

D.3.2.6: Territorial Needs Assessment for the port of Ancona

Draft - January 2020

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INTRODUCTION

Following the indications of Deliverable D.3.2.1: “Methodology for the implementation of Territorial Needs Assessments (TNA)” prepared by WP Leader, the purpose of this report is to analyze the territorial needs of the Port of Ancona in the field of multimodal freight transport.

SECTION A – Territorial Analysis, will briefly illustrate the main characteristics of the Province of Ancona and Marche region, focusing in particular on:

- SUBSECTION A.1 – Territory description in the Programme Area, focusing on most significant nodes and hubs.
- SUBSECTION A.2 – Multimodal transport, supply and demand analysis. Examining main EU corridors for freight transport and multimodal hubs in the programme area. Analyzing main infrastructures and existing data of freight transport flows, including modal share.
- SUBSECTION A.3 – Tools and measures supporting multimodal transport. Reporting on tools and measures fostering multimodality (policies, plans, etc.). Defining current regulatory framework, as well as relevant policies and measures linked to freight transport. Highlighting strategic plans and actions. Listing and discussing projects to improve multimodality.

SECTION B – Future Scenarios. Description of measures that are either planned for the future or already being implemented. Implications and forecasts for future scenarios and the impact of above mentioned measures will be briefly discussed, considering also the impact of future infrastructures. In addition to future scenarios and measures that are specific to the Port of Ancona, also other relevant known projects and planned actions within the Marche region will be mentioned and described.

SECTION C – Mapping out stakeholders. Deals with the involvement of major stakeholders in the programme area as a key element for project results’ dissemination. The key stakeholders in the area are identified as they affect project activities and outcomes. A table maps stakeholder according to their influence on the project and their level of interest in the project. Stakeholders are also mapped according to their role and the benefit (or conflicts) their

involvement could bring, taking in consideration current involvement and strategies to improve their support.

SECTION D – Analysis of IT systems. Describes the implementation and the upgrades of ICT systems and particularly the Port Community System (PCS) in the Port of Ancona, focusing in particular on:

- SUBSECTION D.1 – Architecture model.
- SUBSECTION D.2 – Implementation stage. Stages in the design and implementation of the PCS.
- SUBSECTION D.3 – Usage by and impact on freight agents. Evaluation of the impact in PCS adoption and actual use of the PCS by different stakeholders.

SECTION E – SWOT Analysis. Reports the strategic evaluations about the Port of Ancona and the Marche region using this analysis instrument.

SECTION F – Main Results. Brief summary of findings.

A: Territorial analysis

1. Territory description in the Programme Area focusing on most significant nodes and hubs

Marche is one of the twenty Italian regions that lies in the central area of the country. Ancona is its main city.

With an area of 9,694 square kilometers and roughly 1,525,200 inhabitants, Marche borders with Emilia Romagna region and Republic of San Marino to the north, with Tuscany region to the west, Umbria region to the southwest, Abruzzo and Lazio regions to the south and the Adriatic Sea to the east.

Following an analysis carried out in 2019 by the Statistical Department of Marche Region and based on ISTAT (Italian National Institutes of Statistics) data, Marche Region, with a GDP of 40 million of Euro, produces the 2.4% of the total national value. Differently from the near Umbria

Region, Marche has suffered a reduction of GDP value of around 0.2% due to the earthquake of 2016.

Looking to distribution of added value in the region, the greatest percentage is represented by service sector with the 67% (with a value of 24,630 million of euro), followed by the industrial sector with the 31% (11,613 million of euro) and then the agriculture sector with around 2% (685 million euro). Analyzing more the industrial sector, the business more represented is the textile and apparel one with the 23%, followed by the electronic devices with the 22%.

With a final balance in 2018 of 11,748 million Euro for export and 7,938 million for import, Marche region shows its main economic orientation focused more outside Italy.

1.1 Port of Ancona

The Port of Ancona is located in the middle of the Italian Adriatic coast, precisely in the Gulf of Ancona, between two hills. Its natural position allowed since roman period to be a strategical point of reference and a natural safe shelter for navigators and sailors. The city is situated between the slopes of the two extremities of the promontory of Monte Conero, Monte Astagno and Monte Guasco and it represents the main economic and demographic center of Marche Region. Ancona area is characterized by a hilly landscape with numerous valleys and by the presence of several beaches, both rocky and sandy. Ancona area is classified as medium-high seismicity zone (level 2) by the Italian civil defense.

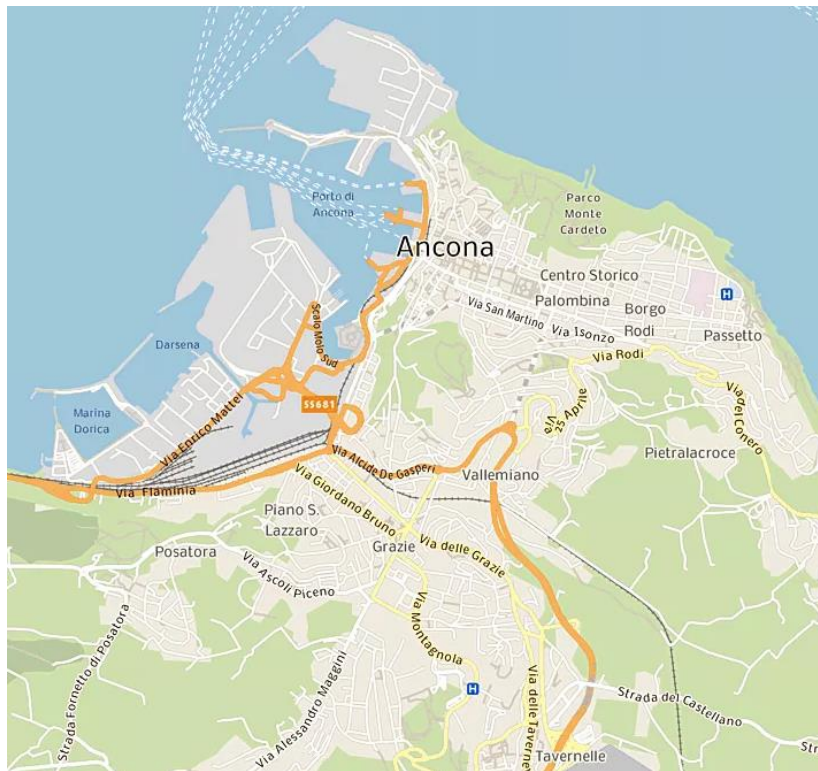


Figure 1: Layout of Ancona and its port

In the following table distances between Ancona area and the main Italian metropolitan areas are reported. Looking at the figures, it is clear to understand that the ports which are easier to interact with for the Port of Ancona are the Adriatic ones (Trieste, Venezia, Ravenna, Bari).

DISTANCE FROM ANCONA	DISTANCE (in a straight line)	DISTANCE (BY ROAD)	DISTANCE (MARITIME)
ROMA	206 km	300 km	/
MILANO	400 km	428 km	/
TORINO	491 km	545 km	/
FIRENZE	183 km	321 km	/
NAPOLI	311 km	417 km	700 NM
VENEZIA	225 km	362 km	125 NM
TRIESTE	230 km	509 km	128 NM
RAVENNA	138 km	163 km	71 NM

DISTANCE FROM ANCONA	DISTANCE (in a straight line)	DISTANCE (BY ROAD)	DISTANCE (MARITIME)
BARI	390 km	461 km	209 NM
GIOIA TAURO	609 km	845 km	519 NM
GENOVA	376 km	506 km	1010 NM

Table 1: Distance between Ancona area and the main Italian metropolitan areas

Regarding road infrastructures, Ancona is directly connected to the A14 highway, while the port is linked with the highway through the national road SS16.

The city of Ancona is connected to the national railway network, precisely to the Adriatic railway line, through the central station situated near the port along via Flaminia.



Figure 2: Railway network of Marche Region

Ancona area is served by Ancona-Falconara airport, situated at 18 km west from the city of Ancona, with which is connected through a bus service and an airbus service. Moreover, the Castelferretti-Falconara Aeroporto station links the airport and the city of Ancona through the

railway network, while by road there is a connection between the airport with the A14 highway through the State Road 76.

The current markets of the Port of Ancona are mainly related with passenger transport and cargo transport. Indeed, the port is the main logistic hub of central Adriatic coast and it is one of the main Italian port for international passenger traffic by ferries. The main market is represented by Ro-Ro traffic, with intense traffic flows of trucks and therefore Ro-Ro freight. The main routes involve the Adriatic Sea and the Adriatic ports. Precisely, intense relations for cargo and container traffic are entertained with the ports of Trieste and Gioia Tauro in Italy, and with Piraeus in Greece. For international routes, intense traffic flows are recorded with Igoumenitsa and Patras (Greece), Split and Zadar (Croatia) and Durres (Albania), especially regarding passenger transport and Ro-Ro freight transport. To summarize, Port of Ancona current markets mainly include:

- Passenger traffic (ferry and cruise);
- Freight traffic (bulk, general cargo, container);
- Fishing;
- Shipbuilding;
- Pleasure boating.

Beyond the maritime routes, the Port of Ancona has intense freight traffic flows towards the hinterland, especially in Marche region and central Italy (Abruzzo, Umbria, Romagna).

From the point of view of infrastructures, the Port has 26 quays, including wharfs, piers, docks, layovers and a first inner harbor. Most of them are used for passenger traffic and freight traffic. The average draft is around 11.80 meters, while the allowed maximum length of the ships is about 275 meters.

USE	PIER	QUAY NUMBER	LENGHT (ml)	DEPTH (b.s.l.)
RO-PAX	Wojtyla	8	125	8.50
	Wojtyla	9	110	9.50
	Santa Maria	11	150	8.50

USE	PIER	QUAY NUMBER	LENGHT (ml)	DEPTH (b.s.l.)
	Santa Maria	12	80	8.50
	Santa Maria	13	150	10.50
	Repubblica	14	195	10.50
	XXIX Settembre	15	200	10.50
	XXIX Settembre	16	120	8.50
	Sud	18	110	8.50
	Sud	19	80	12.50
	Sud	20	170	12.50
	Sud	21	170	12.50
MERCI VARIE	Sud	22	200	12.50
	Darsena Marche	23	265	11.00
	Darsena Marche	24	150	11.00
	Darsena Marche	25	260	11.00
	Darsena Marche	26	200	14.00
	Darsena Marche	27	200	14.00
	Darsena Marche	28	200	14.00
	Darsena Marche	29	320	14.00
SERVICE	Lanterna		90	4.00
	Rizzo	3	120	10.00
	Primiano	5	100	5.00
	Primiano	6	100	6.00
	Guasco	7	170	8.00
	Nazario Sauro	10	110	7.00
	Da Chio	17	200	7.00
FISHING	Mandracchio		1,000	2.00/4.00
OLD PORT	Molo Clementino	1	-	-
	Molo Rizzo	2	-	-
	Molo Rizzo	4	-	-

Table 2: List of quays of Port of Ancona

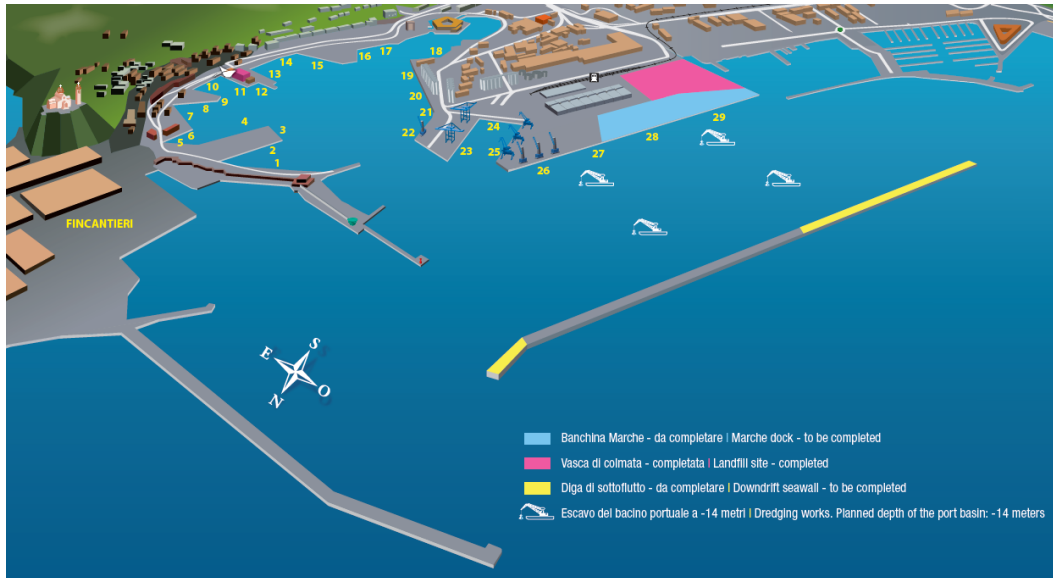


Figure 3: Position of port piers

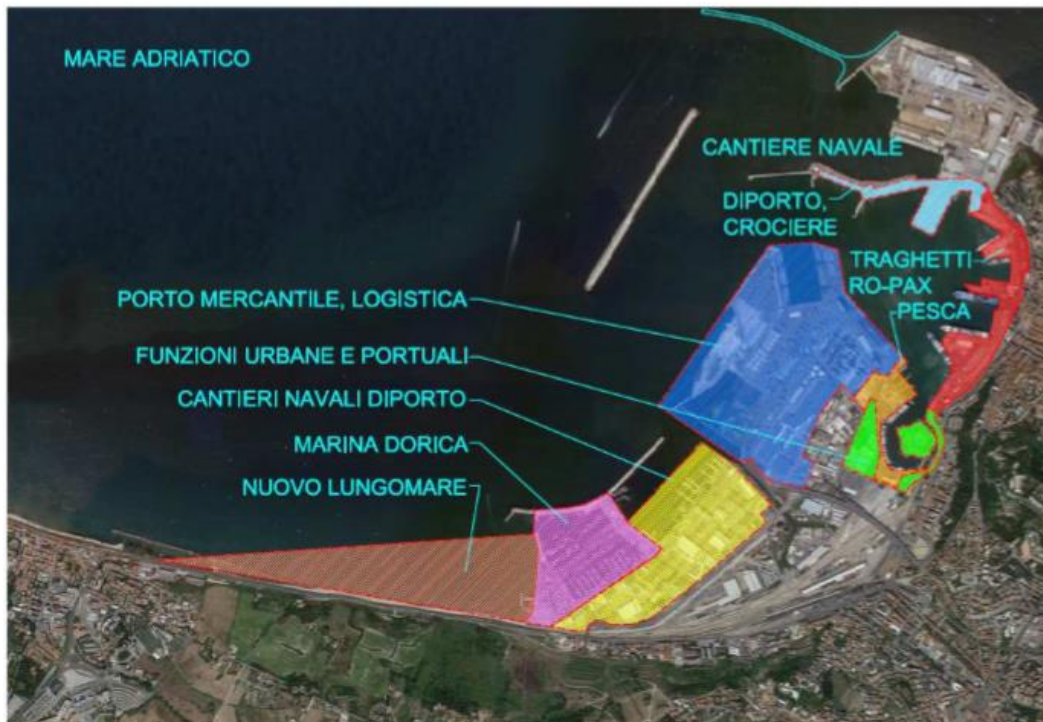


Figure 4: Port areas split according to the use destination

The quays are equipped with stationary cranes, unloading cranes, electric mobile cranes, hydraulic mobile cranes, pneumatic grain elevators.

The shipyards involve more than 1,000 workers which are operative in activities with over 700 units mainly deal with the oceanographic research ships, ferries, tugboats, supply vessels, fast luxury yachts and coastal fishing vessels.

The Port of Ancona is equipped with medical facilities and ICT tools like a VTMS system, an ICT system for traffic information, an app for the passengers in transit, free wi-fi for port users, a monitoring system for customs activities and the check of sediments and excavations in the port area, and a tracking system for boarding and disembarking of ferries.

Thanks to intersection between Maritime/Ro Ro traffic, rail traffic and road traffic, the intermodality potential in the Ancona Area is intense. This highly qualifying situation gave the possibility to Port of Ancona to be included as core node in the TEN-T network, specifically in the Scandinavian-Mediterranean (ScanMed) Corridor. Moreover, the requalification of Italian Motorways of the Sea (Autostrade del Mare) has allowed to consider the Port of Ancona as a strategic point for the trade between South West Europe and West Mediterranean countries, of which imports and exports are foreseen to increase, and Italy, Central and North West Europe.

This intense traffic and high consideration of the last years for the Port of Ancona highlighted the pivotal necessity to find out a sustainable solution for handling and faster these traffics to their destinations, without negative impacts in urban area, mainly related to congestion and pollution.

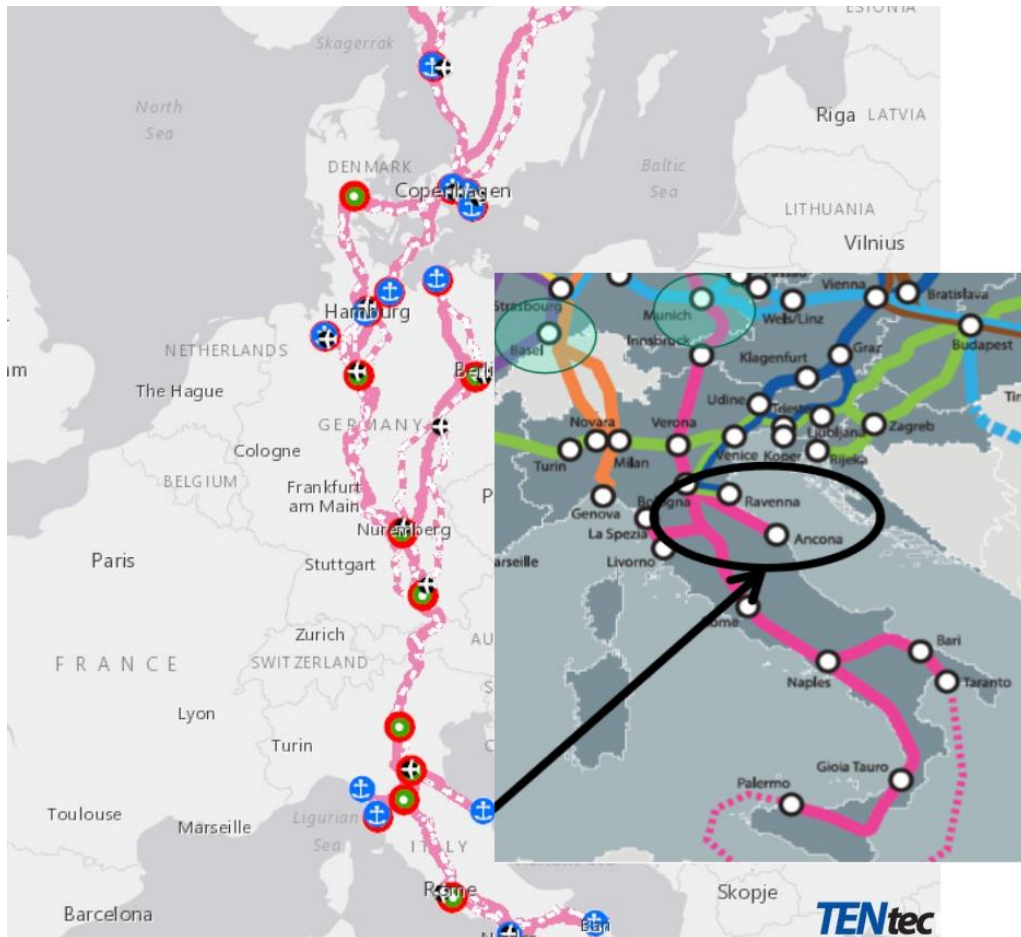


Figure 5: Position of Ancona in the Scandinavian-Mediterranean (ScanMed) Corridor

The shift from ships to trains of trucks and trailers is possible directly inside the port through a short path (about 2 km) from the docks to the railway area passing inside the port area. In order to avoid congestion because of overlapping with other port activities (particularly passenger traffic) usually the vehicles which need the railway transportation are the last ones to be unloaded from ferries. Once on the railway Adriatic line, the trains arrive to Bologna where they can head towards north of Italy and northern Europe.



Figure 6: Maritime - railway intermodality in the Port of Ancona

2. Multimodal transport: supply and demand analysis

The Adriatic-Ionian Sea basin is defined by the EUSAIR strategy (COM (2014) 357) as “a natural waterway penetrating deep into the EU. (...) There is potential for improved land-sea connectivity and intermodal transportation, increasing the competitiveness of hinterland economies”. Therefore, the macro-regional strategy should insist on the improvement of the connections between ports and hinterland areas, to support the regional economies, and increase the sustainability of the freight flows.

2.1 The regional road network

The regional road core network is composed by motorways and main ordinary roads.

Marche Region is characterized by a flat coastal belt with a length around 170 km where are located the most important urban areas.

In the internal part are located cross valleys (east-west) that are expanded from Apennines Chain to littoral area. Even here are located urban areas, but with less sizes.

Excluding the coastal belt where are located the main infrastructures, in the internal area there are present different important transport connections in a shape that can be defined "at comb".

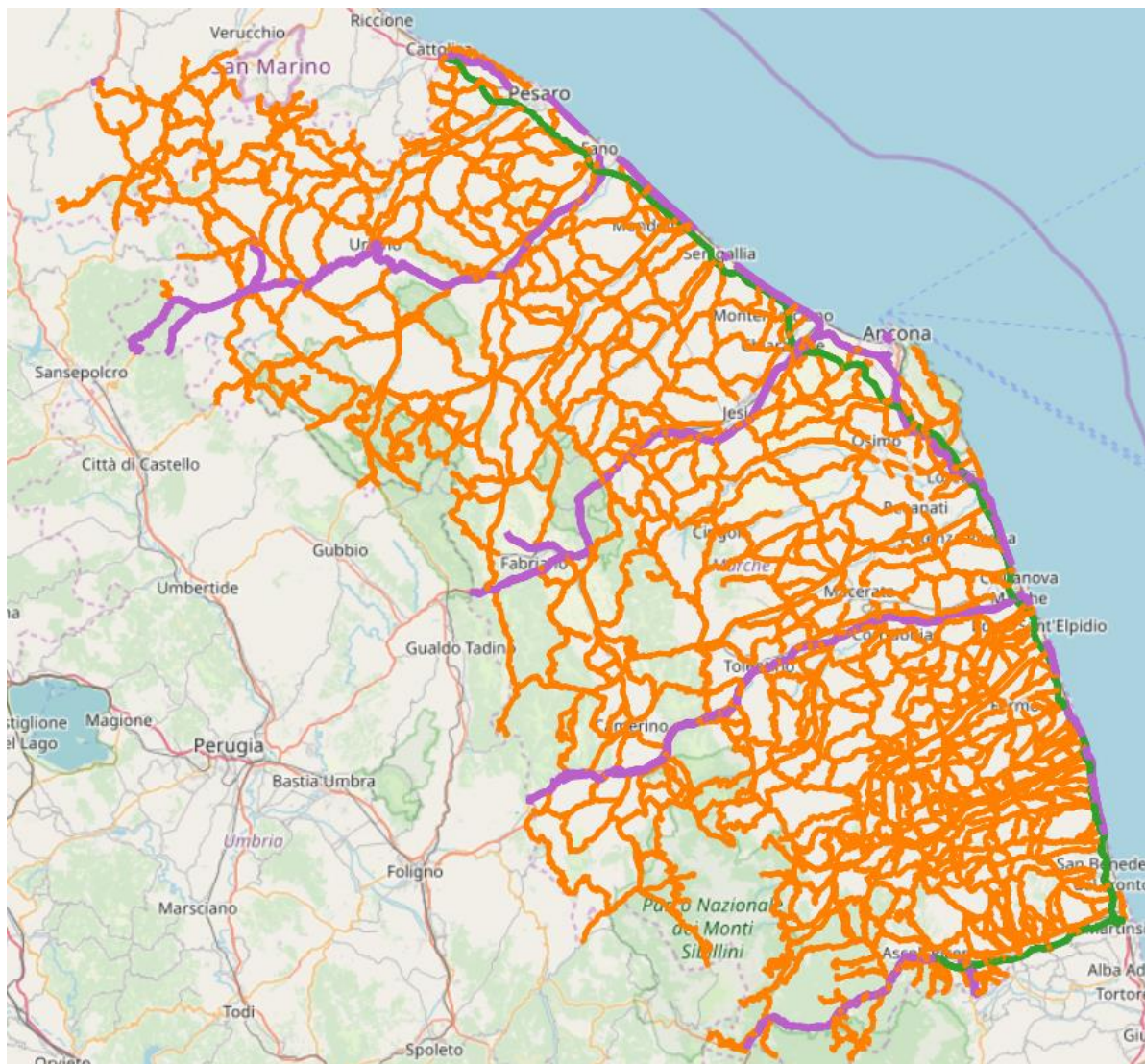


Figure 7: Map of highways, national roads and province roads network in Marche Region

The motorway network is composed by two infrastructures:

- Motorway A14 “Adriatica”: backbone for all the Adriatic coast road network, its northern end is Bologna (on bypass with "tyhrrrenical" A1) and its southern ending is Taranto. Its part in Marche Region runs between Cattolica (last city in Emilia Romagna Region) and San Benedetto del Tronto. The infrastructure is managed by Autostrade per l'Italia. Length in Marche region: 156 km;
- Motorway Link RA11 “Ascoli-Mare”: managed by the state-owned company ANAS, it connects the important city of Ascoli Piceno with the Adriatic coast. Total length: 26.300 km;
- State Highway 77 “Foligno - Civitanova Marche”: managed by ANAS, it connects Foligno, in Umbria Region, with the Adriatic coast in Civitanova Marche;
- State Highway “Strada di Francesco” (SS76 + SS318): Managed by ANAS, it connects Perugia, the capital city of Umbria Region, with Ancona;
- State Highway 77 and State Highway “Strada di Francesco” together with Motorway A14 “Adriatica”, State Highway 75 (in Umbria), and State Highway "Pedemontana delle Marche" (still under construction) shape the so called "Quadrilatero Marche - Umbria": managed by ANAS, it is a strategic road network that, ideally, forms a square shape between the two regions. Its purpose is to improve accessibility and to become a core transport connection for all the industrial clusters and logistics centres existing in the central Italy;
- European Route E78: it is a road part of the International E-road network managed by ANAS. At present it is composed both with parts constructed at motorway standards then without standards. When all sections will be dual carriageway, it will become the "State Highway of two seas" connecting Grosseto, in Tuscany Region, with Fano, in Marche Region.

The main ordinary road network has seen profound management changes in the last years.

Actually ANAS, thanks to the agreement with Marche Region, manages 289.500 km of former state roads in the region "Ex ANAS".

Allegato "A" complessivo						
CONVENZIONE PER LA GESTIONE DA PARTE DI ANAS DELLE EX STRADE STATALI NON RICOMPRESE NELLA PROPOSTA DI RIORGANIZZAZIONE						
EX S.S.	Denominazione	dal km	al km	Estesa km	Capisaldi di Inizio e Fine	Competenze
4	Salaria	176,000	178,700	2,700	Dal km 176+000, nei pressi dell'incrocio tra la S.S. n. 4 Salaria con la S.P. n. 226 "Mozzano" fino all'intersezione con la strada comunale di Monterocco (km 178+700)	Ascoli Piceno
		181,900	183,360	1,460	Dal km 181+900, intersezione con la strada comunale per Villaggio S. Marta - Via del Giordano fino all'incrocio con Via Tevere / Via delle Primule (Km 183+360)	Ascoli Piceno
		185,053	206,300	21,247	Dal Km 185+053, nei pressi dell'intersezione con la rampa proveniente dal raccordo Marino / Monticelli fino al confine tra i Comuni di Monteprandone / San Benedetto del Tronto (Km 206+300)	Ascoli Piceno
4	Racc. Monticelli - Marino del T. (ex SP 236)	0,000	2,963	2,963	Dall'innesto con la S.S. n. 4 Salaria al raccordo con la S.S. n. 81 Piceno Aprutina. Sono compresi gli svincoli	Ascoli Piceno
77	Della Val di Chienti	76,720	83,540	6,820	Dall'innesto rampa uscita zona industriale di Tolentino all'innesto con le ex SS 78 a Sforzacosta	Macerata
		104,362	109,330	4,968	Dall'innesto con la ex SS 571 presso San Leopardo all'inizio centro abitato di Recanati	Macerata
		116,520	118,000	1,480	Dal confine centro abitato Recanati al confine provinciale Macerata-Ancona	Macerata
		118,000	124,325	6,325	Dal confine provinciale Ancona-Macerata sino all'innesto alla SS 16	Ancona
209	Val Nerina	62,400	62,555	0,155	Dal confine regionale Umbria al km 62,400 al confine regionale Marche al km 62,555 (dal km 62,555 al km 64,300 la strada ricade in territorio della Regione Umbria)	Macerata
		64,330	88,690	24,360	Dal confine regionale Marche-Umbria sino all'innesto con la SS 77 presso Muccia	Macerata
257	Appecchiese	19,960	53,900	33,940	Dal confine regionale Marche - Umbria sino all'innesto con la ex SS 3 presso Acqualagna	Pesaro e Urbino
			0,328	0,328	Svincolo dal km 53+055 innesto con SP 3 Flaminia al km 241+617	Pesaro e Urbino
361	Septempedana	0,000	5,750	5,750	Dall'innesto con la S.C. di Via l'Maggio in Loc. Baraccola del Comune di Ancona Km 00+000 direzione Aspico (snello giratorio), prosegue in direzione Ozimo fino al confine con	Ancona
		9,850	15,590	5,740	Dal confine Provinciale Ancona-Macerata sino al bivio con la ex SS 362 (loc. Villa Potenza)	Macerata
		15,590	33,300	17,710	Dall'innesto con la SS 16 a Porto Civitanova sino all'innesto con la SS 77 presso Sforzacosta	Macerata
485	Corridonia-Maceratese	3,750	26,236	22,486	Dall'innesto con la SS 76 loc. Pian del Medico (rotatoria svincolo di Jesi Ovest) sino al confine Provinciale Ancona-Macerata	Ancona
502	Di Cingoli	1,770	11,350	9,580	Dal confine Provinciale Ancona-Macerata sino all'innesto con la ex SS 76 presso Pian di Picco	Macerata
		11,350	73,100	61,750	Inizio dalla fine del centro abitato di Senigallia (loc. Borgo Bicchia) Km 02+570, procede in direzione Arcevia e dalla variante verso Sassoferrato, fino al confine con la Regione Umbria Km 62+308	Ancona
				TOTALE	289,500	

Figure 8: Table of "ex ANAS" roads now under control of ANAS

Regarding the Provinces road network, they are in charge for the management of around 5,032 km of infrastructures.

PROVINCE	TOTAL PROVINCE ROADS (km)
ANCONA	836.96

PESARO-URBINO	1,046.46
MACERATA	1,463.41
FERMO	771.81
ACOLI PICENO	913.19

Table 3: Length of province roads network in Marche Region

2.2 The regional railway network

The regional railway network in Marche currently comprises 412.2 km of tracks. The total number of lines is 7 and two of them are no more operating.

Line	Track	Km	Electrification	Double line	N. stations	Active
61	Ancona - Porto d'Ascoli	90	YES	YES	15	YES
60	Gabicce - Ancona	75	YES	YES	10	YES
70	Falconara - Cancelli di Fabriano	99	YES	PARTIALLY	11	YES
288	Civitanova Marche - Albacina	87	NO	NO	15	YES
290	Porto d'Ascoli - Ascoli Piceno	28	NO	NO	10	YES
	Fabriano - Pergola	32	NO	NO	9	NO
M65	Ancona - Ancona Marittima	1.2	NO	NO	1	NO

Table 4: Regional railway network in Marche Region

Throughout the railway network the national company Rete Ferroviaria Italiana (i.e. Italian Railway Network) manages the infrastructure. Railways undertakings, in a system of free competition, operate the freight service.

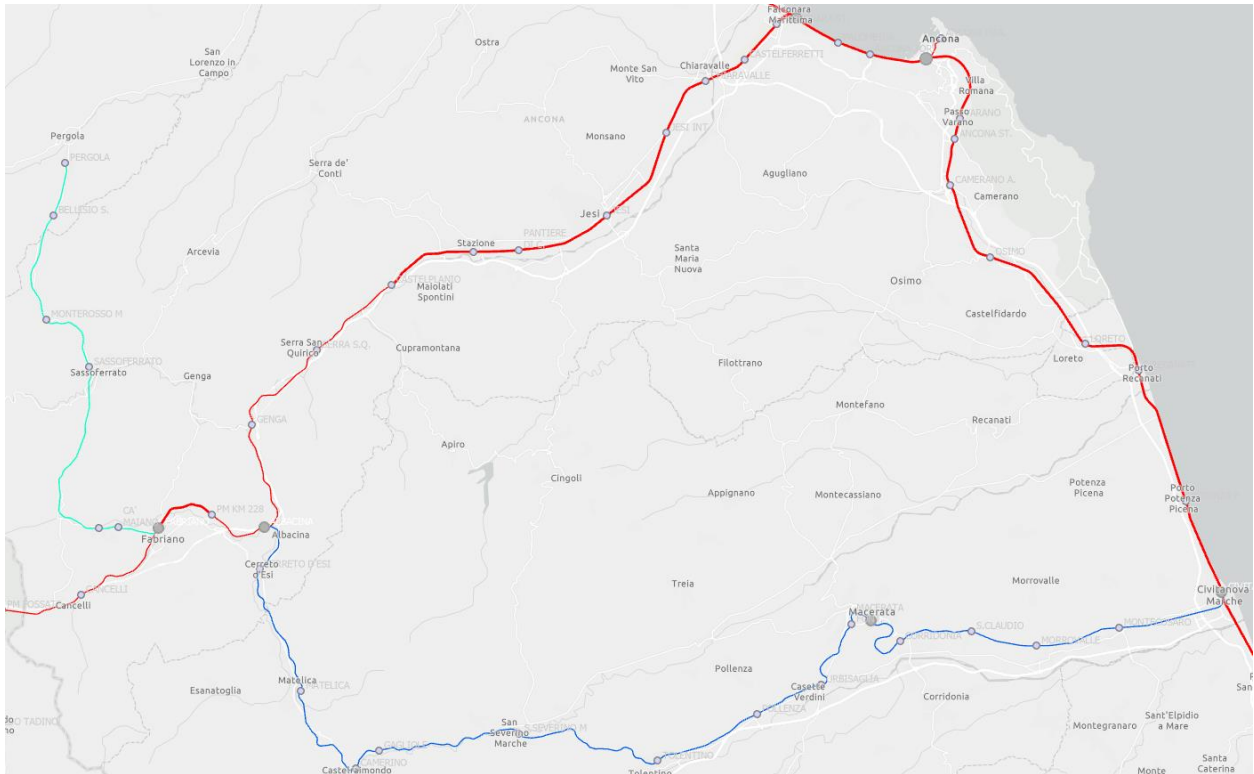


Figure 9: Focus on railway network in Marche Region

The railway accessibility, from Port of Ancona to the main connections towards current and potential Italian and foreign hinterland markets, can be ensured directly from quays. The length of the internal network is 7.344 meters and all of them are characterized by the "P/C 80" loading gauge.

The present infrastructure existing in the "logistic and freight terminal" consists of a beam of tracks with a length of 206.00/300.00 meters for loading and unloading trains.

Currently, technical studies to increase the service tracks to a length of 500.00/600.00 meters are ongoing in the framework of ADRI-UP project (CEF programme, MOS call 2016) in order to improve, in a view of greater competitive in the freight market, the capacity of the terminal, also in coherence with the maximum allowed length nowadays available in all the "Adriatic railway line".



Figure 10: Focus on the railway tracks under developing

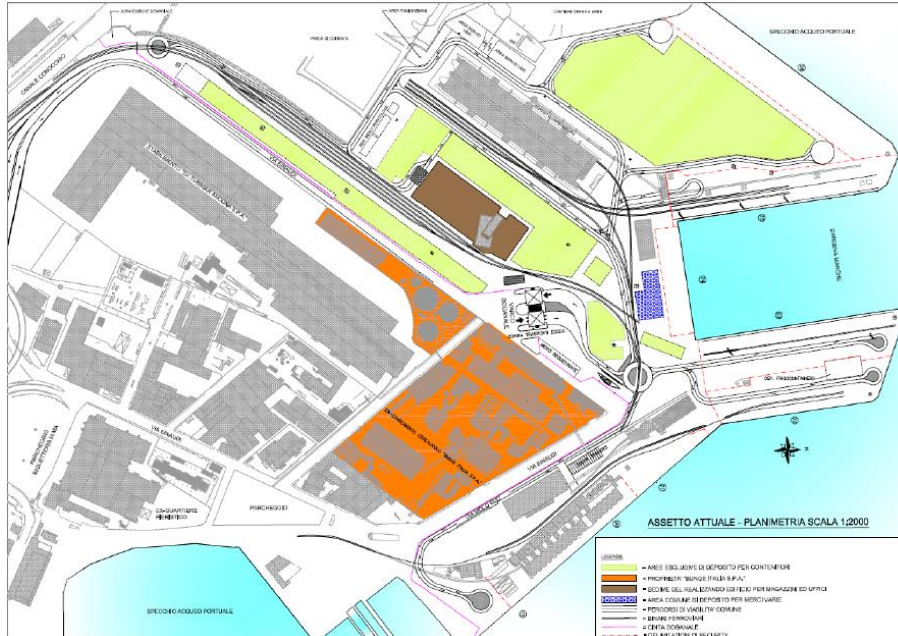


Figure 11: Present railway layout in Port of Ancona

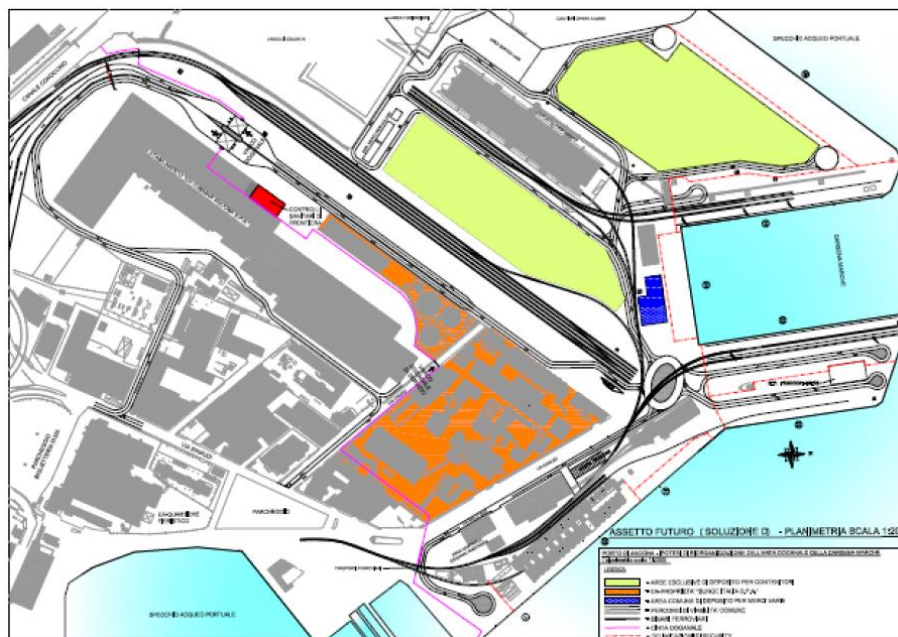


Figure 12: Future railway layout in Port of Ancona

2.3 Supply and demand analysis

The current markets of the Port of Ancona are mainly related with passenger transport and cargo transport. Indeed, the port is the main logistic hub of central Adriatic coast and it is the main Italian port for international passenger traffic by ferries.

The main market is represented by Ro-Ro traffic, with intense traffic flows of trucks and therefore Ro-Ro freight.

The main routes involve the Adriatic Sea and the Adriatic ports. Precisely, intense relations for cargo and freight traffic are entertained with the ports of Trieste and Gioia Tauro in Italy, and with Piraeus in Greece. For international routes, intense traffic flows are recorded also with Igoumenitsa and Patras (Greece), Split and Zadar (Croatia) and Durres (Albania), especially regarding passenger transport and Ro-Ro freight transport. To summarize, Port of Ancona current markets mainly include:

- Passenger traffic (ferry and cruise);
- Freight traffic (bulk, general cargo, container);
- Fishing;
- Shipbuilding;
- Pleasure boating.



Figure 13: Main maritime relations area for the Port of Ancona

The Port of Ancona, beyond the maritime routes, has intense freight traffic flows towards the hinterland, especially in Marche region and central Italy (Abruzzo, Umbria, Romagna).



Figure 14: Main hinterland relations area for the Port of Ancona

Analyzing more in deep the total vehicles traffic handled by Port of Ancona, it is possible to notice how the traffic of private vehicles is higher than truck and trailer traffic (about +60-70%). Looking at the last three years, the total amount of traffic raised by about 4,7% in 2018 (397.321 vehicles) and about 2,0% in 2019 (405.421 vehicles).

TOTAL VEHICLES TRAFFIC	PRIVATE	TRUCK/TRAILERS	TOT
2013	213.588	132.284	345.872
2014	208.506	126.610	335.116
2015	195.110	136.581	331.691
2016	209.359	141.761	351.120
2017	230.463	148.660	379.123
2018	249.671	147.650	397.321
2019	261.547	143.874	405.421

Table 5: Total vehicles traffic in the Port of Ancona

The private vehicles traffic increased during the period 2013-2019. Particularly, a decrease (-8,6%) has been recorded between 2013 (213.588 vehicles) and 2015 (195.110 vehicles) due to the economic crisis suffered by Greece during these years, that seriously affected passengers and freight traffic with the Country. To confirm this, the statistic data of the period following the economic crisis, from 2016 (209.359 vehicles) until 2019 (261.547 vehicles) show an annual growth of 5-10%. The vehicles loaded are always higher than the vehicles unloaded, therefore the traffic flows are more intense for departures from the Port of Ancona towards other Adriatic ports respect to the arrivals.

PRIVATE VEHICLES	Loaded	Unloaded	TOT
2013	113.976	99.612	213.588
2014	108.831	99.675	208.506
2015	101.038	94.072	195.110
2016	111.254	98.105	209.359
2017	119.531	110.932	230.463
2018	130.048	119.623	249.671
2019	137.468	124.079	261.547

Table 6: Total private vehicles in the Port of Ancona

Regarding Truck and Trailer traffic, the table below shows the specific data about the number of vehicles.

TRUCK/TRAILER TRAFFIC	Loaded	Unloaded	TOT
2013	67.271	65.013	132.284
2014	64.101	62.509	126.610
2015	67.190	69.391	136.581
2016	69.176	72.585	141.761
2017	72.918	75.742	148.660
2018	73.504	74.146	147.650
2019	71.834	72.040	143.874

Table 7: Total truck/trailer traffic in the Port of Ancona

The variations during the period 2013-2019 have been rather waving, with the last three-year period, 2017-2018-2019, always negative in the total final balance:

- 2017 – 2018: -0,7%;
- 2018 – 2019: - 2,6%

Instead, from 2014 to 2015 (136.581 vehicles) there was a variation of +7,9%, then a variation of +3,8% in 2016 (141.761 vehicles) and a variation of +4,9% 2017 (148.660 vehicles). The number of vehicles loaded and unloaded have been almost at the same levels, with the vehicles unloaded slightly higher than the vehicles loaded. The trend of Truck and Trailer traffic, despite the modest change, recorded a positive variation of the numbers of vehicles during the period 2013-2018.

Focusing on Truck and Trailer freight traffic, the specific data are shown in the following table.

TRUCK/TRAILER FREIGHT TRAFFIC (Tonnes)	Loaded	Unloaded	TOT
2017	2.358.042	2.348.303	4.706.345
2018	2.406.679	2.363.718	4.770.397
2019	2.369.777	2.323.754	4.693.531

Table 8: Total truck/trailer freight traffic in the Port of Ancona

Data are provided only for 2017-2018-2019 when they have been calculated according to ESPO methodology. Despite the slight last decrease in 2019, the trend has been always positive; this can be explained by the higher efficiency of port procedures achieved by the Port of Ancona. The positive trend highlights the important role of the Port of Ancona in the freight traffic on “Autostrada del mare”, the highway mainly used for this type of traffic flows.

Important index showing the main propensity of Ancona for the export than for the import comes out from the analysis of container traffic.

NUMBER OF CONTAINERS	EMPTY			FULL			TOT		
	Loaded	Unloaded	EMPTY	Loaded	Unloaded	FULL	Loaded	Unloaded	TOT
2013	3.334	21.075	24.409	42.683	24.890	67.573	46.017	45.965	91.982
2014	4.929	20.372	25.301	44.603	29.935	74.538	49.532	50.307	99.839
2015	5.642	23.060	28.702	48.177	30.044	78.221	53.819	53.104	106.923

2016	5.981	22.798	28.779	48.999	33.063	82.062	54.980	55.861	110.841
2017	6.443	16.460	22.903	44.539	34.373	78.912	50.982	50.833	101.815
2018	8.474	11.535	20.009	40.095	37.013	77.108	48.569	48.548	97.117
2019	9.110	14.466	23.576	45.062	38.3624	83.386	54.172	52.790	106.962

Table 9: Number of containers in the Port of Ancona

The total traffic flows of full containers are always higher respect to empty ones and the loaded ones are always more than the unloaded. This highlights that the Port of Ancona is more a gateway for products from Italy to rest of the world than for goods from outside to Italy.

Finally, the passenger traffic. This can be split in two categories: ferry passenger traffic and cruise passenger traffic.

PASSENGER TRAFFIC	FERRY PASSENGER TRAFFIC			CRUISE PASSENGER TRAFFIC					TOTAL PASSENGER TRAFFIC
	Loaded	Unloaded	TOTAL FERRY	Loaded	Unloaded	TOTAL	IN TRANSIT	TOTAL CRUISE	
2013	541.630	522.932	1.064.562	21.702	20.426	42.128	67.364	109.492	1.174.054
2014	524.893	518.003	1.042.896	5.164	3.946	9.110	28.110	37.220	1.080.116
2015	480.870	489.997	970.867	3.185	3.491	6.676	32.601	39.277	1.010.144
2016	485.299	465.686	950.985	5.112	5.784	10.896	44.005	54.901	1.005.886
2017	523.911	514.642	1.038.553	5.566	5.552	11.118	40.968	52.086	1.090.639
2018	551.605	532.630	1.084.235	6.225	6.629	12.854	54.177	67.031	1.151.266
2019	552.014	537.318	1.089.332	7.273	7.973	15.246	84.863	100.109	1.189.441

Table 10: Total passenger traffic in the Port of Ancona

Ferry traffic flows slightly decreased from 2013 to 2016 mainly due to economic crisis of Greece, main ferry traffic partner of Ancona. Precisely, starting from 1.064.562 passengers in 2013, there was a negative variation of -2% in 2014 (1.042.896 passengers) followed by a variation of -6,9% in 2015 (970.867 passengers) and a variation of -2% in 2016 (950.985 passengers). Despite this negative trend, with the potential return of growth in Greek economy, the years 2017, 2018 and 2019 have been a period of relevant improvement. Indeed, the number of passengers increased at 1.038.553 passengers in 2017 (+9,2%) at 1.084.235 in 2018 (+4,4%) and at 1.089.332 in 2019 (+0,5%). The passengers loaded and unloaded are always at similar levels, therefore passenger traffic flows of Port of Ancona are intense in both arrivals and departures.

3. Tools and measures supporting multimodal transport (policies, plans, etc.)

The intermodality and multimodal transport in Italy have been developed quickly thanks to the promotion of intermodality in the European Union since the nineties.

Specifically, within the maritime transport and involving the Port of Ancona, the initiative European strategy for the Adriatic and Ionian macro-region (EUSAIR) is worth to be mention. EUSAIR has the objective to support the maritime horizontal links between TEN-T corridors through the Adriatic ports. Therefore, in order to achieve this aim, the elaboration of a Transport Masterplan for the Macro-region and the extension of TEN-T corridors along the Balkans have been planned.

Another important initiative regards the institution of Connecting European Facilities (CEF), which is a relevant help for intermodality development. CEF is a financial instrument issued by European Commission with the Regulation n. 1316/2013 to guarantee the implementation of the TEN-T network divided into two levels (core network and global network). The Port of Ancona is involved in the second CEF 2014-2020 transport sector foresees a budget of 24.05 billion euros (of which 11.3 billion euros of Cohesion Funds for which Italy is not eligible).

Directly based on the Italian incentives ECOBONUS, MAREBONUS and FERROBONUS, which will be discussed later, is the Med Atlantic ECOBONUS project, financed by European Commission in in the CEF Program 2014-2020. The project develops a European incentives scheme for intermodal road-sea transport. The incentives scheme is based on a double call of proposals addresses to shipowners and road haulers.

Regarding the consideration of multimodal transport and intermodality in the Italian legal and transport system, an important starting point has been the issue of the New National Logistic Plan 2011-2020 approved by the General Consult for Road Transport and Logistics in 2010, which considered for the first time the possibility to use incentives in order to foster railway transport.

Another relevant step has been the publication in 2014 (second edition in 2016) of the Study Initiative on Italian Portuality (Iniziativa di Studio sulla Portualità Italiana). The study focuses on an analysis of maritime transport demand and national ports supply. Moreover, it includes a wide consultation of the main stakeholder (e.g. port authorities, shipping companies) in order to consider the general politic orientation on transports in Europe.

Nowadays the Italian government considers incentives with a structural form as a concrete tool to achieve the European standards with the hypothesis of decreasing incentives as performances increase.

The main Italian incentive policies developed along the years are ECOBONUS, MAREBONUS and FERROBONUS.

ECOBONUS has the specific aim to foster the use of the Motorways of the Sea (MoS), therefore the achievement of shifting freight transport from all-road to road-maritime alternative.

In order to promote the incentive, 32 eligible maritime routes have been identified during the years by the Italian Ministry of Transport (MIT). The routes were selected according to potential volumes attracted from road traffic (presence of alternative road transport solutions) and the potential socio-economic as well as environmental benefits by shipping cargo on the given maritime route instead of road.

The incentive foresees contributions up to 30% on Ro-Ro fares charged to truckers respecting specific elaborated constraints.

MAREBONUS aims to develop the combined road-sea transport mode by creating new maritime services and implementing the existing services. Specifically, the main objectives are:

- The transfer of heavy vehicles from road to sea, with alternative and sustainable transport modes;
- The improvement of the Motorways of the Sea to allow a higher and better use of the maritime mode as an alternative to the road transport;
- To rebalance the freight transport system developing a road-sea combined transport thanks to the offset of the difference in the external costs of road transport;
- To reduce the social costs of mobility thanks to the decrease of environmental pollution, the decongestion of road network and the increase of road safety;
- To foster the activation of intermodal transport services and to improve the offer of existing services.

MAREBONUS focuses on development of Ro-Ro and Ro-Pax new maritime services and it is addressed to ship owners who propose three-year projects aimed to support the implementation

of the intermodal chain and reduction of the road traffic congestion. Therefore, the projects which aim to improve freight multimodal transport regarding existing routes connecting Italian ports (from/to) as well as ports located in EU Member States or Members of the European Economic Area are beneficiaries of MAREBONUS incentive. Moreover, shipowners with ships for freight multimodal transport are further beneficiaries of the incentive, which includes the overheads of part of the amount received to favour the road transport companies using maritime services.

The incentive is estimated on the base of the number of ships multiplied for the distance (in km) subtracted to the Italian road viability.

FERROBONUS aims to lower environmental impact of road transport companies and improve the development of logistics through investments and measure funded interventions in favour of combined rail freight transport and transshipment.

For a one year of incentives the entire amount of funding amounted to 25.7 million euros with a maximum limit of 2 euros per train-km of combined transport and/or transshipment on national routes.

In addition to MAREBONUS, FERROBONUS and ECOBONUS, the Italian government has renewed other incentives related to intermodality for the period 2018-2019 with a total budget of 358 million euros.

Most of these funds include tolls discount on train tracks and incentives for port terminal operators who deliver goods on the train or use rail terminals.

Beyond the most important incentives there is also the Decree N. 221 on 20th of April 2018 with the general objective of lowering environmental impact vehicles destined for intermodal transport, delineating the methods for accessing the grants for the investments of road haulage companies. In order to achieve the renewal and technological upgrading of the vehicle fleet, the incentive scheme encourages collaboration and aggregation initiatives between companies as well as the investments of road freight transport companies, specifically the acquisition of instrumental for intermodal transport.

The contribution thresholds have increased based on the size of the applicant company and the planned investment. Specifically, the entity of subsidies is:

- 4,000 euros for each CNG vehicle or with hybrid motorization and 10,000 euros for each electric vehicle (equal to or greater than 3.5 tons);
- 8,000 euros for each alternative hybrid traction vehicle (diesel/electric) and CNG (7 tons or more);
- 1,000 euros (maximum) for the acquisition of devices suitable for reconversion of vehicles (3.5 ton). The contribution is determined by 40% of the eligible costs, including the device and the equipment;
- 5,000 euros (between 11.5 and 16 tons) and 10,000 euros (equal to or greater than 16 tons) for vehicles scrapping with the following acquisition of new factory vehicles compliant with the Euro VI standard.

Until the situation was dramatically lower the national average level and the share of freight transport in the region was under 3% of the total share, the intermodality was a missed topic in Marche region legislation.

Nowadays with the development of the Marche Logistics Platform and the issuing of Regional Laws concerning the multi modal transport a process to comply with national legislation and national values has started.

With Regional Law L.R. n. 20/2011 art. 31 and the Infrastructure, Transport and Logistic Regional Plan for the first time has been considered the idea to elaborate a Regional program for supporting the starting of intermodal services.

The topics reported as desirable in the new regional program for transport and logistics are:

- To rebalance transport from/to Marche Region in favour of eco-sustainable methods and energy savings of freight: the railway transport could allow to reduce the number of heavy vehicles, air pollution and traffic congestion meanwhile road safety would increase;
- To support the growth: the improvement of railway traffics would foster the development of logistic industry as well as the whole economic system of the Region;
- Transformation of platform logistic in gateway: development of road-sea intermodality as well as road-rail (Jesi inland terminal);

- To increase the importance of TEN-T.

In the Regional Plan the most important concept introduced is the overcoming of the idea of single autonomous nodes at service of the territories in favour of an integrated system in which the offer of logistic services fulfils the widespread demands of the local productive fabric. Meanwhile, the support to goods flows belonging to long distance networks is proposed.

The Plan gathers and elaborates the regional programming of almost ten years giving a vision of potentialities for development of the territory and providing a picture of the situation regarding infrastructures, railways, nodes. It suggests Marche Region to implement concrete support actions through an adequate regional legislative framework that supports and incentives intermodality. In this perspective, actions and interventions are promoted to favour the positioning of the region in the national and international logistic context.

Among the measures hypothesized, particularly relevant is the reorganization of the transport system, aimed at reducing road congestion, encouraging the transfer of freight and rail freight quotas, stimulating local authorities to lay the foundations for coordinated and sustainable urban mobility. Furthermore, within the review process of the TEN-T European transport network, there was the request of extension of the Adriatic Corridor and the development of intermodality in the perspective of the Adriatic macro-region.

The Region must play a strategic role in promoting private logistics initiatives implementing forms of economic support for the use of intermodality and rail transport with a specific text of Regional Law, as it already happens in Emilia Romagna, in Campania and in Friuli Venezia Giulia, according to the national legislative proposals.

The framework to focus must be the integrated logistics, which presupposes the examination of transport problems no longer at a punctual level, but with reference to the national and international connection axes.

Regarding other incentives in intermodality:

- In December 2012 was approved the Regional Decree D.G.R 1709 regarding the granting of incentives for intermodality in Marche Region and for contributing to the growth of logistics entrepreneurship and to incentivize the investments in intermodality and

innovation (ICT, vehicles and equipment adjustment to environmental, energetic and operative standards).

- In 2013 was published a tender regarding non-refundable contributions for the adjustment of freight transport vehicles. The beneficiaries are the enterprises of Marche Region that buy commercial vehicles for freight transport in substitution of old diesel vehicles.
- In 2016 national incentive, in turn promoted by Marche Region, regarding a tender for non-refundable contributions for road haulage third parties for trucks and semi-trailers. The beneficiaries are the road haulage enterprises operative in Italian territories and duly registered at the national electronic register and to the register of freight haulers on behalf of third parties.

B: Future Scenarios

In September 15th of 2016 entered into force the national law n. 169/2016 regarding the Port Authorities reorganization.

Since different decades it was clear the necessity of a reform regarding the port's organization, but this became even more urgent when it was adopted also in Italy the new rules about the Trans-European network for transports (1315/2013).

Also the results reported in the Global Competitiveness Index 2014-2015 published by the World Economic Forum revealed this necessity ranking the Italian ports infrastructure at 55th position for competitiveness after Spain (9th), Portugal (23rd), France (32nd), Greece (49th) and Croatia (51st).

The main topics treated by the new reform are:

- Institution of the "Port Network Authority" (Autorità di Sistema Portuale - AdSP), under direction and vigilance control of the Ministry of Infrastructure and Transport, in a reduced number compared with the former Port Authorities, from 24 to 15;
- Reduced size of management structure;
- Implementation of competent Unique Customs Office and Unique Administrative Office.

New AsDP are public entities not economic with national relevance, with special organization and with administrative, regulatory and financial autonomy.

Their main task is the addressing, planning, coordinating and control provision of port services and operations, as well as promoting partnerships and cooperation with port and interport logistics systems.

The new governance system is simpler, it is in charge to adopt the three-year operating plan, and to develop logistics and port strategies.

There are no more single advisory commissions and it is instituted, for each Authority, a "Partnership Body for the Marine Source", with consultancy assignment, composed by representations of companies and workers that operate in the port.

The greater direct involvement of the Ministry and the centralization of the activities related to planning strategies will avoid the competition between close ports, improving cooperation between them and limiting local personal interests.

Another important element of the new institutions is the creation of new Unique Customs Office, under control of State Customs Agency, that will allow, in a centralized and coordinated way, the realization of all control activities in a shorter time.

At the same it important the institution of the Unique Administrative Office, under AdSP control, with the purpose of implementing and accelerating the implementation of administrative procedures (not regarding commercial activities only) that concern companies operating in the field.

As already stated in the previous sections, the main and growing freight transport sector in Marche Region is the Ro-Ro traffic in the Port of Ancona. In the near future this trend should continue thanks to the efforts by the Port Authority, European Union and Local Administrations.

In the Three-Years Operative Plan the Port Authority considers different actions for the implementation of Ro-Ro and Ro-pax traffics.

These kind of traffics are operated in the historical port of Ancona, close to the town center. The lack of space behind the port brought to the decision to move the ferry terminal and the parking areas away from the quays, in order to improve the organization of the traffic flows and comply with the security standards for maritime traffic. It was deliberated the necessity for a dedicated parking inside the customs area in the port to implement the customs formalities.

To improve the quality of service and face the traffic growth, the Central Adriatic ports authority and the Customs Agency decided to launch an innovative project aimed at shifting the customs parking outside the ferry port customs gate.

A feasibility study identified the former railways yard “Scalo Marotti” as the best solution to set up the new customs parking.



Figure 15: Ancona ferry port infrastructures and location of Scalo Mariotti

The Scalo Marotti is a former railway yard, and it was already available for port operations. In August 2018 it became property of Central Adriatic Ports Authority (31.000 sqm). The Customs Agency included the Scalo Marotti as customs storage facility (procedure 16242/RU).

The Central Adriatic ports Authority equipped it with fences and the basic facilities to allow the testing as customs parking.

The main challenge was how to ensure a secure transfer of trucks between the customs gate and the Scalo Marotti customs parking. In June 2018 the Customs Agency, the Port Authority and the Customs Police (Guardia di Finanza) started the testing phase.

The monitoring of trucks was ensured by the Financial police, with dedicated staff along the road between the two customs areas. The Port authority also ensured the availability of assistance staff to give indications to truck drivers.

The testing phase demonstrated the feasibility of the project from the point of view of the organization of the embarking and disembarking flows, the traffic monitoring and a more efficient organization of the ferry traffic.

The main results of testing were:

- No impact/very small impact on ferry traffic timetable;
- Road traffic was never blocked notwithstanding the adding of the traffic related to the Scalo Marotti along the road linking the Scalo Marotti to the customs gate and viceversa;
- The feasibility of the trucks and vehicle monitoring and the capacity to separate the customs traffic flows from the non-customs traffic flows;
- A relevant result of the testing was an estimated reduction of 11.000km of heavy good vehicles (HGV) driving at low speed in 2 months of testing inside the port facilities close to Ancona town center;
- The need for an automated control of the traffic flows to reduce the Custom police and the traffic assistance staff along the road, with a positive impact on increasing the control capacity, reducing costs and the risks for the human resources deployed along the road.

Following the positive testing, the Port Authority, the Financial police and the Customs Agency jointly decided to proceed with the implementation of the second phase of the innovative Scalo Marotti project.

The second phase consists of the following steps:

- Improvement of the scalo Marotti parking infrastructure;
- Transfer of the Financial and Customs police offices in the buildings close to Scalo Marotti;
- New facilities for truck drivers and freight forwarders;
- Set up of the ICT system for the tracing and tracking of the vehicles along the road linking Scalo Marotti and the Customs gate of the ferry terminal.

The IT action called SMART-C (Scalo MARotti viRTual Corridor) targets the latter step.

Total costs and timetable for SMART-C:

- Total cost assessed: 4,5 million Euro;
- In 2019-2020 the improvement of the parking infrastructure will be implemented as well as the works for the new offices and facilities for the Custom Agency, the Custom police, freight forwarders and truck drivers.
- The ICT system is expected to be in operation by June 2020 at the latest, to complete in 2020 the testing and fine-tuning phase.

The expected results of the Action are the following:

- Increased automation: video as well as other type of content will be georeferenced in a 3D setting and rendered to the user in a virtual reality interface eliminating the need of monitors and dedicated personnel;
- Increased security and reaction: the artificial intelligence system on which it will be based performs a deep analysis of the data received reducing the number of false alarms to irrelevant levels, but targeting all the suspicious behaviors, making available tools to countermeasures in case of dangers and alerts. The system also will make available relevant data for investigations and training;
- Increased management capacity: port operators as assistance staff and Customs police will be able to control and manage in real time the ferry related traffic flows in- and outbound the port. The capacity won't be limited to the vehicles implementing customs formalities; it will be rather extended to all the vehicles and people passing through the virtual tunnel;

- **Replicability:** testing and validation of a best practice to optimize vehicle traffic monitoring, tracking, tracing and control with specific reference to international ferry traffic servicing also neighbor countries.

The Action will include the economic, juridical, operational and environmental studies aimed at providing the Port of Ancona and the Customs Agency the information on the overall costs and benefits of the project, the best practices to reply in other ports or customs facilities and the added value for a port authority deriving from the deployment of an AI (artificial Intelligent) technology in terms of data management, port infrastructure management, traffic flow control, safety and security. An in-depth analysis will also be implemented to assess the positive impact in terms of reduced pollution coming from the reorganization of the customs related services for the ferry traffic of the port of Ancona.

The development of interoperable and interconnected ICT systems for the exchange and monitoring of freight traffic information will be realized within the node and its hinterland allowing the “horizontal integration” between the users and the traffic management systems. Increased level of interoperability and interconnection will improve the competitiveness and the quality of freight transport services along the North-South Axis.

Finally, the Action will be able to reduce the logistic costs linked to administrative procedures and reduce the gap with the northern sections of the EU Corridor, characterized by a higher level of “horizontal integration” between the logistics, the transport users and the network platforms.

C: Mapping out stakeholders

For the objectives of the project, and in particular for the realization of the foreseen Action in the Port of Ancona the main stakeholders are listed below. The following tables report their role and contribution to the project.

Port of Ancona – mapping out stakeholders / 1			
		Influence	
		Low	High

Interest	Low	Marginal Stakeholders: Importance = Low	Relevant Stakeholders: Importance = medium/high
	High	Operative Stakeholders Importance = medium/high	Key Stakeholders: Importance = high

Table 11: Matrix of relevance of stakeholders

Port of Ancona – mapping out stakeholders / 2							
Name	Role	Importance	Benefits	Contribution	Conflicts	Current support	Strategies to improve support
ICOP – CPS	Company	Medium	Procedures simplification	Railway infrastructure	Lack of competence, resistances	Medium	MoUs, More involvement
Customs Agency	PA	High	ICT infrastructure and supporting corridor realization	Support the tunnel realization and assessment of consistency	Not implementing tunnel and necessary procedures	High	Continuous and regular meetings and feedbacks
Freight Forwarders	Operators	High	Procedures simplification	Database and custom information	Lack in confidence for provision of info	High	Continuous involvement in development phases
Customs police	PA	High	ICT infrastructure and supporting corridor realization	Assessment innovative procedure of controls	Not implementing tunnel and necessary procedures	High	Continuous and regular meetings and feedbacks
Maritime Agencies	Operators	High	Procedures simplification	Database custom info and for targeting vehicles	Lack in confidence for provision of info	Medium	Continuous involvement in development phases
Software Companies	Company	High	Realization of innovative system	Development of virtual	Risks deriving from sensible	High	Strict contract and continuous involvement in

				tunnel software	data and lack in competences Lack in teaching abilities		development procedure
Hardware Companies	Company	Medium	Realization of innovative system	Provision of ICT and digital equipment	Risks deriving from poor equipment and lack in competences Lack in teaching abilities	Medium	Strict contract and continuous involvement in development procedure
Harbour Masters	Operators	Medium	Involvement in innovative structure	Provision of terminal infrastructures for realization on tunnel	Resistance in project developing	Medium	MoUs, More involvement
Border Police	PA	High	Supporting corridor realization	Monitoring on procedures and vehicles	Lack in competences	High	Continuous and regular meetings and feedbacks
Truck drivers	Operators	Low	Procedures simplification	Feedbacks and contributions in fast procedures	Lack in competences	Low	Continuous and regular involvement in implementation procedures

Table 12: Classification of stakeholders

D: Analysis of IT systems

In the last years the Central Adriatic Port Authority has invested constantly in developing information systems with the aim to support the efficiency and competitiveness of Ancona, getting even more than what planned in the former developing programs regarding the Port Community System.

Actually, the PCS "LISy" is able to dialogue with the Customs Agency ICT system called AIDA, the Port Management Information System (PMIS) of the Corps of Port Captaincies and the TRAMAR system of ISTAT (Italian National Institute of Statistics).

LISy has been one of the first systems at national level able to interface and acquire available data from the open data service of the PMIS.

Furthermore, it is still a system fully interoperable with software utilized by different shipping agents and customs freight forwarders for giving them the possibility to exchange data regarding customs procedure without the mandatory necessity to use the system of Port Authority (modular distributed plug&play architecture).

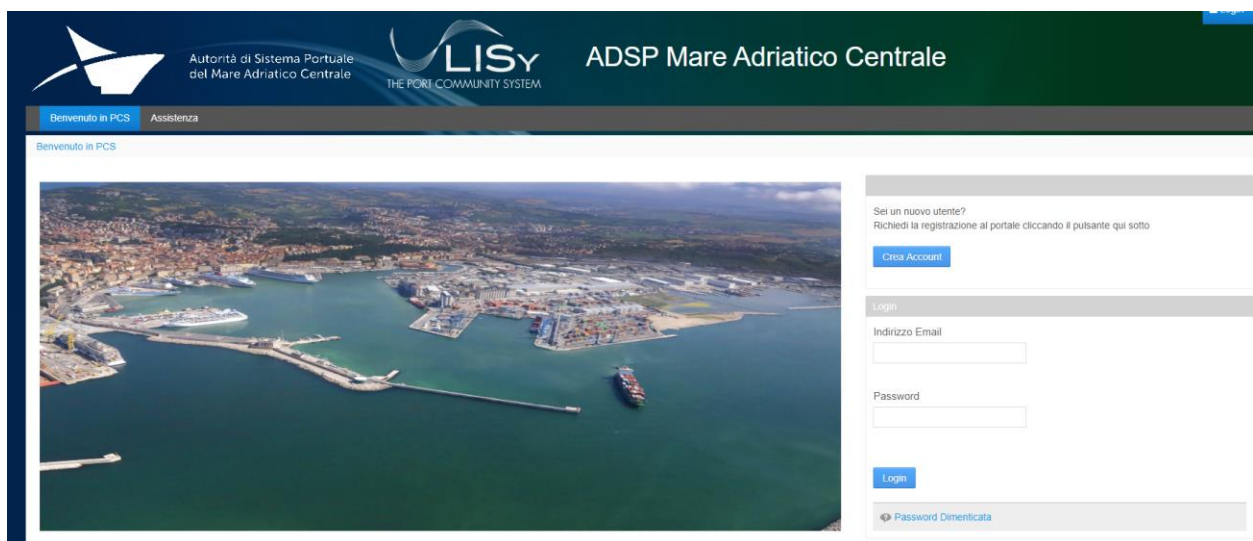


Figure 16: LISy website homepage

Despite the success, the system is continuously under developing in order to guarantee the adaptation of its functionalities to the dynamic changes occurring in the world of transport and logistics.

As stated in the dialogue between Customs Agency and Assoport (Italian ports association) everything will be integrated with the functionalities necessary for the telematic interaction between public administrations, and will be developed in order to adapt interface at the progressive development of the National Logistics Platform, of the Corps of Port Captaincies and of the Customs Agency.

The system is under developing with the aim to increase the principle of data reuse and automatic availability once it is in the system. A further developing line is the *gate control* system

for simplify and assist activities carried out by the guards present to port gates, both to ferry and cargo terminals.

One of these developments in particular regards the modality for remote control of heavy cargo vehicles for removing parking areas from historical port quays to external port circulation area where carrying out customs performance.

1. Architecture models

Since 2015, thanks to Project MEDNET, Port Authority of Ancona has bought and developed the web application LISy for the telematic interface with Public Administration in charge of the port logistics activities.

The software is a user friendly application able to interact with all the different internet browser and systems.

The application was developed for answering to all new technical innovations and regulations taken by the competent administrations for freight controls and maritime traffic monitoring - in particular: Customs Agency, Corps of Port Captaincies, and ISTAT.

The System is articulated in four modules, all connected and able to reuse all data already in the PCS:

1. Central module for authentication, user profiling, common system interface and notification center. The other modules depend from this central module;
2. Module "vessel" structured in the following functions:
 - a. Vessel trips management;
 - b. Boarding list management;
 - c. Crew list management;
 - d. Interface with functions reported in PMIS system of Corps of Port Captaincies;
3. Module "freight" structured in the following functions:
 - a. Entry Summary Declaration Management;
 - b. Elaboration model bill of landing goods;
 - c. Management bill of landing goods;
 - d. Functionalities extension for bill of landing goods to optimize customs procedures at sea;
 - e. Elaboration model bill of departing goods.
 - f. Management bill of departing goods;
 - g. A3 consultation;
 - h. Management of embarking orders, with possibility of correction/integration of the same (modification ship destinations, declarations emitted by foreign customs);
 - i. Elaboration of goods list authorized for embarking;
 - j. Acquisition list of embarked goods;
 - k. Service for exchanging customs flows (Customs Telematic Service - EDI);
 - l. Users support for modification of customs authorizations;
 - m. Customs status consultation of goods departing from terminal;
 - n. Customs status messaging management;
 - o. Interface with Customs Agency AIDA system.
4. Module "ISTAT":
 - a. Shipping Agent interface for elaboration ISTAT models 501/2 and 501/2bis;
 - b. Interface Port Authority for validation of declarations delivered by shipping agents, data archive and consultation;
 - c. Interface with ISTAT system for monthly report transmission in ISTAT requested format;

d. Monthly statistical elaborations.

In consideration of the core role of Ancona as one of the main terminals for the motorways of the sea in the Adriatic basin, being the northern terminal of the SCANMED corridor in the Adriatic sea, ICT systems of the Port are going to be improved with the Action SMART-C.

The project consists in the implementation of artificial intelligence technology based on correlation and merging of simultaneous information coming from multiple sensors located in 3D space to manage and control vehicle flows along the road, between Scalo Marotti and the Customs Gate, with possible interferences and entrance/exits to ensure that vehicles follow the assigned path and do not exit from it.

The goal is to significantly increase security and management capacity of vehicles flows related to ferry traffic inside the port facilities and the surrounding areas, with particular reference to customs formalities, realizing a virtual customs tunnels linking customs facilities without onboard units for the tracing and tracking of vehicles in short distance paths.

2. Implementation stage

In the design and implementation of ICT systems, four stages have been identified from literature:

1. Project initiation.
2. System analysis and design.
3. Pilot implementation
4. Implementation and adoption.
5. Maintenance and growth.

Stage 1 consists in the reorganization of all the information and data that all the involved stakeholders need to share for intelligently set up the new system network. As already happens with the actual ITS and PCS operating in Ancona, the aim of the new systems in developing require the common participation of all the partners for sharing their information and operational activities with other companies.

Stage 2 consists in planning the system architecture. It is a delicate phase because the new operational structure requires the necessity to be the lightest possible in order to avoid any radical change in present working procedures and being the most acceptable possible by the stakeholders.

Stage 3, pilot action and tests realized for demonstrating the real usefulness and the benefits deriving from the adoption of new operational system. The positive results have led to the realization of the following implementation steps.

Stage 4 consists in the maintenance following steps that will be responsibility of all the companies involved for the realization of the hardware and software components of new system. The success of the system developed in Ancona will give the possibility to have realized a "best practice" exportable in other ports and transport applications. Development of the system will be continuous and constant: stages listed above will be followed again for every new implementation.

3. Usage by and impact on freight agents

Due to positive results and reaction derived by the pilot action, operators working in the port of Ancona will be invited to apply and use the new systems in their procedures.

The Port Authority is already conscious that no coercive action will be necessary between partners thanks to the positive operative simplifications deriving from the adoption of the new systems for all the companies involved.

Future developments and expansion of the systems are already under considerations for connecting the other Ports of Central Adriatic Authority (Pesaro, San Benedetto del Tronto, Pescara and Ortona) to the new ITS infrastructure.

E: SWOT Analysis

This section reports the strategic evaluations about the Port of Ancona and Marche Region using the SWOT analysis instrument. The conclusions based on this baseline study and on the role of the above-mentioned stakeholders are summarized in the following table:

SWOT	
STRENGTHS (S)	WEAKNESSES (W)
<ul style="list-style-type: none"> • The Port of Ancona is leader in the Adriatic regarding Ro Ro and Ro Pax traffic; • Good and profitable relations with all the customs local and national authorities; • Presence in the port of an internal railway terminal; • Being main port for Port Network Authority of Central Adriatic Sea. 	<ul style="list-style-type: none"> • Weak in railway and road infrastructures; • Poor attractivity in local industry; • Weak in port infrastructures different that ferry traffic; • Low impacts of regional policies.
OPPORTUNITIES (O)	THREATS (T)
<ul style="list-style-type: none"> • Increase interoperability between the three logistics nodes; • Increase ferry traffic with Balkans and extra Adriatic regions; • Increase importance of Ancona as core hub thanks to TEN-T network; • Future improvement of regional road and railway network; • New chances deriving by establishing Port Network Authority of Central Adriatic Sea; • Increase attractiveness of Ancona thanks to partnership and projects with customs agency. 	<ul style="list-style-type: none"> • Missed development of future projects and funds for improving regional infrastructures; • Competition in the ferry traffic with ports of north Adriatic with better infrastructures; • Poor understanding by local authorities regarding the importance of intermodality.

Table 13: SWOT analysis Porto of Ancona and Marche Region

F: Main results

To sum up, this Territorial Needs Assessment highlights the following conclusions that should be taken into consideration for the future activities in the PROMARES project:

- Establishment of the Port Network Authority of Central Adriatic Sea as strategic opportunity for realization new partnerships and strategic cooperative activities. The institution allows the possibility to get critical dimension thresholds useful to be more influencing for the formation of economies of scale and to compete in national and international scenarios. The centralization of different activities (customs and administrative) allows also the reduction of overlapping structures and the reduction of losing time.

- Necessity to overcome the idea of single autonomous nodes at service of the territories in favour of an integrated system.
- The Port of Ancona is the leader port for international traffic by ferries. The main market is represented by Ro-Ro traffic, with intense traffic flows of trucks and therefore Ro-Ro freight. The main routes involve the Adriatic Sea and the Adriatic ports. Precisely, intense relations are entertained with north Adriatic Italian ports, especially for cargo transport and container traffic, while, for international routes, intense traffic flows are recorded with Greece, Croatia and Albania, especially regarding passenger transport and Ro-Ro freight transport.
- The main modal shift in Ancona is represented by Sea-Road intermodality.
- Marche region suffers a lack of road and railway infrastructures compared to ports of north Adriatic. In order to be more competitive regarding connections with Central Europe is necessary to plan an improving campaign of regional infrastructures.
- Intermodality is, finally, an important topic of national and regional policies. Now authorities need to realize more than what done up to now.
- Positive partnership attitude between Customs Agency and Port Authority for improving competitiveness of Ancona developing new and innovative ICT tools.