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European Research for Maritime Eco(nomic) clusters governance Strategy - ERMES

Targeted Analysis

Case study report Liguria

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Case study report Liguria

European Research for Maritime Eco(nomic) clusters governance Strategy - ERMES

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1 Introduction

1.1 Background

In this report, the final outcomes of the ESPON Targeted Analysis "*European Research for Maritime Economic clusters governance Strategy*" (ERMES) for the stakeholder region of Liguria are presented.

The study started on the 11 March 2020 and covered a period of 12 months. The study focuses on four stakeholder regions: The region of Liguria (Italy), Crete (Greece), Malta and the Province of East-Flanders (Belgium). Its aim is to analyse the urban-maritime interfaces and cluster development potentials in the stakeholder's regions; to define regional-specific urban-maritime spatial planning scenarios, involving triple helix actors, policy-makers and city-port authorities; to provide policy recommendations for the elaboration of strategies for urban-maritime regions; and to contribute to the production of an Atlas/Roadmap on future polycentric urban-maritime port regions in Europe.

The study centres around a set of four research questions, some of which encapsulate more detailed questions which have been formulated at a lower level.

- Considering the actions undertaken within cooperation networks among city ports, what are the territorial benefits that cluster collaboration can bring in the stakeholders' territories?
- To what extent and how could clusters contribute to the development of urban-maritime regions?
  - How can they benefit insular areas that combine a high number of territorial disparities such as described in Article 174[1]?
  - What kind of actions/policies are needed to ensure a sustainable and integrated management of economic clusters in coastal regions and island territories?
- Are economic clusters able to support local business development in urban-maritime regions?
  - What are the main economic sectors affected?

[1] Article 174 of the Treaty for the European Union reads: 'In order to promote its overall harmonious development, the Union shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion. In particular, the Union shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions. Among the regions concerned, particular attention shall be paid to rural areas, areas affected by industrial transition, and regions which suffer from severe and permanent natural or demographic handicaps such as the northernmost regions with very low population density and island, cross-border and mountain regions.'

- Which schemes can be used to investigate how the agglomeration of firms and related actors has a positive impact on the regional maritime economy (jobs/business creation and sustainable growth)?
- How can framework conditions be created in stakeholders' coastal regions for strengthening the relationship between existing industrial-services assets and strategical infrastructure development?
- Do economic clusters contribute to the improvement of networking and cooperation of urban-maritime regions?
- Which opportunities do citizens benefit from in the implementation of cluster polices?

1.2 Interim phase

The information in this document was gathered in the period between March and December 2020. During this period, the following activities were carried out by the consortium:

- qualitative-quantitative analysis of the urban-maritime interface in Liguria;
- scoping interviews with a selection of stakeholders that represent businesses, government and other organisations linked to maritime activities in Liguria;
- an extensive survey among a selection of Liguria's stakeholders;
- a virtual scenario building workshop that took place on 12 November;
- expert analysis of the different inputs by the consortium;
- development of the draft case study report.

During the interim phase Chapters 2 and 3, the urban-maritime interfaces and the urban-maritime scenarios, were developed. A draft version of Chapter 4, focusing on guidance and recommendations, was also produced in the interim phase.

1.3 Towards the final document

Between December 2020 and March 2021, additional information was gathered in order to finalise the case study report. During this period, the following activities were carried out by the consortium:

- a meeting with the Steering group was organised in order to discuss the feedback on the interim report;
- additional interviews were conducted with a selection of stakeholders in order to further develop and refine the guidance and recommendations formulated in the interim report;

- a horizontal workshop with stakeholders from all four regions was organised on 11 February. During this workshop, the overarching recommendations that were identified in the interim report were validated.

Based on the feedback that was received on the interim report, Chapter 2 and 3 have been fine-tuned. Additionally, Chapter 4 on guidance and recommendations was further developed based on the additional interviews and further research.

2 Urban-maritime interfaces in Liguria

2.1 Port and hinterland structure

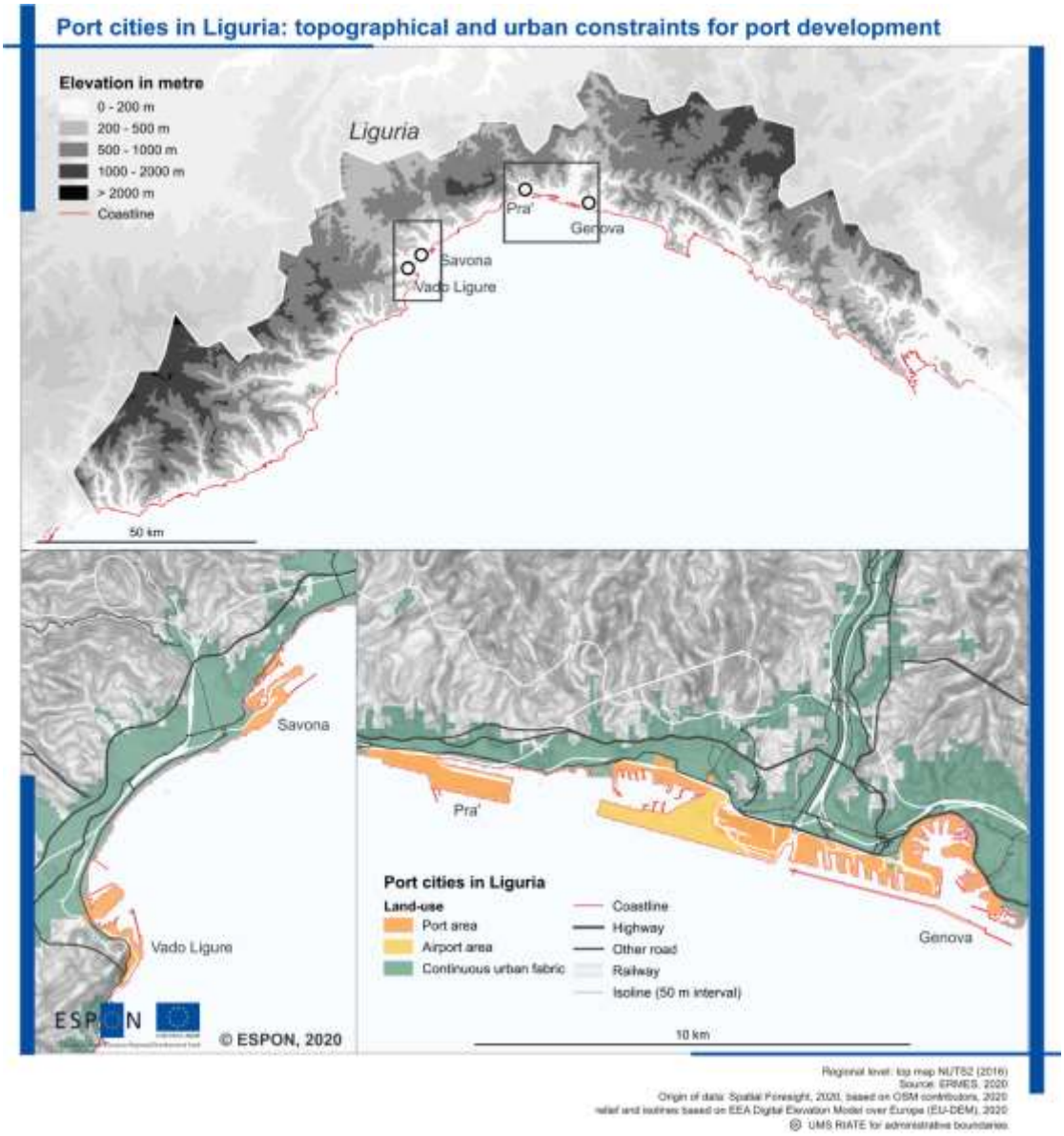
Regional aspects

The region of Liguria follows the coastline of north-western Italy, between the French border in the west, and the region of Tuscany to the east. The region is divided in four provinces: The Metropolitan City of Genoa, and the provinces of Imperia, La Spezia and Savona. Liguria is home to 4 cities with more than 50 000 inhabitants: Genoa, La Spezia, Savona and San Remo.

Its position on the northernmost point of the Mediterranean Sea makes Liguria an excellent location for port activities, because of the close proximity to a large hinterland. A strategic geographical position at the most northern point of the Mediterranean Sea provides easy access to the industrial and consumer heartland of Northern Italy and Southern Europe (Basle 450 km; Munich 600 km; Stuttgart 650 km). The ports are well connected to the motorway network and offer direct rail connections to the Genoa-Rotterdam Corridor, which is now in its final stage of development. The high volumes of traffic are managed by a Port Community System which groups together all the major players involved in the logistics chain operations in the ports, with a rationalisation and acceleration of data exchange for the release of the cargo, thereby reducing waiting times to a minimum.

The Western Ligurian Seaports are in close proximity to the urban centres. In addition, the direct hinterland of Liguria is relatively mountainous. This has implications for the expansion potential of the ports, as well as the connection with the further hinterland. The figure below demonstrates the urban and topographical constraints of the sea ports in Liguria.

Figure 1: Topographical and urban constraints for port development in Liguria



Economic structure of the region

The economic size (measured in Gross Domestic Product (GDP)) of Liguria region is roughly 3% (€50 billion) of the total Italian GDP. The region with the most economic activity is Genoa with a GDP of roughly €30 billion (equal to 60% of the entire Ligurian region).[2] This is also reflected when looking at the added value in the Liguria region. With almost €45 billion added value, the region adds roughly 3% (2.8%) of the total added value in Italy.[3]

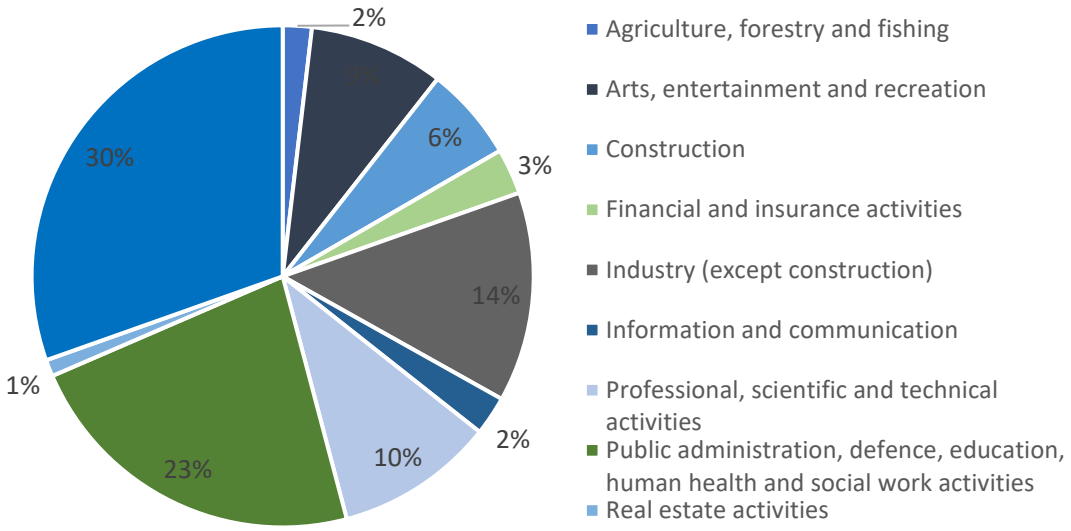
[2] Eurostat (2020), Gross domestic product (GDP) at current market prices by NUTS 3 regions.

[3] Eurostat (2020), Gross value added at basic prices by NUTS 3 regions.

According to an economic impact study the largest ports in the region – port of Genoa and Savona – facilitate roughly 6% of all the jobs in Liguria. The port systems of Genoa and Savona employ respectively 28 000 and 8 000 people. This makes the port industry one of the leading economic forces in the region. The same study concludes that when including indirect (induced) effects on employment, the total economic-social impact of the Genoa port sector is equal to 122 000 people, which would yield a total contribution to GDP of €10 billion. [4]

Total employment in the Liguria region is equal to almost 590 000 people. Most of these employees are active in in the field of (1) wholesale and retail trade, transport, accommodation and food service activities (roughly 180 000 people); (2) public administration, defence, education, human health and social work activities (133 000 people); and (3) industry (80 000 people).[5] Figure 2 presents employment by economic activity (NACE activities) in Liguria.

Figure 2: Employment by economic activity in Liguria



Source: Eurostat (2020), Employment by age, economic activity and NUTS 2 regions [lfst_r_lfe2en2]

In the following section, a more detailed description of the port area and maritime indicators in the region is given.

[4] Nomisma-Prometeia-Tema (2016), social-economic impact of the port of Genoa.

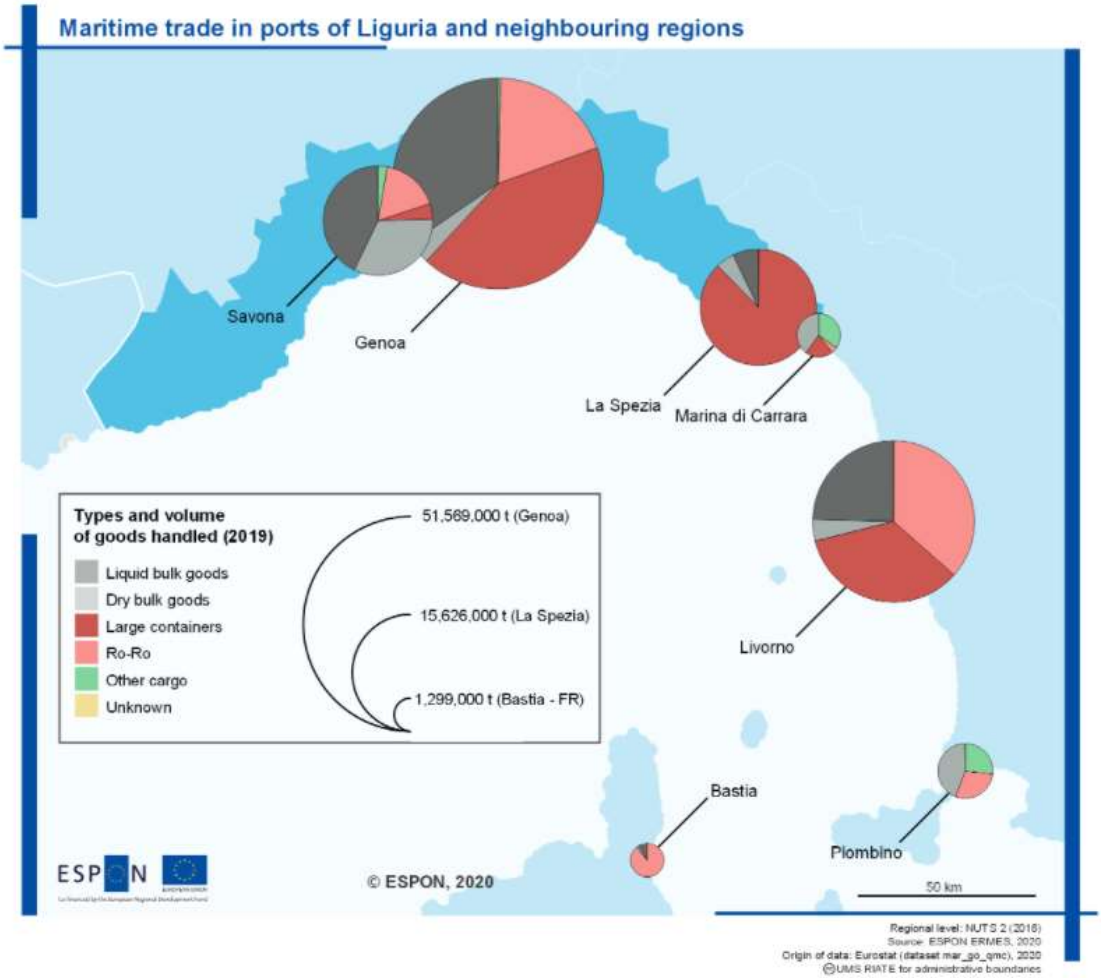
[5] Eurostat (2020), Employment by age (15-65), economic activity and NUTS 2 regions.

Ports characteristics

Italy's major ports - in terms of total traffic, product diversity and economic output – are situated in the Ligurian region. They play a central role in the Mediterranean Sea. The Ports of Genoa cater for all key commodity sectors: container, general cargo, Ro/Ro and bulk and rank as the leading Mediterranean gateway port for containers, project and heavy-lift cargo, and fruit.

The ports of Genoa handled 68 million tons of cargo and 4.5 million passengers, shipped by over 8 500 vessels. Notwithstanding the slowdown registered by containerized trade, the Ports of Genoa in 2018 handled almost 2.7 million twenty-foot equivalent units (TEU). From 2009 onwards, the total handled cargo increased with 8%, whereas containerized cargo even increased with over 50% compared to 2009. The market for containers is to a large extent internationally orientated, with the main trading partners of the Ports of Genoa cargo being China (over 400 000 TEU), USA (377.000 TEU) and Singapore (236.000 TEU). Within Europe, the Port of Genoa functions as a gateway serving the leading industrial and consumer centres of Northern Italy and Southern Europe.

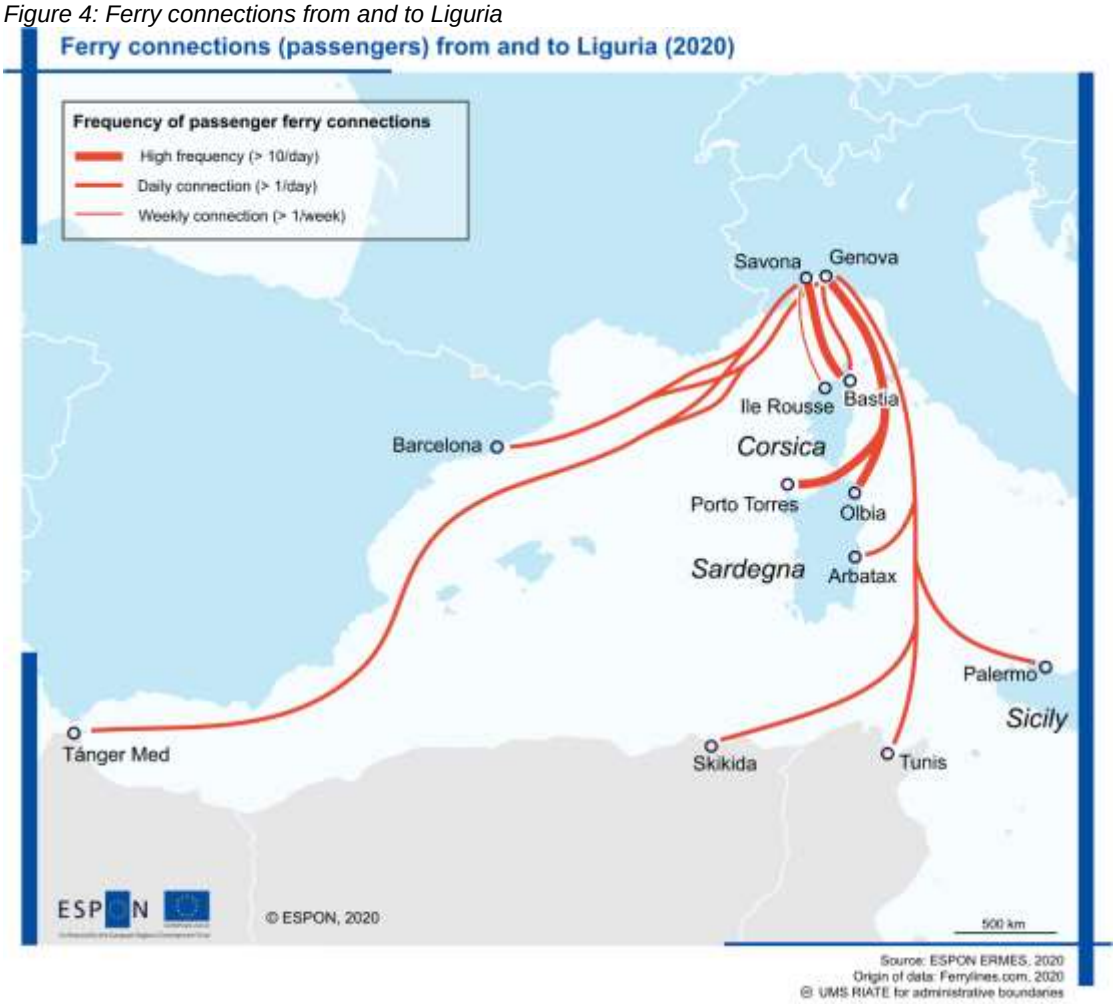
Figure 3: Maritime trade in ports of the Ligurian region



Source: Eurostat (2020), Gross weight of goods handled in main ports by direction and type of cargo

Passenger transport mainly consists of the ferry and cruise transport. The latter, cruise transport, has a volatile structure and ranges from almost 1.4 million in 2009 to over 2 million cruise passengers (PAX) in 2019, which equals to an overall increase of 46%. At the same time, transport of passengers has decreased substantially over the same period (roughly 20%). The map below shows the ferry connections from and to the different Ligurian ports.

Figure 4: Ferry connections from and to Liguria



Competitiveness and cluster dimension

In the regional competitiveness index 2019, Liguria ranks 172th out of 268 European regions. It is categorised in stage 4 of development, with 1 being the lowest, and 5 being the highest. Liguria scores well compared to its peers in the field of health. In terms of higher education and lifelong learning, and technological readiness, Liguria underperforms compared to its peers.

Liguria ranks as the 59th region in Europe in the urban-maritime eco-cluster index and thereby classifies as developed region. Liguria underperforms, compared to the European average, at the basic and efficiency sub-index. When it comes to innovation indicators (e.g. gross value added and exports in medium-high/high tech manufacturing) the region is close to the European

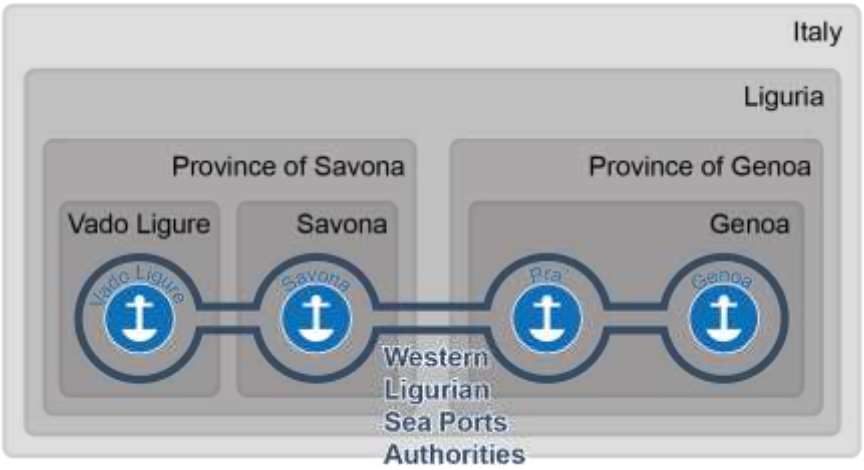
average. The score on the fourth index (port performance) really stands out as the scores on the maritime throughput and port efficiency indicators are well beyond the European average.

2.2 Governance

In 2016, a new reform law was accepted by the Italian government that reshaped the organisation of the national port architecture.[6] The aim of the reform has been to improve efficiency and increase the ability to create employment and economic development, favouring cooperation between neighbouring ports and simplifying procedures. As a result, the former 24 Port Authorities, in combination with 33 minor ports, have been replaced by 15 Port System Authorities (PSAs).

In the case of Liguria, the 2016 reform meant that the ports of Savona, Vado and Genoa were merged in the PSA of Western Liguria Sea, and the ports of La Spezia and Marina di Carrara were merged in the PSA of Eastern Liguria Sea. The PSAs have taken over the duties and power of the traditional Port Authorities, but they have a broader geographical scope.

Figure 5: Institutional embeddedness Liguria



Each PSA is governed by a management committee, led by a president. In the management committee, representatives from the different provinces and municipalities are represented, as well as the Harbour Master. Each port has a Secretary General, in charge of daily affairs.

[6] https://www.portsofgenoa.com/it/chi-siamo/autorita-di-sistema.html.

In the PSA of Eastern Liguria Sea, the president of the PSA also presides the Maritime Resource Partnership Body. This body includes the Harbour Master of the Harbour Master's Office, representatives of the industries, different operators, shipping companies, intermodal logistics operators, agents and maritime agents, and the workers of the companies operating in the port. Each individual port also has an advisory committee, in which shipowners, freight carriers, shipping agents, industries, entrepreneurs and workers are represented.[7]

In the PSA of the Western Liguria Sea, the president of the PSA also presides the Port Stakeholder Group, in which delegates from the key stakeholder categories of the port community are represented (coastguards, shipping lines, shipyard management activities, terminal operating companies, trade unions, freight-forwarding and ship agencies, intermodal logistic service providers, rail service companies, road haulage, and tourism). It provides a platform for consultation on a broad range of topics comprising port planning, investment programmes and improvement of overall port performance.

The respective PSAs are non-profit public bodies with administrative, budgetary and financial autonomy that directs, plans, coordinates, promotes and controls port operations. It performs maintenance of the common areas, maintains the seabed, supervises the provision of services of general interest, exclusively administers the state areas and property, and plans the development of the port territory. Furthermore, the PSAs are subject to the guidance and supervision of the Minister for Infrastructure and Transport.[8]

According to Professor Francesco Parola, the main advantage of this new governance structure is that the number of board members has been reduced, which reduces administrative costs and facilitates faster decision-making processes.[9] On the negative side, Parola points out that the reform has generated dissatisfaction among regional stakeholders, since the reform provides Rome with more executive authority, at the expense of the periphery. Furthermore, the reform is unable to provide the PSAs with a sufficient amount of resources necessary to achieve the national port development strategies. In contrast to most Northern-European ports which are subject to private law, the PSAs are non-economic public entities.

[7] https://www.adspmarligureorientale.it/en/adsp-marl-ligure-orientale/management/.

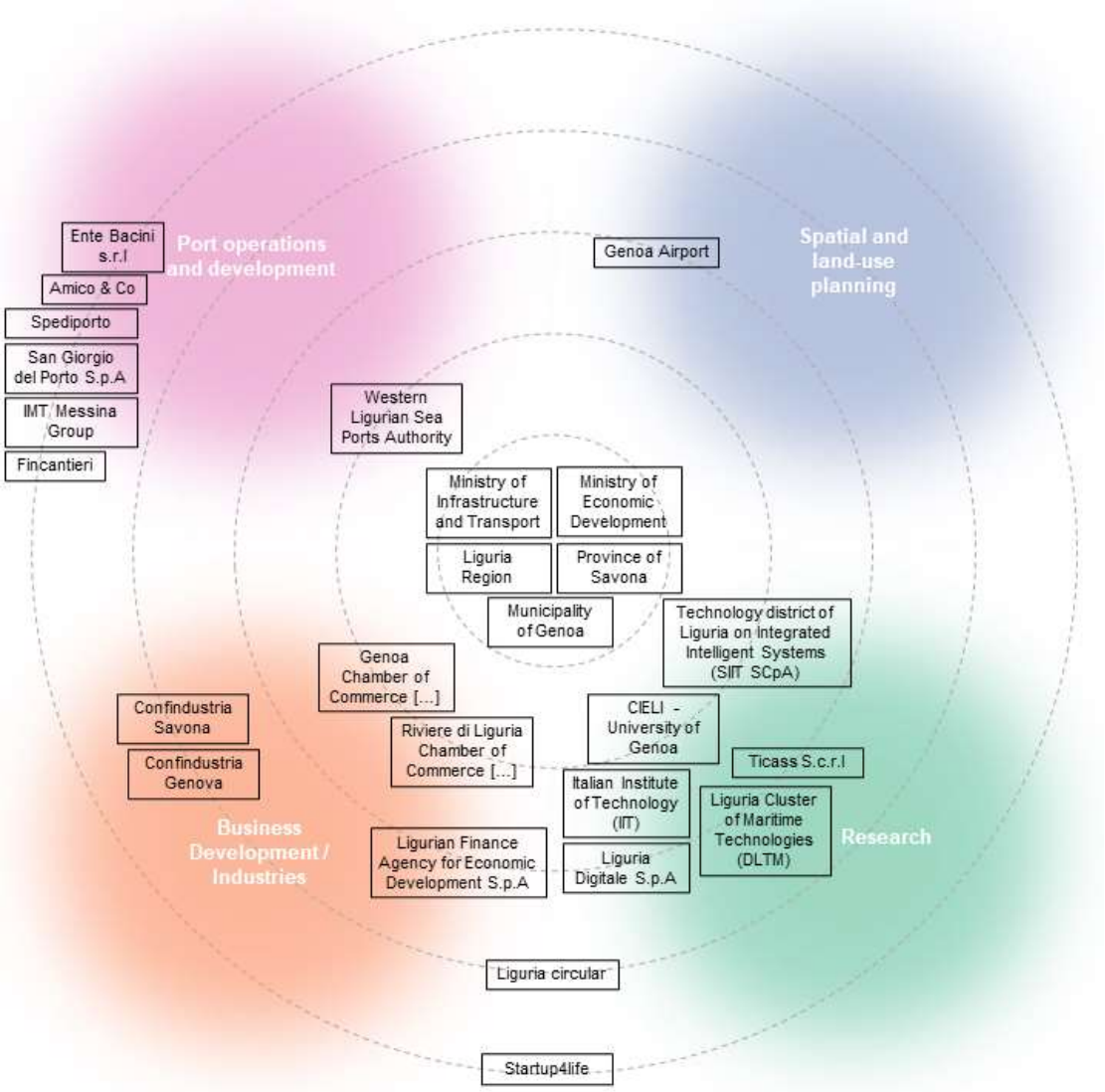
[8] https://www.adspmarligureorientale.it/en/adsp-marl-ligure-orientale/.

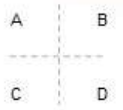
[9] Port Economic, *Italy reframes its port governance*, https://www.porteconomics.eu/2016/08/29/italy-reframes-its-port-governance/.

Ligurian urban-maritime actors

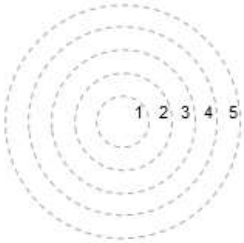
The graph below demonstrates the different types of actors that are involved with urban-maritime activities in Liguria. They are both governmental and private organisations in different fields: research, business development and industry, spatial and land-use planning, and port operations and development. The mapping of these actors was done through contacts with local experts and stakeholders. The map shows a relatively wide coverage of different actor types. In Liguria, the only actors dealing with spatial and land-use planning are the region, the Province of Savona and the Metropolitan City of Genoa.

Figure 6: Actor mapping in Liguria





Each quadrant provides for a **field of activity** that can support maritime eco-cluster development: Port operations and development (A), spatial and land-use planning (B), Business development and industries (C), and research (D). The relative position of actors in between two quadrant reflects mixed nature of certains actors that may bridge some gaps between fields of activities.



The distance to the centre of the graph reflects the **relative public-private ownership structure and objectives** of each organisation.
1: public authority, i.e. publicly funded body, rooted in democratic processes and focused on the public interest.
2: other public actor, i.e. publicly funded body, partially or totally independent from political decisions, focused on public interest
3: mixed public-private actor, i.e. of mixed nature, fulfils both public and sectoral or private interests
4: private actors representing collective or sectoral interests, i.e. it is owned/dominated by private entities and fulfils tasks based on collective or sectoral interest
5: fully private actor, i.e. owned by private persons and focused on private interests

2.3 Policies and projects

Over the last years, Ligurian stakeholders developed multiple projects that address the regions key challenges. Some of these projects are briefly described below.

- The PROteuS project aims to exploit the growth potential of the emerging Maritime Surveillance industry which can play a crucial role in the socio-economic development of MED area and in the generation of new job opportunities;
- Easylog aims to optimise logistics for the ports and for the development of multimodal transports, by a common management system;
- Project Impatti-No aims to improve the management of the treatment of waste generated by ports through the development of a circular economy model;
- Vento Porti Mare concerns the extension of the forecasting system of the wind to the water mirror in front of the ports;
- The Geremia, Blue Connect and Circumvectio projects propose as a general objective to train and support, with innovative tools and solutions, those who will be responsible for managing port waters;
- Project Rumble aims to reduce the impact of noise emissions in areas overlooking the commercial port;
- Project GNL Facile focuses on reducing the use of polluting fuels in favour of new energy sources with minimal environmental impact, such as Liquefied Natural Gas (LNG);
- TIGER Project addresses the issues of promoting sustainable logistics introducing innovative solutions;
- The GAINN4CORE Project mainly addresses LNG as an alternative fuel for both maritime and road transport;
- E-Bridge - Emergency and BRoad Information Development for the Western Ligurian Sea port system aims at improving road accessibility to the ports by reducing the gate-in gate-out average time in the peak hours from 60 to 40 minutes. It will also increase the port rail potential by 30% additional trains on a yearly basis and it will increase the ports' capacity by 500 000 TEUs/year;
- VAMP UP - Vado Multimodal Platform rail/road terminal (core RRT node of the TEN-T network) intermodal connections optimisation and upgrading action aims at improving the last-mile connections and interconnection with short sea shipment services of the port of Vado Ligure.

3 Urban-maritime scenarios

3.1 Introduction

Four scenario trends were presented to a targeted representation of stakeholders for each of the case study regions. These trends were based on potential global trends that seaports may be facing today and, in the future, but also on the influence of the ports onto the nearby landscape beyond seaports. The stakeholders were asked to identify which trends applied to their respective region in the upcoming 10 years. The global trends are presented below. In the following paragraphs, the selected trends for Liguria are described.

Global trends

The four global trends identified were the following:

Trend 1 - Optimisation of (port) operations:

The need to optimise operations is becoming increasingly important. When it comes to port operations there is a clear direction towards more efficient operations along with further integration of the supply chain, circular economy, personnel requirements and economies of scale[10]. Regarding the latter, economies of scale at sea have led to the deployment of ever larger containerships[11], which could lead to the potential developments of new terminal infrastructures. Growing container volumes and the increasing ship size could also lead to considerable pressure on cargo terminals, leading to congestion and other negative environmental externalities[12]. This scenario also looks at the potential need to optimise the transport chain (e.g. infrastructures), transportation capacity and accessibility and/or efficiency.

Trend 2 - Port regionalisation & multimodality:

The competitiveness of seaports depends increasingly on the ability of cargo to reach its final destination[13-14]. Building on that, the main bottlenecks of most ports are in the –direct-hinterlands rather than at the seaside (port terminals). To ensure efficient and smooth access

[10] Kennisinstituut Mobiliteit (2019). Trends en hun invloed op zeehavens.

[11] Wu, W. M., & Lin, J. R. (2015). Productivity growth, scale economies, ship size economies and technical progress for the container shipping industry in Taiwan. Transportation Research Part E: Logistics and Transportation Review. https://doi.org/10.1016/j.tre.2014.10.011.

[12] Acciaro, M., & Mckinnon, A. (2013). Efficient Hinterland Transport Infrastructure and Services for Large Container Ports. JTRC Discussion Paper Series.

[13] Ibid.

[14] Merk, O., & Notteboom, T. (2015). Port Hinterland Connectivity. International Transport Forum. https://doi.org/10.1787/2223439x.

to the market in the future, the port system must be integrated in a multimodal (or synchromodal) transportation network that connects port and inland terminals through hinterland connections. This integration should be coordinated between port developments and be in line with TEN-T planning.

Trend 3 - Innovation & digitalisation:

Digitalisation and automation provide many new opportunities to increase port productivity, increase the efficiency of port logistics and eliminate bottlenecks. Several new digital trends and developments could help, such as: the use of adequate IT systems (truck and barge) to manage congestion, increase capacity, increase the efficiency and effectiveness of gate operations and to ensure adequate coordination and information exchange among operators[15]; the use of automated and advanced IT systems at terminals to ensure efficient operations, as advanced electronic data interchange (EDI) systems provide real time information to port managers and integrate information flows from several operators[16]; and the use of internet of things (IoT), 3D-printing and even the development of autonomous transportation for various modalities (inland waterways, trucks, trains). These new digital trends and development will also increase the focus and attention towards cyber-security issues[17].

Trend 4 - Enhancement of sustainability

The urgency for making an energy transition away from fossil fuels has a tremendous effect on seaports that are often strongly linked with the fossil fuel industry. Over the next decade(s) steps have to be taken to green these port complexes. A bio-based and circular economy offers great opportunities for these port complexes. Also, for the 'license to operate' and the 'license to grow' of seaports it is important that focus is put on more sustainable port development strategies. This especially applies to seaports that deal with a port-city interface.

[15] Acciaro, M., & Mckinnon, A. (2013). Efficient Hinterland Transport Infrastructure and Services for Large Container Ports. JTRC Discussion Paper Series.

[16] Kia, M., Shayan, E., & Ghotb, F. (2000). The importance of information technology in port terminal operations. International Journal of Physical Distribution and Logistics Management. https://doi.org/10.1108/09600030010326118.

[17] Kennisinstituut Mobiliteit (2019). Trends en hun invloed op zeehavens.

3.2 Scenario description

From these four global trends**, trend 3 (innovation and digitalization)** was selected as the most preferred future scenario option followed by **trend 4 (enhancement of sustainability**). **Trend 1 (optimisation of (port) operations)**, especially with regards to the transport chain, was also mentioned by some respondents, but mostly as a potential barrier to achieving the desired scenario.

The 'Liguria 2022' Initiative stated its strategic vision for the territorial development of the region, named as 'Liguria: From the sea to life' which foreshadows a concrete vision for the future of Liguria. It is centred on new trajectories and development activators, and actively engages entrepreneurial and institutional leaders and civil society and to trigger an active debate on the ideas and proposals of the initiative; to catalyse the best energies and resources of the area, promoting the attractiveness of the region and its strong openness, including international openness.

This 'Liguria: From Sea to Life' vision aims for the region 'to be one of the most renowned centres in the world for the enhancement and preservation of the person and of the territory from a sustainable perspective, with a range of services dedicated to those in search of quality, refinement and essentiality, with a well-being industry developed in all its supply chains economic and an industrial sector of technologies, products and services for the protection and safeguarding of the territory and of the person, based on the continuous enhancement of the sea resource, always source of economic growth and well-being'.

The region aims to work on specific priorities that aim to achieve the vision of 'Ligurian ports as the capital of the Maritime Economy' and 'Liguria, Region of Life and Innovation'. In this regard, digitalisation, technological advancement and environmental sustainability should be the main priorities of each growth project within the region.

As such, the specific descriptions behind these selected trends are described below.

Trend 3 - Innovation & digitalization

The region, through its S3 Smart Specialization Strategy (Liguria S3 Priorities in Eye@RIS3), aims to develop its maritime technologies and innovative solutions for shipbuilding, naval repair, boating and refitting, including materials and components, energy efficiency, environmental impact reduction, safety and e-Maritime solutions (amongst others). As such, the region aims for the implementation of the Liguria 5.0 model, through the identification of projects that will make the Liguria region the innovative pole of national reference (and potentially European reference). The region aims to be specialised in solutions, technologies and products for sustainability and the resilience of the territory and of the people. The region aims to be a territorial ecosystem that integrates and develops innovation in its components (research,

finance, support companies and institutions), focusing on the technological assets that the region has available.

In this regard the digital growth strategy of the ports has been along the development of Port Community Systems (PCS) and data exchange digitalisation as strategic to the optimisation of port and terminal gate access, in line with the future integration of the Italian Port Community Systems/E-Port in the National Logistics Platform. Similarly, the region has pushed for the development of Impresa 4.0/Industry 4.0 with all its implications (equipment, instruments, ICT technologies, etc.). These technological developments could have an enabling role toward an integrated territorial ecosystem of innovation. Various types of collaboration paths (e.g. MoUs, public-private partnerships) covering a variety of stakeholders (e.g. research, finance, businesses and support institutions), which focus on the technological assets that the region has at its disposal, will allow greater investments in domains with technological and priority areas.

Trend 4 - Enhancement of sustainability

In light of the growing attention to sustainability issues, confirmed by the definition of the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for development sustainable development of the United Nations, Italy has established the "National Strategy for Sustainable Development" composed of the so-called 5Ps (People; Planet; Prosperity; Peace; Partnership) declined in various strategic choices, with the aim of declining a regional level the principles and objectives of the 2030 Agenda for sustainable development. In light of this context, the Think Tank 'Liguria 2022' has developed a methodological model to address the main challenges of sustainability in a strategic key. It is a new model that will include urban planning regeneration efforts, a better integration between the different players in the perspective towards smart green ports and an enhancement of the blue knowledge.

Trend 1 - Optimisation of (port) operations

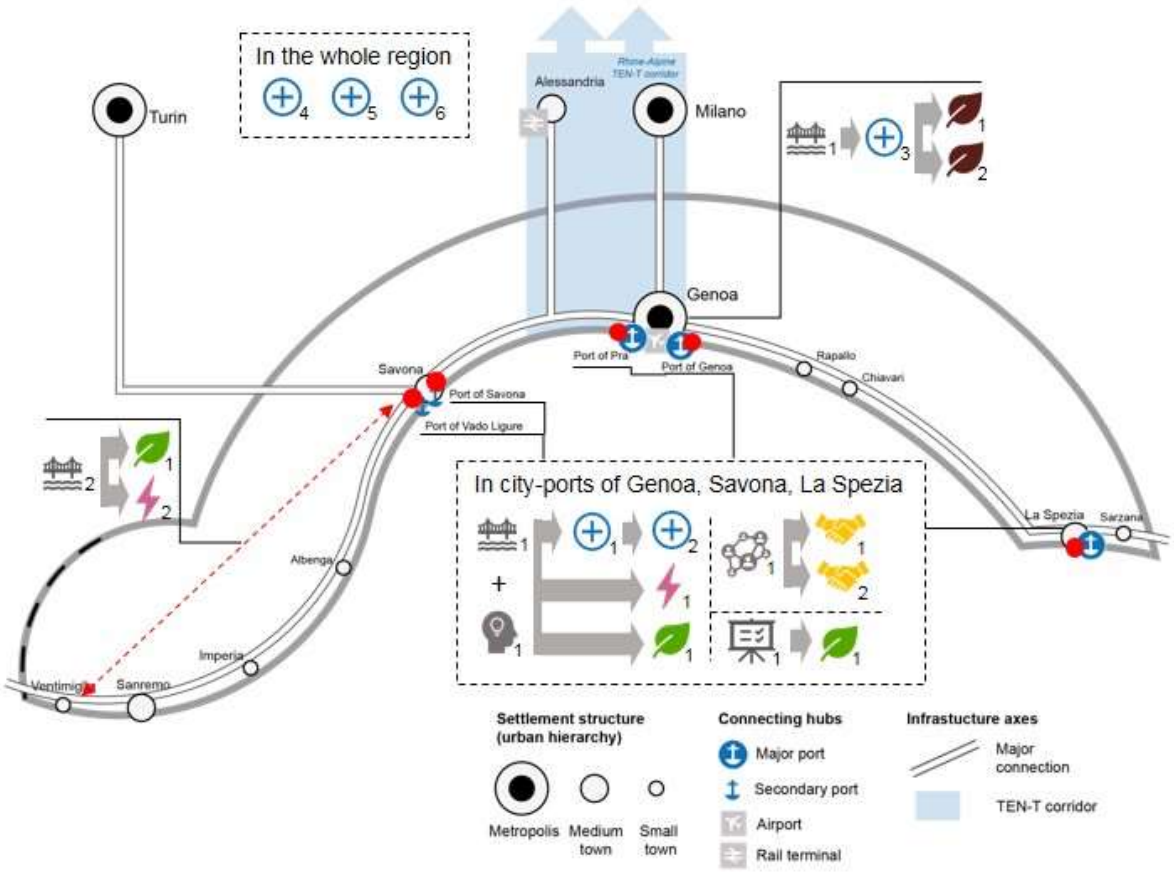
Considering the location of the Genoa ports, it is necessary to prepare infrastructure and adopt methodologies for a better interaction between the port and urban areas to ensure flexibility and support for emergency situations. Currently the prevalent use of road transport involves various problems that could be gradually overcome by increasing the use of rail transport infrastructure improvement (rail connection) toward central Europe. At the same time, the planning of the port infrastructure should follow the necessities of the maritime operators in terms of the characteristics of the ports in question and its logistic management challenges.

One of the weaknesses of the region of Liguria is its vulnerability to shock and stress factors. Among the main shock factors for Liguria are the landslide and flood risks, which are the cause of extensive damage, especially to regional infrastructure. Liguria, however, is ready to invest in the protection of the territory and enhance its resilience.

3.3 Opportunities and threats

To develop the urban-maritime region in Liguria in line with the trends identified above, there is a need for actions related to infrastructure, capacity building, networking and business models. These actions result in opportunities and threats in different domains. Some actions will present socio-economic benefits, while others will affect the environment or affect cooperation and governance in the region. Combined, these actions could result in a boost in employment, investments and quality of life in the region of Liguria. In the map on the next page, the opportunities and threats related to the development of port infrastructure and activities in Liguria are depicted. The different actions and their related opportunities and threats are described after the map.

Opportunities and threats related to the development of port infrastructures and port-related activities in Liguria



Actions

Infrastructures

1 Digitalization of port operations

2 New infrastructures to support modal shift (road to railway)

Capacity building

1 Training to adapt the workforce to digitalization

Networking

1 Cluster development

New business models

1 Promotion of low emission fuels

Actions to be developed are located in red on the map

Opportunities and threats

Socio-economic

1 Improved competitiveness of enterprises

2 Improved skills of entrepreneurs

3 Increase in transport flows

4 Long-term employment increase

5 Investment increase

6 Improved quality of life

Environmental

1 Better environmental conditions

1 Noise pollution

2 Air pollution

Cooperation / governance

1 Improved relations between stakeholders of different ports

2 Knowledge sharing in port-related value chains

1 Resistance to change

2 Resistance to new infrastructure projects

3.3.1 Infrastructure actions and related opportunities and threats

New infrastructure development between Savona and Ventimiglio is currently underway and facilitates the modal shift from road to rail. This development results in environmental benefits, since road transport will be replaced to a large extent by train transport, which has a lower environmental impact. The main threat associated with this action is local resistance to new infrastructure projects. These projects are usually require a large undertaking that takes multiple years and tests the patience of those living around the building site.

Infrastructure developments can also be digital. The digitalisation of port operations is an important development that will take place in the upcoming years. This includes not only the port itself, but also the surrounding logistical facilities. Digitalisation brings many different types of opportunities to the region. For example, it might lead to improved competitiveness of the enterprises in the region, which in turn attracts a different type of labour force with different skills. It may also result in an increase in transport flows, since logistics can be arranged more efficiently.

The digitalisation of port operations does hold some potential threats for the Ligurian region. A primary concern is that an increase in economic activity can result in increased transport flows both in the inner and outer infrastructure. Freight passing through the port often times passes through urban areas and does not leave the port immediately, resulting in additional noise and air pollution. Of course, the mode of transport that is selected in the future 10 years will determine to a large extent the extensiveness of the pollution. A transition towards more sustainable fuels would result in lower negative external environmental effects.

3.3.2 Capacity building actions and related opportunities and threats

To facilitate the digitalisation of port operations, the workforce must be trained to deal with the new ways of working. These trainings would concern the whole chain, in the sense that truckers, shipowners, etc. will have to relate in a different way vis-à-vis their respective port operations. Digitisation facilitates operations but also requires that the subjects affected are acquainted with this new system. This, in turn, can lead to better competitiveness of enterprises and the improvement of entrepreneur's skills. There might be some short-term resistance to innovation by operators due to the need for training and possible changes in business models. Technological innovation leads to inconveniences, e.g. operators who are used to working in a certain way might try to resist changes that affect those work modalities or operators who will see their competitiveness margins erode might also resist the change.

3.3.3 Networking actions and related opportunities and threats

The city ports of Genoa, La Spezia and Savona are places with high concentrations of businesses, port facilities and other stakeholders. To make the most of the next years, these stakeholders should cooperate to tackle challenges jointly. This can happen in the form of an eco-cluster organisation that brings together different actors and helps define joint goals. This can provide opportunities through knowledge sharing, but also simply through economies of scale.

3.3.4 New business models actions and related opportunities and threats

Finally, there is a clear need for new business models that combine economic and environmental goals. This could, for example, relate to the use of alternative fuels, or a modal shift from rail to road which in turn limits emissions in the region. As a result, the region would gain better environmental conditions and quality of life.

3.4 Cluster development potential

In summary, Ligurian seaport stakeholders are looking at developing in the forthcoming 10 years a scenario that aims to:

- support and **enhance innovation & digitalization** in the region (including improvement of port operations, their digitalisation, capacity optimisation and efficiency, and towards an enhancement of sustainability);
- encourage **sustainability efforts** in the region (including the use of greener fuels, urban planning regeneration efforts, smart green ports development efforts);
- support and **improve the connectivity** at the region (including infrastructural developments, better integration measures and support for risk management and emergency situations).

4 First guidance and recommendations

4.1 Introduction

The region of Liguria houses the largest port in Italy. With strong connections to the industrial heartlands of northern Italy and the Alpine region, the Ports of Genoa and other ports in the Western Ligurian Port Authority are catering to a large hinterland. They combine strong cargo handling services with an extensive passenger transport sector. As such, the region is a leading urban-maritime hub. The Ligurian ports are in close proximity to large urban areas and are surrounded by a relatively mountainous hinterland. As a result, any negative external effects quickly affect the adjacent urban areas. There is a need to work in a more sustainable manner. The stakeholders share the viewpoint that this could be reached through further digitalisation of port activities, to ensure more efficient ways of working. At this stage, the Ligurian ports face a new governance structure which is more inclusive. This governance structure has the potential to increase the efficiency of port operations by introducing digitalisation and innovation in the port. However, to do this, the governance structure does have to be embraced at the different levels.

The optimisation of port operations is needed to develop towards a more sustainable and innovative urban-maritime region in the next 10 years. This is also reflected in the Ligurian strategy document ‘Liguria: From the sea to life’. The region aims to develop maritime technologies and innovative solutions towards sustainability and resilience of the region. The region aims to reach this through a focus on digitalisation and optimisation of port operations.

4.2 Overview of key challenges

There is a need for an integrated approach towards optimising port operations, while at the same time promoting (environmentally) sustainable solutions. Blue and green growth strategies exist in the region, but there is not yet a shared approach. The main challenge is the interaction between the different actors within the Ligurian region. This concerns both high-level government, and actors at the more local level. Because of the plurality of the types of activities in the Ligurian ports, there are many different actors and incentives, complicating governance in the region.

4.3 Draft recommendations

In the interim report, a set of recommendations was presented. These recommendations were further discussed and finetuned during interviews with a selection of local stakeholders. The draft recommendations are presented below. Paragraph 4.4 describes the final recommendations.

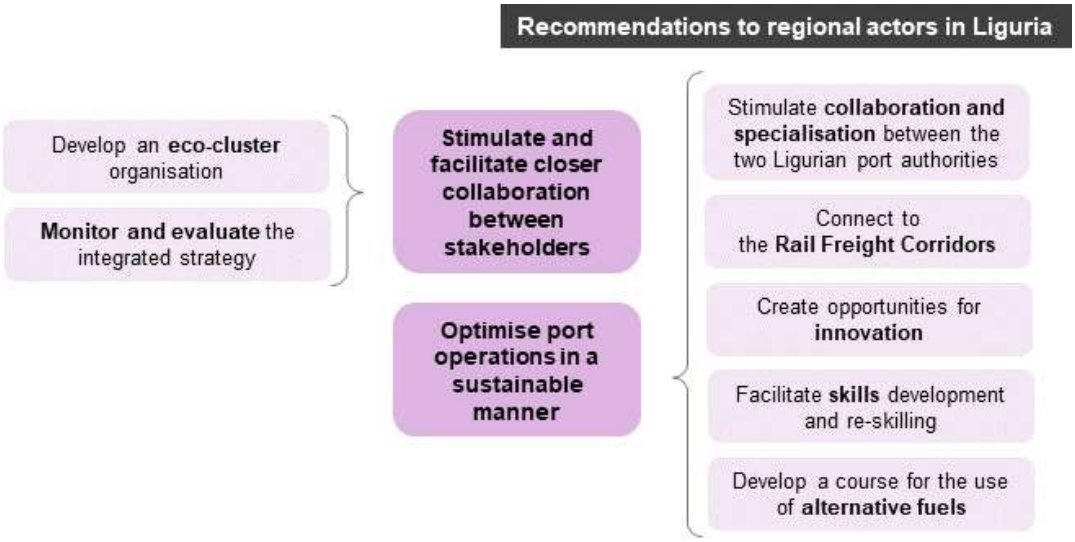
4.3.1 Draft recommendation 1: The core recommendation for Ligurian actors in the urban-maritime sphere is to stimulate closer collaboration. This is relevant at two levels. High-level governance structures are in place with the reorganisation of the port authorities. It is essential that their functioning does not remain at the higher level, but seeps down into lower levels of governance, including the municipal level. Stakeholders should open up to dialogue between the different governmental organisation.

4.3.2 Draft recommendation 2: The involvement of the private sector should be strengthened to ensure that the strategic dialogue is translated to concrete and profitable actions. Exchanges between universities and firms can stimulate research, innovation and the development of new solutions.

4.3.3 Draft recommendation 3: Dialogue between the different parties in the region to align goals and actions should become a habitual event.

4.4 Case study specific recommendations

To address the challenges for the urban-maritime region of Liguria, two main lines of recommendations are formulated. One line focuses on the cooperation and governance within the region. It includes recommendations on cooperation between the Western Ligurian Seaport Authority and the Eastern Ligurian Seaport Authority, and recommendations on collaboration between different types of actors in the region. The other line of recommendations focuses on the actions needed to optimise the port operations and increase environmental sustainability.



4.4.1 Collaboration and governance

- Recommendation 1 - *Develop an eco-cluster organisation to stimulate an integrated and sustainable strategy*

  All actors in the region recognise the need for sustainable growth. Various initiatives have been put in-place such as the 'Liguria: from sea to life' approach or the Ligurian RIS3 strategy, but there is a need for a joint approach. An eco-cluster organisation could create the framework needed to develop this joint approach. As such, it would be worthwhile to investigate the development of an eco-cluster to tackle the integrated challenges for the Ligurian urban-maritime region. In this eco-cluster, port authorities, industry, the private sector, universities and government should be represented to jointly decide upon a strategy towards environmentally sustainable growth in the region. To ensure an integrated strategy works, it is essential that the functioning does not remain at the higher level, but seeps down into lower levels of governance, including the municipal level. At the same time, private companies are the main actors in the maritime sector in Liguria. They are the core of the ports. Because they are market driven, they focus on solutions within the strategic dialogue that aim to be effective and cost-efficient. They ensure that any actions are feasible from the industries point of view. As such, their involvement in this potential eco-cluster would be essential and could be managed through the different Italian associations such as Assoporti or Assiterminal. For the successful creation of this potential eco-cluster it is necessary that the benefits of the governance structure are made apparent to the different stakeholders, i.e. the benefits that this form of cooperation brings to each of the stakeholders needs to be explicit.

- Recommendation 2 - *Ensure that the strategy is monitored and adapted as the situation evolves*

  In order for an integrated strategy to bring the expected benefits, it needs to be monitored and guided. The goals of the strategy should be fairly solid, but the actions that are needed to work towards the goals can be amended and refined when necessary. To do this, regular dialogue between the stakeholders is essential. This can happen within the structure of the eco-cluster suggested in recommendation 1.

4.4.2 Optimisation of port operations and sustainability

- Recommendation 3 - *Stimulate closer collaboration and specialisation between the two Ligurian port authorities*

  The introduction of the Western and Eastern Ligurian Port Authorities in 2016 has enabled strategic policy development at a more inclusive scale than before. The grouping of ports under the two port authorities provides benefits of scale and enables more specialisation at the level of the individual ports. These benefits can be expanded if the Western and Eastern Ligurian ports extend their collaboration across port authorities. This process could start with regular dialogues at strategic level on topics that are relevant for all ports and do not directly interfere with the competition between the ports, such as sustainability or connections to the hinterland.

- Recommendation 4 - *Connect to the Rhine – Alpine and Scandinavian – Mediterranean Rail Freight Corridors*

  At the point of writing, the ports of Genoa and La Spezia are connected to two different Rail Freight Corridors. The Western Ligurian seaports are connected to the Rhine - Alpine corridor, whereas the Eastern Ligurian seaports are connected to the Scandinavian – Mediterranean corridor. The connection to a Rail Freight Corridor promotes intermodality between rail and other transport modes and is thus relevant to have a better connection to the port hinterland. It also provides financing opportunities. It would be worthwhile to investigate opportunities for the region as a whole to be connected to both corridors.

- Recommendation 5 - *Create opportunities for innovation towards integrated and sustainable solutions*

  Liguria houses excellent universities and private companies that have the potential to create innovative solutions to work towards the integrated strategy. In order to facilitate this process, opportunities for collaboration between private companies,

academia and the public sector have to be understood. This could be done with the help of funding opportunities through, for example, different European funds.

- Recommendation 6 - *Facilitate trainings to ensure workers can adapt to new jobs*

  The challenges identified in this study demonstrate a need to innovate and to develop new skills, capacities and ways of working. As a consequence, in the next years the labour force needs to be given the opportunity for re-skilling, and gain knowledge and skills to deal with these new ways of working. The facilitation of (paid) trainings could be a part of the responsibility of an eventual eco-cluster such as suggested under recommendation 1. This ensures that people know how to apply the new technologies in the most effective and efficient manner.

- Recommendation 7 - *Decide upon a course for alternative fuel solutions*

  All actors in the Ligurian maritime sector agree that in the next years a transition should be made towards more (environmentally) sustainable ways of working. In particular the use of alternative fuels is mentioned frequently. The challenge with the transition to alternative fuels is both that technological solutions are not yet readily available, and that investment costs are large, especially in the maritime sector. The size of the costs for adaptations of bunkering facilities and ships leads to a need for long lived solutions; e.g. new facilities that can be used for multiple decades. Hence, there is a need for all stakeholder in the region, and possibly even stakeholders at European level, to align and select a common solution to ensure investments are sustainable.

ESPON 2020 – More information

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