC network before 4 Q 2023. Additional 217 Km of AV/AC network is introduced before 4 Q 2026.		
						0	#####	4 Q 2026					
						0	0.0	4 Q 2023					
Investment 1.2: High-speed lines in the North connecting to Europe	High-speed railway network (Brescia-Verona-Vicenza)	High-speed railway network (Liguria-Alpi)	high speed/high capacity network km built		Km	0	0.0	4 Q 2023	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	Conclusion of the process of award of works contracts (permissions, tenders, contracts) and implementation of 180 km of AV/AC network before 4 Q 2026.	Effectiveness in the compliance with implementation timing / environmental permit release timing	Quarterly monitoring by the Ministry of Infrastructures and Transport
						0	#####	4 Q 2026					
						0	0	4 Q 2023					
Investment 1.3: Diagonal connections	High-speed railway network (Roma-Pescara)	High-speed railway network (Orte-Falconara)	high speed/high capacity network km built		Km	0	0	4 Q 2023	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	Conclusion of the process of award of works contracts (permissions, tenders, contracts) and implementation of 67 km of AV/AC network before 4 Q 2026. NOTA: non disponibile KPI realizzazione (Orte-Falconara)		
						0	66.9	4 Q 2026					
						0	0	4 Q 2023					
Investment 1.4: Introducing the European Rail Transport Management System (ERTMS)			Km of network on which ERTMS is introduced		Km	0	800	4 Q 2023	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	800 Km of network on which ERTMS is introduced before 4 Q 2023	Effectiveness in the compliance with implementation timing / foreign operators do not ensure the same level of upgrading in the train technological system	Quarterly monitoring by the Ministry of Infrastructures and Transport
						0	3,400	4 Q 2026			Additional 2.600 Km of network on which ERTMS is introduced before 4 Q 2026		
Investment 1.5: Strengthening metropolitan nodes and key national links	Technological development and infrastructural upgrading of key nodes	Progressive upgrading of nodes in the 12 metropolitan cities	<i>reduction of bottlenecks for the development of passenger and freight traffic / technological upgrading of congested sections / construction and upgrading of stations</i>	Km	0	100	4 Q 2023	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	100 Km of network upgraded before 4 Q 2023	Effectiveness in the compliance with implementation timing / environmental permit release timing	Quarterly monitoring by the Ministry of Infrastructures and Transport	
	Technological development and infrastructural upgrading of key links	Progressive upgrading of railway lines	<i>performance adjustment / speed up lines and plants/ Doubling - quadrupling of congested lines</i>	Km	0	500	4 Q 2026			Additional 400 Km of network upgraded before 4 Q 2026			
						0	800	4 Q 2023	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	800 Km of network upgraded before 4 Q 2023	Effectiveness in the compliance with implementation timing / environmental permit release timing	Quarterly monitoring by the Ministry of Infrastructures and Transport
						0	2,000	4 Q 2026			Additional 1.200 Km of network upgraded before 4 Q 2026		
Investment 1.6: Strengthening regional lines		Upgrading of regional railways (management RFI)		Km	0	771	4 Q 2026	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport	Additional 771 Km of regional railways will be upgraded by RFI before 4 Q 2026	Effectiveness in the compliance with implementation timing / environmental permit release timing	Quarterly monitoring by the Ministry of Infrastructures and Transport	
		Upgrading of regional railways (management Regions, Municipalities, ...)		Km	n.a	n.a	4 Q 2026	Regions, Municipalities, ...	Ministry of Infrastructures and Transport		Effectiveness in compliance with the implementation times / implementation times of projects by the Regions and Municipalities	Quarterly monitoring by the Ministry of Infrastructures and Transport	
Investment 1.7: Upgrading, electrification and resilience of railways South		Progressive upgrading of railway lines South		Km	0	YYY	4 Q 2026	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport			Quarterly monitoring by the Ministry of Infrastructures and Transport	
Investment 1.8: Upgrading railway stations in the South		Progressive upgrading railway stations in the South		n°	0	55	4 Q 2026	Rete Ferroviaria Italiana	Ministry of Infrastructures and Transport			Quarterly monitoring by the Ministry of Infrastructures and Transport	
Investment 1.9: Renewal rolling stock		Nr. of polluting vehicles substituted (rail)		n°	0	XXX	4 Q 2026	Ferrovie dello Stato	Ministry of Infrastructures and Transport			Semestral monitoring by the Ministry of Infrastructures and Transport	
Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (A24-A25)		Number of controlled viaducts, bridges and tunnels		n° viaducts	0	75	4 Q 2022	Highway Concessionaires	Ministry of Infrastructures and Transport	dynamic monitoring system in 75 viaducts before 4 Q 2022	In depth analysis of the needs / administrative permits release timing	Quarterly monitoring by the Ministry of Infrastructures and Transport	
	151					4 Q 2026							
	n° tunnels					0	28						4 Q 2026
						0	28	4 Q 2026			dynamic monitoring system in 28 tunnels before 4 Q 2026; maintenance work on the most critical tunnels		
Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (ANAS network)		Number of controlled viaducts, bridges and tunnels		n° viaducts	0	#####	4 Q 2026	ANAS - Highway Concessionaires	Ministry of Infrastructures and Transport	dynamic monitoring system in 12.000 viaducts before 4 Q 2026	In depth analysis of the needs / administrative permits release timing	Quarterly monitoring by the Ministry of Infrastructures and Transport	

6. Financing and costs

Component		Investment/Reform	Relevant time period	Total estimated costs for which funding from the RRF is requested (mn EUR)	If available: Total estimated cost by year (mn EUR)								Funding from other sources				COFOG level 2 category / or type of revenue
					2020	2021	2022	2023	2024	2025	2026	from other EU programmes		from the national budget	Other sources		
													mm.bn nat. currency			specify the EU programmes and breakdown by programme if relevant	
High speed/capacity railway network	Investment 1.1: High-speed railway connections to the South for passengers and freight	High-speed railway network (Napoli - Bari)	2020-2026	1,400	27	76	168	262	247	269	351	-	-	-	-	04.5.3	
		High-speed railway network (Palermo-Catania)	2020-2026	1,440	18	22	110	162	200	266	662	-	-	-	-	04.5.3	
		High-speed railway network (Salerno-Reggio Calabria)	2020-2026	1,800	-	20	146	399	365	304	566	-	-	-	-	04.5.3	
	Investment 1.2: High-speed lines in the North connecting to Europe	High-speed railway network (Brescia-Verona-Vicenza)	2020-2026	3,670	152	341	710	916	900	396	255	-	-	-	-	04.5.3	
		High-speed railway network (Liguria-Alpi)	2020-2026	3,970	398	532	724	786	836	559	135	-	-	-	-	04.5.3	
		High-speed railway network (Verona-Brennero - opere di adduzione)	2020-2026	930	-	8	20	126	174	280	322	-	-	-	-	04.5.3	
	Investment 1.3: Diagonal connections	High-speed railway network (Roma-Pescara)	2020-2026	620	-	2	16	57	125	186	234	-	-	-	-	04.5.3	
		High-speed railway network (Orte-Falconara)	2020-2026	510	-	1	27	61	94	128	199	-	-	-	-	04.5.3	
		High-speed railway network (Taranto-Metaponto-Potenza-Battipaglia)	2020-2026	450	2	6	9	57	84	116	176	-	-	-	-	04.5.3	
	Investment 1.4: Introducing the European Rail Transport Management System (ERTMS)		2020-2026	2,970	-	78	271	425	563	705	928	-	-	-	-	04.5.3	
	Investment 1.5: Strengthening metropolitan nodes and key national links	Technological development and infrastructural upgrading of key nodes	2020-2026	2,970	48	145	224	350	436	500	467	-	-	-	-	04.5.3	
		Technological development and infrastructural upgrading of key links	2020-2026		48	98	112	125	132	134	151	-	-	-	-	04.5.3	
	Investment 1.6: Strengthening regional lines		2020-2026	2,670	n.a.								-	-	-	-	04.5.3
	Investment 1.7: Upgrading, electrification and resilience of railways South		2020-2026	2,400	n.a.								-	-	-	-	04.5.3
	Investment 1.8: Upgrading railway stations in the South		2020-2026	700	n.a.								-	-	-	-	04.5.3
Investment 1.9: Renewal rolling stock		2020-2026	200	-	40	40	40	40	40	40	-	-	-	-	04.5.3		
Safe road	Investment 2.1: Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (A24-A25)	2020-2026	1,150	n.a.								-	-	1,990	State source	04.5.1	
	Investment 2.2: Implementation of a dynamic monitoring system to control remotely the bridges, viaducts and tunnels (ANAS network)	2020-2026	450	-	25	50	100	100	150	75	-	-	-	-	04.5.1		

2 M3C2 - Intermodality and integrated logistics

Summary box

Policy area: Ports and Airports

Objectives: The objectives of this component are to: (i) strengthen the competitiveness of the Italian port system through an integrated development of intermodal infrastructures and last mile connections; (ii) ensure the environmental sustainability and energy efficiency of ports; (iii) digitalize the logistic supply chain and air traffic management systems; (iv) reduce emissions linked to the movement of goods.

Investments focused on improving seaside and digital accessibility, port capacity, energy efficiency, and intermodal connections, will be combined with reforms aimed at increasing strategic planning, a single Customs portal, an interoperable digital platform, and a review of the regulation regarding port concessions. The focus will be on ports that are part of the Integrated National Transport System (SNIT), with a priority on the TEN-T nodes. In addition, the component includes investments in the digitalization of airports to manage air traffic in an environmentally sustainable way. The above objectives are in line with the nationwide strategy on mobility outlined in “#ItaliaVeloce”.

The component champions the European Flagship ‘Recharge and refuel’ by promoting the electrification of docks at numerous ports (cold ironing project). By 2026, the proposed investments will ensure the electrification at 41 ports.

Twin transition: By supporting the electrification of quays, renewable energy sources and energy efficiency measures in port areas and the shift to rail transport, as well as the digitalization of port and airport traffic management systems, this component promotes both the green and the digital transition. Safety and climate resilience, this component promotes both the green and the digital transition.

Jobs and growth: By improving the competitiveness and productivity of Italian ports this component is expected to support an increase of passengers (56 million in 2019, including 12 million from cruise ships) and freight volumes (479 million tons in 2019), thereby creating jobs and contributing to growth at local and national levels. Jobs will be created not only in port areas but also inland along the logistic value chains.

Social resilience: re- The Covid pandemic has highlighted the importance of a resilient transport and logistic system, which continues functioning and transporting goods, medicines and food even during lockdown phases. The proposed investments in the capacity, productivity and environmental sustainability of key transport nodes (ports and airports) are hence important to support social resilience. The component also includes investments in numerous ports in Southern Italy (with a focus on Naples, Salerno, Cagliari, Manfredonia, Taranto, Brindisi, Palermo, Catania, Trapani, Messina, Milazzo, Villa San Giovanni and Reggio Calabria) thereby contributing to social cohesion.

Reforms and investments:

Outcome 1: Improve the strategic planning process of ports and the award of concessions in port areas.

Reform 1.1: Simplification of the procedures for the strategy planning process.

Reform 1.2: Regulation defining the competitive award of concessions in port areas.

Outcome 2: Improve seaside accessibility, increase capacity and establish last-mile intermodal connections of Italian ports.

Investment 2.1: *Seaside accessibility and resilience to climate change:* ports of Genoa, Vado Ligure, Marina di Carrara, Civitavecchia, Naples, Salerno, Brindisi, Taranto, Manfredonia, Palermo, Catania and Venezia.;

Investment 2.2: *Capacity increases:* ports of La Spezia, Venice, Trieste, Ravenna, Naples, Salerno, Cagliari, Brindisi and Trapani.;

Investment 2.3: *Last mile rail/road connections:* ports of Venice, Trieste, Civitavecchia, Ancona, Naples and Salerno;

Investment 2.4: *Increase in energy efficiency:* ports of Messina, Milazzo, Villa San Giovanni and Reggio Calabria.;

Outcome 3: Increase the digitalization of transport and logistic services, simplifying custom procedures.

Reform 3.1: Implementation of a Single Customs Window (“Sportello Unico Doganale”);

Reform 3.2: Establishment of a National Strategic Platform (UIRNET) for the network of ports, in order to introduce the digitalization of passenger and freight services;

Reform 3.3: Simplification of logistics procedures and document digitization, through the adoption of an electronic "*Convention relative au contrat de transport international de marchandises par route*" (CMR) to freight shipments;

Investment 3.1: The digitalization of the logistic chain;

Investment 3.2: The digitalization of air traffic management;

Outcome 4: Reduce GHG emissions by increasing electrification, energy efficiency and renewable energy use.

Reform 4.1: Simplify authorization procedures to provide electricity to piers ;

Investment 4.1: Electrification of piers (Cold ironing);

Investment 4.2: Green ports: renewable energy and energy efficiency interventions at ports.

Estimated costs:

Cost of EUR 3,680 million to be covered by RRF

M3C2 - Intermodal connections and integrated logistics

	Resources (euro/mld)				
	Existing	New	Total	REACT-EU	TOTAL NGEU
	(a)	(b)	(c) = (a)+(b)	(d)	(e) = (c) + (d)
Integrated project "Ports of Italy"	0.48	2.84	3.32	-	3.32
- Ports and intermodal connections to the great European and national communication routes and development of ports in southern Italy	0.48	1.62	2.10	-	2.10
- Green Ports and Cold ironing	-	1.22	1.22	-	1.22
Digital innovation of airport systems and of logistics systems	-	0.36	0.36	-	0.36
TOTAL	0.48	3.20	3.68	-	3.68

2. Main challenges and objectives

a) Main challenges

- The competitiveness of the Italian Port system: according to the Logistic Performance Index elaborated by the World Bank – which considers the time and costs of logistic systems, as well as the transparency, quality and reliability of the services offered – in 2019 Italy ranked 19th in the World, with the first three countries being Germany, Sweden and Belgium. Even if in terms of distance to market, Italian ports could be competitive for trade between Europe and the Far East, over recent years they have lost market shares, also towards other Mediterranean ports. The perception among the big shipping companies is that Italian ports do not offer a reliable logistic system, which leads them to prefer other ports, even if located further away. The higher travel costs to these ports are compensated by the lower handling costs and times, and by better railway connections to the production/consumption centres.
- Economies of scale of ports: with the traffic of mega-container ships growing, another element that large shipping companies consider when choosing among ports is their capacity in terms of access and logistics, and hence the possibility to benefit from economies of scale, in order to reduce the unit cost per ton of merchandise handled. Ports in Northern Europe have high levels of capacity and offer a broad set of logistic services (not distinguishing between gateway and transshipment as in the Mediterranean).
- The lack of an updated strategic plan: In line with the provisions of Legislative Decree no. 169 of August 2016 "Reorganization, rationalization and simplification of the discipline concerning Port Authorities pursuant to Law no. 84 of January 28th, 1994", 16 Port System Authorities were created . However, the strategic plans of many of these Port Authorities have not been updated, which has not allowed to reap the benefits that were expected from a more integrated and coordinated system, in which ports could specialize according to their comparative advantages.
- The need to develop port inter-modality and last mile connections: the freight traffic in Italy is typically over land (road or rail) and is not very integrated with sea traffic. Since the extreme points of the freight railway corridors (created with Regulation 913/2010) are typically ports, the resolution of the “last-mile” connections (by rail or road) is key to ensure the competitiveness of Italian ports. In some recent studies of the European Commission and in the Strategic National Plan of Ports and Logistics, the key bottlenecks that impede a quick connection of the national railway lines with the port infrastructures are mentioned: inadequate length and number of the railway tracks, excessive distance of the tracks from the piers and high costs of handling operations at ports.
- The need to upgrade the digital infrastructures and services at ports and airports:

the logistic inefficiencies of Italy have been estimated to have a cost of around EUR 70 billion per year , of which EUR 30 billion are linked to bureaucratic costs and digital delays. The development of digital systems is hence considered to be key to improve the efficiency of logistic operations and to allow an efficient management of the flow of information linked to the flow of goods. Over recent years Italian ports and logistic operators have established Port Community Systems (PCS), which manage the electronic flow of documents and commercial information related to port operations, facilitating the interaction between the various stakeholders (terminal and transport operators, and customs). Concerning airports, a higher level of digitalization could contribute to better traffic management, reducing the fuel consumption of airplanes and the related environmental impact.

- The environmental impact and sustainability of ports: it is necessary to reduce the environmental footprint and pollution caused by ports, which are often located close to city centres with a negative impact on air quality. This can be achieved by developing the electrification of the piers (“*cold ironing*”) and improving the energy efficiency of operations and increasing the renewable energy sources (“*Green ports*”).

The objectives of the component are to:

- (i) strengthen the competitiveness of the Italian port system through an integrated development of intermodal infrastructures and last mile connections;
- (ii) ensure the environmental sustainability and energy efficiency of ports;
- (iii) digitalize the logistic supply chain and air traffic management systems;
- (iv) reduce emissions linked to the movement of goods.

These objectives will be pursued by:

- supporting an interconnected port system with adequate economies of scale to develop trade flows, both between Europe and Far East and within Mediterranean;
- offering an effective, digital and reliable logistic system for transport to/from final destinations;
- realizing systemic interventions at ports, that include both seaside accessibility and last-mile land connections;
- considering ports not only as transit points, but as integrated local development nodes, both for local industries and value chains as well as for tourism.

The interventions will focus mainly on ports that are connected to the TEN-T corridors. The ports in the North of Italy are key strategic gateways for the oceanic trade flows of Italy and Europe, in particular with the Near and Far East. Ports in the Centre and South instead aim their activity at the inter-Mediterranean trade flows, facing a growing competition of the ports of North Africa. In particular, the accessibility and connectivity of ports in the Centre and South needs to be improved in order to stimulate local value chains. In this respect, the creation and development of Special Economic Zones in the South of Italy will provide incentives for the location of production and logistic centres

close to ports.

Twin transition:

The proposed investments in energy efficiency and renewable energy sources (Green ports) and electrification (cold ironing) of ports will result in a reduction of GHG emissions. In parallel, the digitalization of port and airport traffic flows and logistics will increase the productivity, predictability and efficiency of operations, hence reducing congestion and pollution levels.

Jobs and Growth:

In 2019 Italian ports have handled 479 million tons of freight (mainly liquid goods representing 38%, followed by containers 23%, Ro-Ro 22%, and solid goods 12%) and 56 million passengers. The value of the economic contribution of ports to the Italian GDP is estimated to be EUR 8.1 Billion. Italy is currently a market leader in short sea shipping, with a market share of 39% in the Mediterranean (246 million tons in 2019), and also for cruise ships passengers (12 million). The proposed investments aim at improving Italy's competitive position in the Mediterranean and hence increasing passenger and freight traffic levels, while ensuring that the envisaged growth is environmentally sustainable. The investments foreseen will have important spill over effects along the logistic value chains and are expected to safeguard local jobs and stimulate private investments (by terminal and logistic operators).

c) National strategic context

The component is well aligned with the priorities of the National strategy for ports, which are outlined in the document “#ItaliaVeloce”. In particular, the component is focused mainly on ports included in the Integrated National Transport System (SNIT).

Following the recent reorganization and rationalization of the Port Authorities (based on Legislative Decree 169/2016), the 1st level nodes of the SNIT cover 16 Port System Authorities, which in turn include 58 ports of significant international and national interest. In addition, the national port system also includes the category I seaports referred to in article 4 of Law 84/1994, that is ports for military defence and state security, and 217 minor ports of call dedicated mainly to pleasure boating, fishing and the transport of local passengers and tourists.

The strategy defined by “Italiaveloce” identifies the following priorities, with the objective to make ports increasingly more green, digital and resilient:

- The last mile connection (with railway where possible, otherwise road);
- The accessibility from the sea, allowing the access of larger sized ships;
- The selective increase of port land side capacity, especially for Ro-Ro and containers;
- The energy efficiency and environmental sustainability of the ports;
- The digitalization of port logistics and ICT;

- The development of industrial activities in ports;
- The development of waterfronts for cruise ships and touristic purposes.

The component proposed under the RRF follows the above priorities. The investments aiming at electrification, energy efficiency, and digitalization regard numerous ports (up to 41 in the case of cold ironing, of which 39 are part of the TEN-T network). Larger sized investments related to seaside accessibility, landside capacity increases and/or last mile connections concern 23 individual ports: 10 ports in the North/Center of the country (Savona, Genoa, La Spezia, Civitavecchia, Trieste, Venice, Piombino, Ravenna, Marina di Carra and Ancona) and 13 ports in the South (Naples, Salerno, Cagliari, Manfredonia, Brindisi, Taranto, Messina, Milazzo, Villa San Giovanni and Reggio Calabria, Catania, Palermo and Trapani).

As stated in the document “#ItaliaVeloce”, in the programming and planning process of transport infrastructure projects, quantitative assessment tools are used by the Ministry of Infrastructure and Transport to forecast mobility demand and estimate the level of infrastructure use, as well as the impact of changes in economic and territorial development with a view to integrated "transport-territory" planning. The proposed investments have been selected by the MIT, giving priority to those works which can be completed within the timeframe required by the RRF.

3. Description of the reforms and investments of the component

1) Improve the strategic planning process of ports and the mechanism for awarding concessions in port areas.

Reform 1.1: Simplification of the procedures for an update of the strategy planning process.

Challenges: The planning documents of many Port Authorities are outdated and do not take into account the reform of the Italian port system (implemented in 2016). Only a minority of the 16 Port Authorities have drafted the Document for Strategic Planning (DPSS). The delays in the development of the strategic plans do not allow to update the individual Port Master Plans (PRPs).

Objectives: A strategic and systemic vision of the Italian port system is needed, based on an update of the Documents for Strategic Planning (DPSS) and of the Port Regulatory Plans (PRP). The DPSS defines the development objectives of the Port System Authorities; it identifies the areas dedicated to port activities and retro-port functions, the areas of port-city interaction and the last mile road and rail interconnections, as well as the crossings of the urban center. In addition, the DPSS identifies the rules and procedures for the drafting of the individual port master plans.

Implementation: The Ministry of Infrastructure and Transport will formulate a proposal to simplify the norms concerning the port planning process, in order to allow ports

to adopt and adapt their plans quickly and without procedural uncertainties. In particular, the MIT will propose some changes to the current regulatory text aimed at: (i) simplifying the approval procedures of the DPSS and better defining its contents; (ii) streamlining the approval procedures of PRPs; (iii) providing for a clear hierarchy of planning acts, avoiding the coexistence of several plans insiting on the same perimeter; (iv) rationalizing the need for variants and technical functional adjustments of the plans.

Target population: the Port Authorities.

Timeline: regulatory change by 4Q 2021.

Reform 1.2: Implementation of a regulation defining the competitive award of concessions in port areas.

Challenges: There are delays in the implementation of the 1994 reform, which foresaw the issuing of a Regulation on concessions (article 18, paragraph 1 of Law no. 84/1994). This regulation is necessary to establish the criteria and conditions for the competitive tender of concessions in ports and to allow an efficient participation of the private sector in port activities.

Objectives: The aim of the regulation is to define the conditions concerning the length of the concession, the supervisory and control powers of the conceding authorities, the renewal procedures, the transfer of the facilities to the new concessionaire upon expiry of the concession, and the identification of the minimum fees that the concessionaires will be required to pay.

Implementation: The criteria for awarding concessions are to be defined by a specific decree of the Minister of Infrastructure and Transport (MIT), in agreement with the Minister of the Economy and Finance (MEF). To date, the MIT has issued a special circular dated 5 February 2018, which established specific technical and economic criteria to be used by the conceding entities to compare applications for the granting of the concessions. These criteria have been incorporated into the regulations for the use of the maritime domain by the Port System Authorities. The finalization of the regulation on concessions however requires further iterations between MIT and MEF.

Target population: companies in the maritime and intermodal freight sector.

Timeline: To be defined.

2) Improve seaside accessibility, capacity and last-mile intermodal connections of Italian ports.

Investment 2.1: Developing seaside accessibility and resilience of port infrastructures

to climate change.

Challenges: In recent years, the Italian port system has lost market shares, especially with respect to competitors in North Africa and the East Med, in part due to lower reliability and productivity, but also due to lower maritime accessibility.

Objectives: The objective of the proposed investments is to improve maritime accessibility through strengthening and consolidation works on dykes, docks, piers and quays, thereby allowing Italian ports to adapt to the increasing tonnage of ships.

A flagship project in this regard is the one related to the port of Genoa, where the construction of a new breakwater is planned, which will allow the access of larger new generation ships, the protection of the inner port areas and the raising of the safety levels of entry and internal maneuvers. The expected increase of scale of the ships handled will allow to activate private investments on the land side and a more intensive use of the existing and envisaged operating terminals. The handling and exit of the goods will be facilitated by the fact that the port of Genoa is connected by rail to the Liguria-Alpes line.

Interventions of a similar nature are planned in the following ports:

- Vado Ligure: first phase of new dam;
- Venice: works of restoration of sea banks;
- Marina di Carrara: new waterfront;
- Civitavecchia: quay extension and new access to the historical basin;
- Naples: extension and completion of the eastern dock - extension of the duca d'aosta dam to protect the new eastern container terminal;
- Salerno: Consolidation and functional adaptation of some piers and quays - extension of Molo Manfredi;
- Brindisi: Completion of the dock in the Capobianco area and realization of dredging reaching -12 m below the sea level;
- Taranto: new breakwater for the protection of the port - eastern and western section;
- Manfredonia: deep-sea pier;
- Catania: consolidation of the breakwater;
- Palermo: consolidation of the quays south of the Piave and S. Lucia piers and adjustment of the Vittorio Veneto quay - consolidation of the breakwater Acquasanta - completion of the outer breakwater of the Arenella harbour.

Investment 2.2: Selective increase in port capacity.

Challenges: Considering the increasing size of both passenger and container ships to reach economies of scale, it is necessary to adjust the capacity of some ports, both sea-side and land-side, in terms of terminals and freight handling facilities.

Objectives: The objective of the proposed intervestments is to increase port capacity, both through dredging works and the development of new piers and/or of new logistic platforms.

A flagship project in this case is the port of Trieste, which has made strategic agreements with important European operators that project the port in the international arena. In particular, the development of the logistic platform and related retroport connections is foreseen, as well as the extension of the common infrastructures to a new area (“Punto Franco Nuovo”). In addition, preparatory works are foreseen for the development of logistic and industrial activities in the Noghere area (integrated with the building of a new port terminal), the dredging of the service channel, the connection to the road system, as well as the functional modernization of the container terminal of Pier VII.

Interventions to increase overall port capacity are also planned in the following ports:

- La Spezia: realization and electrification of the new cruise ship pier;
- Venice: Montesyndial - new container terminal;
- Ravenna: deepening of the canals to -14,50 m and construction of a treatment plant for the excavated materials;
- Naples: enhancement and upgrading of the infrastructures for passenger traffic;
- Salerno: dredging of the commercial port and of the entry channel;
- Cagliari: Works for the realization of the quays of the new Ro-Ro terminal;
- Brindisi: reclamation of land and dredging of the middle harbour;
- Trapani: Dredging works at the outer port and at areas to the west.

Investment 2.3: Last Mile Rail/Road Connections.

Challenges: Many ports in Italy lack an adequate connection with the destination/origin areas of the goods, especially via rail. This makes Italian ports less competitive in the handling of freight and increases congestion and pollution levels in urban centers.

Objectives: The objective of the proposed investments is to complete a series of last mile rail and road connections included in the document #Italiaveloce. In particular, interventions are planned in the following ports:

- Trieste: extension of common infrastructures for the development of a new area (“Punto Franco Nuovo”);
- Venice: a new railway bridge over the Western channel, and railway and road works at the node of via della Chimica;
- Civitavecchia: a connecting bridge;
- Ancona: intervention on the northern waterfront with materials of seabed excavation;
- Naples: reorganization of the last mile railway connections and of the road network;
- Salerno: interventions at the “porta ovest”.

Investment 2.4: Energy efficiency.

Challenges: The intense traffic of passengers and freight in the Strait of Messina produces a high amount of emissions.

Objectives: The proposed energy efficiency project called “Green Strait” is in line with the Recharge and Refuel flagship area indicated by the European Commission. The project will involve the ports of the Authority of the Strait (Messina, Milazzo, Villa San Giovanni and Reggio Calabria). It will encourage the energy transition of maritime mobility in the Strait, by establishing a coastal LNG depot and providing for the electrification of the quays of the ports.

Implementation: The above mentioned projects 2.1 to 2.4 will be implemented by the Port System Authorities, each according to their own timetable. They are generally works with advanced design levels and with foreseen completion by 3Q2026. In the selection phase of the ports, the MIT required a series of process and result indicators for each port (see details in Table T2). The main milestones are the finalisation of the project design, the publication of the tender for works, the awarding of the works, and the finalisation of the works. Considering that the foreseen investments are numerous and subdivided in various lots, a common and accurate monitoring mechanism will have to be established in order to follow the progress.

Target population: users of 15 Port Authorities.

Timeline: by 3Q2026.

3) Increase the digitalisation of transport and logistic services, simplifying customs procedures.

Reform 3.1: Simplification of import/export operations through the effective implementation of the “Sportello unico doganale”(Customs one stop shop)

Challenges: One of the reasons for the loss of market share of the Italian port system is that it has higher average handling costs and longer handling times compared to other European ports.

Objectives: Creation of a special portal for the “Sportello Unico Doganale”, which will allow the interoperability with national databases and the coordination of the control activities by Customs.

Implementation: based on a proposal of the Ministry of the Economy and Finance (MEF), a Presidential Decree (DPR) was prepared, defining the methods and specifications for setting up the “Sportello Unico Doganale”. In order to finalise the process, the relevant opinion of the Council of State is awaited.

Target population: users and companies in the maritime and intermodal freight sector.

Timeline: realization of the “Sportello Unico Doganale” by 4Q 2021.

Reform 3.2: Coordination of the National Strategic Platform UIRNET with the network of ports in order to activate the Port Community Systems (PCS).

Challenges: The IT systems developed by the various port authorities are not interoperable, and therefore do not allow the exchange of information necessary for the efficient management of flow of goods.

Objectives: The proposed reform has the objective to make the PCS of the individual Port System Authorities compatible with each other and with the national strategic platform UIRNET. This will allow to increase the digitization of passenger and cargo movements.

Implementation: The project will be implemented under the guidance of a steering committee established at the Ministry of Infrastructure and Transport (MIT), with the participation of representatives of UIRNET, the Port System Authorities, and of the Freight Transport categories. This steering committee will elaborate an agreement between the parties, which will outline the implementation modalities of coordination between the individual IT systems.

Target population: users and companies in the maritime and intermodal freight sector.

Timeline: by 4Q 2023.

Reform 3.3: Simplification of logistics procedures and document digitization, through the adoption of an electronic "Convention relative au contrat de transport international de marchandises par route" (CMR) to freight shipments.

Challenges: The Logistics and Freight Transportation sector is undergoing a profound global transformation due to the boom in the online sales market, which grew at an average annual rate of 22% between 2015 and 2018. The global logistics market has Asia-Pacific as the main region, followed by North America and Europe. The Mediterranean is increasing its centrality in global maritime trade, with Italy having the potential to act as a logistics hub for ships to and from the EU.

The consignment note for international transport of goods, established in 1956 by the CMR Convention (Convention des Marchandises par Route), undersigned by 58 countries, is a document that regulates in a uniform way almost all international transports and certifies their regularity.

In 2008 an Additional Protocol to the CMR Convention was signed (entered into force on

5 June, 2011), which provided for the dematerialization of the consignment note through an electronic eCMR document, with the aim of improving the quality of the distribution chain, and reducing its environmental impact by eliminating the use of paper. To date, the Protocol has been adhered to by numerous countries (including Spain, France, the Netherlands and Switzerland).

Objectives: The digitization of transport documents is a key element of the EU strategy for the mobility of goods in all modes of transport, as demonstrated by the recent Regulations 2020/1056/EU, which aims to facilitate the exchange of electronic information, and 2020/1055/EU, which introduces the possibility of using eCMR in the context of checks on road cabotage operations.

The main advantages expected from the introduction of eCMR in Italy are: - Increased security and speed of information flows; - simplification of information flows between the actors of the logistics chain; - reduction of issuing costs; - less possibility of errors and discrepancies between the versions held by the sender, carrier and recipient of the goods; - greater transparency and ease of control, through the constant monitoring of operations and the possibility of access to information in real time.

It should also be remembered that, among the "Proposals for the simplification and competitiveness of Italian logistics chain" presented a year ago by the "Consiglio nazionale dell'economia e del lavoro" (CNEL) and resulting in three specific bills (still in Parliament), there is expressly the adoption of the eCMR, as a concrete application of the dematerialization of transport documents.

Implementation: the MIT will propose a legislative measure, along the lines of those already adopted for adherence to previous protocols. Besides the DG for road transport and intermodality of the MIT, the drafting of the law should also see the involvement of the Central Committee for the Road Hauliers. The concrete implementation of the eCMR entails the definition of an agreement between the Ministry of Transport, the control bodies and the associations of road haulage companies in order to establish the objectives of the project and its operating procedures.

Target population: companies operating in the Logistics and Goods Transport sector in Italy.

Timeline: within 24 months including a pilot project within 9 months.

Investment 3.1: Digitization of the logistics supply chain

Challenges: the efficient management and sharing of traffic data and commercial information are key elements for the productivity and competitiveness of ports and related logistic systems.

Objectives: Investments in the digitalization of the logistics supply chain aim at a sig-

nificant increase in the productivity and efficiency of processes. The planned investments will allow to achieve an increase in security and data protection and contribute to accelerate the digital transition of national productive systems, with the creation of new qualified jobs.

In particular, the following types of investment are envisaged:

- Creation of dialogue platforms with customers for the management/monitoring/-tracking and bidirectional exchange for individual shipments;
- Systems to plan, schedule and optimize loads through artificial intelligence systems;
- Systems for surveys, market analysis for activity planning and price quotations;
- Systems and equipment to review and modernize the business organization;
- Connections of logistic ports of call;
- Digitization of the documentation.

Implementation: the implementation of investments in the digitalization of logistics will be led by the Port Authorities, in coordination with the logistics operators.

Target population: port users and logistics operators.

Timeline: by 3Q2026.

Investment 3.2: Digital Innovation of airport systems

Challenges: Air traffic management at airports is key to ensure safe flying conditions and to mitigate the environmental impact of air traffic. The Single European Sky ATM Research (SESAR) program aims to reduce the environmental impacts of air travel by 10 percent.

Objectives: Digital innovation applied to the aviation industry enables improved aircraft sequencing, both in the en route airspace and for airport approaches, resulting in reduced aircraft fuel consumption.

In addition, digital innovation in the sector will allow the development of new tools that enable the digitization of aeronautical information and the implementation of unmanned aircraft platforms and services. "Secure information sharing" will for example allow the connection of different operational sites of flight assistance systems, ensuring coverage of cybersecurity requirements and connecting the Air Navigation Service Provider (ANSP) with other stakeholders.

The proposed investments will concern the following macro-activities:

- Development of an Unmanned Traffic Management (UTM) system;
- Digitization of Aeronautical Information: consolidation of APP (Approach Control Service) in ACC (Area Control Center), tower automation, AMAN (Arrival Manager);

- Secure Information Sharing;
- Cloud infrastructure;
- New maintenance model.

Implementation: ENAV will implement investments in the digitalization of airport services, in coordination with the selected airports of the TEN-T network.

Target population: airport users.

Timeline: by 3Q2026.

4) Reduce GHG emissions by increasing electrification, energy efficiency and renewable energy use.

Reform 4.1: Simplify the authorisation procedures to realise the cold ironing plants

Challenges: The current authorisation procedures for the construction of energy transport infrastructures require numerous steps and timeframes that risk slowing down the development of the energy supply project to the ports. Currently, the authorisation times required are about 2 years / 2.5 years, if the interventions are not subject to an environmental assessment, otherwise the time required could be significantly longer.

Objectives: Approval of simplified procedures for the construction of energy transport infrastructures aimed at supplying electricity from land to ships. At present, depending on the required voltage levels, there are two different authorisation procedures: (i) one for works included in the National Transmission Grid (for voltage higher than 132 kV), which are subject to a single authorisation by the Ministry of Economic Development (MISE) issued in agreement with the Ministry of Environment and Territory and Sea Protection (MATTM), after consultation with the Region or Regions concerned; (ii) another procedure for works falling within the User area (voltage level lower than 132 kV): in this case the authorisation process follows the rules included in the regional authorisation procedures. For Cold Ironing projects the two authorisation procedures need to be run in parallel.

Implementation: the MISE will make a proposal to streamline the authorisation process. In particular, it will be proposed to allow that the cold ironing projects are evaluated by the territorial offices of the MISE, which could, in a shorter timeframe than the central offices, study the projects and authorise them. In addition, the establishment of a single authorisation process will be proposed, in order to exploit possible synergies. Finally, it should be clarified that the cold ironing works should not be subject to an Environmental Impact Assessment (EIA), since port facilities are sites that have already been assessed in terms of environmental impacts and can be considered to be already "infrastructured".

Target population: users and companies of the 41 ports involved.

Timeline: to be defined.

Investment 4.1: Electrification of the docks (Cold ironing)

Challenges: Maritime transport has negative environmental impacts due to the use of low quality fuels, which cause negative externalities both during navigation and, above all, when ships are stationed in the port. During the mooring phase the engines not only cause a high level of pollution and noise within the port area (with emissions of CO₂, NO_x, PM 10, PM 2.5), but also in the broader surrounding area, including eventually the urban center. At present the number of electrified docks is limited in Italy compared to other EU countries. Those that exist do not provide electricity to cruise ships, ferries or container carriers, but mainly for ship repair terminals or cranes for handling goods.

Objectives: the project provides for the electrification of docks, in line with EU Directive 2014/94 (DAFI Directive), which establishes a common framework of measures for the implementation of alternative fuels infrastructures in the European Union in order to minimize dependence on oil and mitigate environmental impacts in the transport sector. The directive foresees the completion of coastal electricity supply by 31 December 2025, giving priority to ports of the core TEN-T network. Other ports will also be considered, unless there is no demand and/or the costs are disproportionate with respect to the benefits. The proposed investment, which is in line with the national decarbonisation objectives of Italy set out in the PNIEC in the area of energy efficiency in transport, would focus on 41 ports, 39 of which are part of the TEN-T network. It consists in the implementation of a connection and network on land for the supply of electricity to ships during the berthing phase, in order to minimize the use of auxiliary engines on board, significantly reducing emissions of CO₂, nitrogen oxides and particulate matter, as well as the noise impact.

Implementation: The implementing entities are the Port Authorities, which will have to coordinate the operators along the infrastructure value chain. Ports serving the cruise ship market will be given priority, considering their greater negative environmental impacts and the fact that many of them are already set up to connect to the power grid on shore. The second phase of the plan will include ports with ferry and container ship traffic.

Target population: users of the 41 selected ports.

Timeline: by 3Q2026.

Investment 4.2: Interventions for the environmental sustainability of ports (Green Ports)

Challenges: GHG emissions in ports (and other fossil fuel pollutants) come not only from ships, but also from the air conditioning in buildings and warehouses, service vehicles (both land and maritime), cranes, and the lighting in open spaces.

Objectives: The main objective of the project is to reduce CO2 emissions and improve air quality in port areas, through interventions that improve energy efficiency and promote the use of energy from renewable sources in ports. The projects will be selected from those that the Port System Authorities have indicated in their Documents for Energy and Environmental Planning (DEASP). In particular, the main categories of interventions envisaged are:

- energy efficiency, production of energy from renewable sources (wind power on land and on breakwaters, solar photovoltaic, solar thermal) and environmental monitoring of port areas;
- purchase of electric or low-emission vehicles for use in port areas;
- replacement of non-energy efficient equipment;
- creation of infrastructure for the use of electricity on the docks;
- environmental quality monitoring systems.

Implementation: The project will be developed in the ports of the 9 Port System Authorities located in central and northern Italy. The Port Authorities in the South are excluded as they already benefit from a similar project on cohesion funds (from the PON Infrastrutture e Reti of the MIT). Many AdSPs have already drawn up their Documents for Energy and Environmental Planning (DEASPs). The DEASPs include an accurate initial snapshot of the port system's emissions, through the so-called "Carbon Footprint", in order to be able to punctually monitor the results of the interventions carried out, and to measure their effectiveness in reducing CO2 emissions. Each DEASP contains a ranking, based on a cost-benefit analysis of the interventions that the individual AdSPs intend to carry out. On the basis of these documents, the Ministry for the Environment, Land and Sea (MATTM) will select the projects to be financed, to which resources will be allocated through the signing of specific MATTM-AdSP program agreements.

Target population: users of the 9 Port Authorities of the Centre-North and neighbouring populations.

Timeline: by 3Q2026.

4. Green and digital dimensions of the component

a) Green Transition:

The EU Regulation 2020/408 establishes, as a binding objective, that at least 37% of the total budget of the PNRR must be allocated to the green transition and the challenges that derive from it.

This Action includes about 36% of the costs for the climate (see Table 1).

b) Digital Transition:

The EU Regulation 2020/408 establishes, as a binding objective, that at least 20% of the total budget of the PNRR must be allocated to the digital transition and the challenges that derive from it.

This Action includes about 9% of the costs for the digital transition (see Table 1).

Table 1

MISSIONE 3: "Infrastrutture per una mobilità sostenibile" COMPONENT 2: Intermodalità e logistica integrata	Green objectives				Digital objectives	Transition challenges	
	Climate	Environmental	Intervention field	DNSH		Green	Digital
	Tag	Tag					
<i>Investment 2.1-2.4</i> <i>Investments in development and connection of port infrastructure</i>	40%	0%	080bis	Yes	0%		
<i>Investment 3.1</i> <i>Digitization of the logistic chain</i>	0%	0%	084	Yes	100%		
<i>Investment 3.2</i> <i>Innovation and digitalization of the air space</i>	0%	0%	084	Yes	100%		
<i>Investment 4.1</i> <i>Cold ironing of ports</i>	40%	40%	026	Yes	0%		
<i>Investment 4.2</i> <i>Green Ports</i>	40%	40%	026	Yes	0%		

5. Milestones, targets and timeline

see table 2 work in progress

6. Financing and costs

Component (name)	Investment/Reform (short description or cross-reference)	Relevant time period	Total estimated costs for which funding from the RRF is requested (mn EUR)	If available: Total estimated cost by year (mn/bn national currency/EUR)							Funding from other sources (as requested by Art. 8 in the Regulation)				COFOG level 2 category / or type of revenue (if relevant, e.g. tax expenditure)
				2020	2021	2022	2023	2024	2025	2026	from other EU programmes		from the national budget	Other sources (Private)	
											mn.nat. currency	specify the EU programmes and breakdown by programme if relevant (e.g. regional operational programme)			
Investment 2.1-2.4 Investments in development and connection of port infrastructure	Priority projects - Port of Genova	2020-2026	500	0	100	240	160					800		04 - Economic affairs 04.5 – Transport	
	Priority projects - Port of Trieste	2020-2026	385.5	0	63.27	55.93	87.59	91.35	68.83	18.53	8.64	Connecting Europe Facility		279.5	04 - Economic affairs 04.5 – Transport
	Works of Seaside accessibility at ports or works on Resilience to climate change, i.e. works on piers/dams (for details per port see tables below)	2020-2026	669	1.16	101.40	114.30	186.60	156.75	71.15	27.70			102		04 - Economic affairs 04.5 – Transport
	Capacity increase of the ports (for details per port see tables below)	2020-2026	464	4.15	53.90	132.17	95.30	57.55	55.85	30.00			192.455		04 - Economic affairs 04.5 – Transport
	Works of Last mile rail/road connections (for details per port see tables below)	2020-2026	70	0	7.94	19.41	19.08	15.67	8.00	0					04 - Economic affairs 04.5 – Transport
	Investment in energy efficiency	2020-2026	50		3	7	10	10	10	10				60	04 - Economic affairs 04.5 – Transport
Investment 3.1 Digitization of the logistic chain	Implementation of the process of digitalization of national logistics through investment projects, such as the creation of platforms for dialogue and discussion with customers for management/monitoring/tracking and bi-directional exchange for individual shipments	2020-2026	233			60	60	60	53						04 - Economic affairs 04.5 – Transport
Investment 3.2 Innovation and digitalization of the air space (for details per interventions see tables below)	The project includes 10 interventions related to digital innovation applied to the air transport sector, allowing an improvement in aircraft sequencing, both in en-route airspace and in approach to airports.	2020-2026	127		38	31	29	14	11	4					04 - Economic affairs 04.5 – Transport
Investment 4.1 Cold ironing of ports	Implementation of systems for the supply of shore-side electricity to ships during the mooring phase, so as to minimize the use of auxiliary engines on board for the self-production of the necessary electricity, thus reducing CO2 emissions	2020-2026	950		70	144	234	237	200	65					04 - Economic affairs 04.5 – Transport
Investment 4.2 Green Ports	Interventions to reduce GHG emissions in national ports not included in the Cohesion Fund Project "Infrastructure and Networks" carried on by Ministry of Transport.	2020-2026	270		25	25	80	70	60	10					04 - Economic affairs 04.5 – Transport

	Component (name)	Investment/Reform (short description or cross-reference)	Relevant time period	Total estimated costs for which funding from the RRF is requested (mn EUR)	If available: Total estimated cost by year (mn/bn national currency/EUR)								Funding from other sources (as requested by Art. 8 in the Regulation)				COFOG level 2 category / or type of revenue (if relevant, e.g. tax expenditure)
					2020	2021	2022	2023	2024	2025	2026	from other EU programmes		from the national budget	Other sources (Private)		
												mn.nat. currency	specify the EU programmes and breakdown by programme if relevant (e.g. regional operational programme)				
CIVITAVECCHIA	Infrastruttura per la Mobilità	Prolungamento Banchina 13 II lotto (II lotto OO.SS.)	2021-2024	26.60	1.1	20	5.5					42					
	Infrastruttura per la Mobilità	Ponte di collegam. con antemurale (II lotto OO.SS.)	2021-2025	10.10		1	4	5.1									
	Infrastruttura per la Mobilità	Nuovo accesso al bacino storico (II lotto OO.SS.)	2021-2024	43.20		3	25	15.2									
NAPOLI SALERNO	Infrastruttura per la Mobilità	PORTO DI NAPOLI Riassetto dei collegamenti ferroviari di ultimo miglio e della rete viaria portuale	2021-2025	20.00	2	5	5	5	3								
	Infrastruttura per la Mobilità	PORTO DI SALERNO Lavori di realizzazione del 2° lotto del 1° stralcio dell'intervento "porta ovest" di Salerno - integrazione finanziamento		10.00	5	5											
	Infrastruttura per la Mobilità	PORTO DI NAPOLI Interventi di potenziamento e riqualificazione delle infrastrutture del porto di Napoli destinate al traffico passeggeri	2020-2023	26.00	3	8	7	8									
	Infrastruttura per la Mobilità	PORTO DI NAPOLI Ampliamento e completamento della darsena di Levante	2021-2024	20.00	1	5	7	7									
	Infrastruttura per la Mobilità	PORTO DI NAPOLI Prolungamento diga Duca D'Aosta a protezione del nuovo terminal contenitori di Levante- II stralcio completamento a 900m	2021-2026	150.00	2	20	20	50	50	8							
	Infrastruttura per la Mobilità	PORTO DI SALERNO Prolungamento del Molo Manfredi -200m	2022-2024	15.00		5	5	5									
	Infrastruttura per la Mobilità	PORTO DI SALERNO Dragaggio del Porto commerciale di Salerno e del canale di ingresso - fase 2	2022- 2026	40.00		2	8	10	10	10							
	Infrastruttura per la Mobilità	PORTO DI SALERNO Consolidamento ed adeguamento funzionale di alcuni moli e banchine	2022- 2026	40.00		2	8	10	10	10							
PALERMO TRAPANI	Infrastruttura per la Mobilità Intermodalità e logistica integrata	messi in sicurezza e adeguamento normativo dell'asset portuale delle banchine banchine sud dei moli Piave e S.Lucia ed adeguamento statico banchina Vittorio Veneto - riqualificazione nodo di rete TEN T	2020 - 2021	45.00	0.9	44.1					0	0					
	Infrastruttura per la Mobilità Intermodalità e logistica integrata	messi in sicurezza e adeguamento normativo dell'asset portuale delle banchine e accosto - molo sopraffutto Acquasanta - riqualificazione nodo di rete TEN T	2021 - 2022	12.00		10	2				0	0					
	Infrastruttura per la Mobilità Intermodalità e logistica integrata	messi in sicurezza e adeguamento normativo dell'asset portuale delle banchine e accosti - molo foraneo porto Arenella - riqualificazione nodo di rete TEN T	2020 - 2022	19.00	0.1	18	0.9										
	Infrastruttura per la Mobilità Intermodalità e logistica integrata	messi in sicurezza e adeguamento normativo dell'asset portuale - dragaggio dell'avamposto e delle aree a ponente dello sporgente Ronciglio - riqualificazione nodo di rete TEN T	2020 - 2023	60.00	0.6	18.1	19.8	19.8	1.7								
RAVENNA	Hub Portuale di Ravenna Fase II (3° e 4° stralcio)	L'intervento Hub Portuale di Ravenna Fase II (3° e 4° stralcio), la cui progettazione è stata recentemente ultimata a seguito dell'aggiornamento della caratterizzazione dei fondali, consiste nel completamento del dragaggio del porto canale di Ravenna fino a -14,50 m di profondità come previsto dal Piano Regolatore Portuale vigente (3° stralcio), nel trattamento del refluo di dragaggio in un impianto di soil washing e nella collocazione del materiale in ex cave già individuate per il ripristino ambientale (4° stralcio). Il 3° e 4° stralcio del progetto Hub portuale di Ravenna Fase II sono strettamente connessi e saranno appaltati contestualmente, ma data la loro natura, con procedure distinte: appalto di lavori su progetto esecutivo già pronto per il 3° stralcio e concessione per la progettazione esecutiva, la realizzazione e gestione dell'impianto di trattamento su progetto di fattibilità tecnico economica, anch'esso già pronto, per il 4° stralcio.	2021-2027	101.00		38.45	20.85	20.85	20.85			40					

Component (name)	Investment/Reform (short description or cross-reference)	Relevant time period	Total estimated costs for which funding from the RRF is requested (mn EUR)	If available: Total estimated cost by year (mn/bn national currency/EUR)							Funding from other sources (as requested by Art. 8 in the Regulation)				COFOG level 2 category / or type of revenue (if relevant, e.g. tax expenditure)
				2020	2021	2022	2023	2024	2025	2026	from other EU programmes				
											mn.nat. currency	specify the EU programmes and breakdown by programme if relevant (e.g. regional operational programme)	from the national budget	Other sources (Private)	
TARANTO	Infrastruttura per la Mobilità	NUOVA DIGA FORANEA DI PROTEZIONE DEL PORTO FUORI RADA DI TARANTO - TRATTO DI PONENTE	2020-2026	15.76	0.16	0.1	3.45	7.85	4.2		n.a.	n.a.	-	-	-
	Infrastruttura per la Mobilità	NUOVA DIGA FORANEA DI PROTEZIONE DEL PORTO FUORI RADA DI TARANTO - TRATTO DI LEVANTE	2022-2026	20.00				0.15	0.15	10	9.7	n.a.	n.a.	-	-
	Infrastruttura per la Mobilità	Noghere – Logistics/industrial area	2021-2024	60.00		36	9	9	6						
TRIESTE	Infrastruttura per la Mobilità	Noghere – New ro-ro/multipurpose terminal	2021-2026	45.00		5.62	5.63	11.25	11.25	5.63	5.62				90
	Infrastruttura per la Mobilità	New Free Port – Public service infrastructure, railway upgrade and integration	2021-2026	180.00		11.65	31.3	47.14	34.1	42.9	12.91	8,54 mn	Connecting Europe Facility		
	Infrastruttura per la Mobilità	Pier 7 – Upgrade of the container terminal	2021-2025	100.50		10	10	20.2	40	20.3					189.5
	Infrastruttura per la Mobilità	Nuovo ponte ferroviario su canale Ovest Realizzazione di un ponte ferroviario di collegamento diretto tra la dorsale sud-ovest del Porto e la stazione di Venezia Marghera Scalo. Tale progetto consentirà di: • eliminare la doppia manovra dei convogli ferroviari sulla Stazione di Mestre; • ottenere molteplici benefici in termini di capacità e sicurezza; • ridurre il numero di interferenze tra rete stradale e ferroviaria e di ri-durre i tempi complessivi delle manovre ferroviarie che interessano la parte sud-ovest del porto, ove si genera il 40% del traffico complessivo del porto stesso.	2021 -2023	8.00		0.6	3.7	3.7							
	Infrastruttura per la Mobilità	Opere di adeguamento ferroviario e stradale del nodo di via della Chimica L'opera prevede la modifica dell'attuale tracciato ferroviario del raccordo base portando lo stesso a tergo del compendio Magazzini Generali ed a lato di via della Meccanica nonché il raddoppio del raccordo esistente in prosecuzione dell'esistente in via dell'elettronica. Per quanto concerne la parte stradale, l'opera prevede la modifica degli attuali tracciati per mezzo di rotatorie, sottopassi e sovrappassi sia al fine di risolvere le interferenze strada - ferrovia sia al fine della separazione de flussi pesanti e leggeri.	2021 - 2024	12.00		0	5	6	0.57					0.00	
VENEZIA	Infrastruttura per la Mobilità	Montesyndial - Nuovo terminal Container Il progetto prevede la realizzazione di un nuovo terminal container nell'area ex Montesyndial, bene demaniale gestito dall'ASPMAS. Il terminal di Montesyndial, in grado di avere una capacità nominale di circa 1 milione di TEU, costituisce la parte a terra del progetto più ampio denominato "Piattaforma d'altura al Porto di Venezia e Terminal container di Montesyndial. Il layout progettato consentirà di attuare modelli operativi innovativi in linea con i più moderni standard in uso nei terminal moderni.	2021 - 2026	32.60		10	23						151.8	0.00	
	Infrastruttura per la Mobilità	Opere di ripristino marginamenti casse di colmata B L'intervento è relativo alla realizzazione di opere di marginamento da realizzare ai bordi delle Casse di Colmata A, B e D-E, lungo il canale Malamocco – Marghera, finalizzate al consolidamento e alla protezione dei bordi stessi, attualmente interessati da fenomeni erosivi, per il ripristino morfologico della superficie originale delle Casse di Colmata attraverso opere in pali e in scogliere emerse e sommerse Ripristino marginamento ambientale sponda nord canale sud L'intervento di ripristino del marginamento ambientale in oggetto riguarda un tratto di circa 160 m della Sponda Nord del Canale Industriale Sud di porto Marghera. Si ipotizza di realizzare la banchina con un diaframma continuo in c.a. di spessore 100 cm di lunghezza 20-25 m dalla quota -1 m l.m.m., con una trave di coronamento in c.a. sino alla quota di sommità.	2021 - 2025	27.50		0	7	13	7	1				0.00	

	Component (name)	Investment/Reform (short description or cross-reference)	Relevant time period	Total estimated costs for which funding from the RRF is requested (mn EUR)	If available: Total estimated cost by year (mn/bn national currency/EUR)								Funding from other sources (as requested by Art. 8 in the Regulation)				COFOG level 2 category / or type of revenue (if relevant, e.g. tax expenditure)
					2020	2021	2022	2023	2024	2025	2026	from other EU programmes		from the national budget	Other sources (Private)		
												mn.nat. currency	specify the EU programmes and breakdown by programme if relevant (e.g. regional operational programme)				
GENOVA	New Breakwater of Genoa Port	The scope of the project is clearly indicated in the table 2 at the point 'Related reform and investment'. The project envisages the demolition of the existing breakwater protecting Sampierdarena terminals and the construction of a new breakwater 6 km long, located further offshore on depth up to 50 m. The construction typology of the structure is made of reinforced concrete caissons based on rubblemound embankment. Design is in progress and the technical and economic feasibility is nearing completion.	2021-2026	500.00	0	100	240	160				800	5.034.792,49 (risorse AdSP)				
	Nuova diga di Vado Ligure Prima Fase	L'intervento è finalizzato ad aprire la zona di imboccatura del porto di Vado Ligure per consentire l'accesso in sicurezza delle navi portacontainer dirette alla piattaforma multipurpose, nonché agevolare le manovre dei traghetti e delle navi dirette al terminal frutta/Ro-Ro sulla banchina principale e sulla banchina sud-est. Sarà realizzato attraverso lo spostamento del tratto terminale della diga esistente (390 m) con successiva ricollocazione dei cassoni esistenti e la realizzazione di due cassoni ex novo. La lunghezza della nuova diga sarà pari a circa 450 m e costituisce la prima fase della configurazione finale prevista a Piano Regolatore.	2021-2024	45.00		18	20	7		80.000.000,00 (di cui 45.000.000,00 richiesti a valere sul RRF)		35	1.088.571,43 (risorse AdSP)				
CATANIA	Lavori di consolidamento e ricarica della mantellata della diga foranea, rafforzamento e potenziamento della testata del Porto di Catania	L'intervento riguarda il potenziamento della mantellata esterna della diga foranea del Porto di Catania al fine di garantire la sicurezza della navigazione, le manovre e l'ormeggio delle navi nell'ambito dello specchio acque portuale	2021-2024	70.00		1	20	30	19								
CAGLIARI	Infrastruttura per la Mobilità - Lavori di realizzazione dei banchinamenti del nuovo Terminal Ro Ro presso l'avamposto ovest del Porto Canale	Il Piano Regolatore Portuale ha destinato l'avamposto ovest del Porto Canale alla movimentazione dei traffici Ro-Ro, con la realizzazione di un terminal specializzato. Il progetto prevede la realizzazione di n.6 attracchi, i relativi piazzali di imbarco nelle aree retrostanti le banchine e nell'avamposto stesso per almeno n.1.200 stalli, il dragaggio di tutti gli specchi acque antistanti l'avamposto (per le manovre di accosto e di ormeggio) sino a - 11.00 m s.l.m.m. per complessivi circa 2 milioni di metri cubi di materiale, locali a servizio degli operatori portuali e degli utenti	dal gennaio 2021 al settembre 2026 (collaudo lavori)	100.00	0.55	1.8	10	17.65	25	25	20	/	/				
BRINDISI MANFREDONIA	Infrastruttura per la Mobilità	Porto di Brindisi. Completamento del banchinamento in zona Capobianco e realizzazione dei dragaggi ad esso funzionali sino alla quota -12 m slm.	60 mesi	20.00		0.5	0.5	19				-	-				
	Infrastruttura per la Mobilità	Molo alti fondali: ristrutturazione e rifunionalizzazione del Bacino Alti Fondali.	48 mesi	80.00		0.5	0.5	39,5	39,5			-	-				
	Infrastruttura per la Mobilità	Porto di Brindisi. Completamento dell'infrastrutturazione portuale mediante banchinamento e realizzazione della retrostante colmata tra il pontile petrolchimico e Costa Morena Est	52 mesi	39.32		1	17.3169	21.00		39,325 mn EURO	ammisibile PON 2014-2020						
LA SPEZIA MARINA DI CARRARA	Transizione Verde	Construction and on shore power supply equipment of the new cruise pier in the first port basin of La Spezia - Realizzazione ed elettrificazione del nuovo Molo crociere nel 1 bacino portuale della Spezia	4th quarter 2023	30.00		15	15										
	Infrastruttura per la Mobilità	Functional and environmental improvement of the port-city interface (waterfront) of the port of Marina di Carrara (Lots 1, 2 and 4) - Intervento di miglioramento funzionale ed ambientale dell'interfaccia porto città (waterfront) del porto di Marina di Carrara (Lotti 1, 2 e 4)	1st quarter 2023	10.17		5	5			2,262,553	CEF TRANSPORT	25.264					
ADSP dello Stretto	Infrastruttura per la Mobilità	Progetto STRETTO GREEN - Incentivare la transizione energetica della mobilità marittima nell'Area dello Stretto: Deposito costiero di LNG ed elettrificazione delle banchine dei porti dell'AdSP dello Stretto	2022/2026	50.00		3	7	10	10	10	10		€ 60.000.000 (finanziamento privato PPP)				
ANCONA	Infrastruttura per la Mobilità	Intervento lungomare nord con i materiali di escavo dei fondali marini		10.00					5	5							