PORT NETWORK AUTHORITY
OF THE CENTRAL TYRRHENIAN SEA
NAPLES · SALERNO · CASTELLAMMARE DI STABIA

Naples' candidacy as the location for EMSA's regional centre in the Mediterranean

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This picture shows a map of the city of Naples and its bay.

WHY NAPLES

1. An international, multipurpose port with a strategic position in the centre of the Mediterranean
2. A port that is gearing towards digitalisation and sustainability
3. Maritime routes serving the whole Mediterranean area thanks to top-quality liners
4. A very strong inclination towards maritime activities, with 53% of the area's imports and exports carried out via sea
5. Over 1,500 companies in the area closely linked to the shipping supply chain and possessing consolidated competences
6. A Special Economic Zone aimed at attracting logistic and industrial investment
7. A geographical area with significant innovation potential
8. Prestigious universities and tech poles
9. An innovative and prestigious building made available to the EMSA (free of charge)

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Foreword

Why Naples.
The Role of EMSA and the enthusiastic response of the city to the activities performed by the Agency

This Report is aimed at highlighting Naples as the ideal location for EMSA'S Regional Centre in the Mediterranean. The European Maritime Safety Agency (EMSA) was established according to REGULATION (EC) No 1406/2002 of the European Parliament and of the Council of 27 June 2002, whose art. 1 states that the Agency's objective is to ensure 'a high, uniform, and effective level of maritime safety and prevention of pollution by ships', related intervention actions, measures against marine pollution caused by oil and gas installations. At the same time, where applicable, the agency's aim is to contribute to the efficiency of maritime traffic and transport as a whole, so as to facilitate the establishment of a European maritime transport space without borders.

Art. 5 of the aforementioned Regulation states that, at the request of the Commission, the Administrative Board may decide, with the agreement of the Member States concerned, to **establish the regional centres necessary in order to carry out tasks related to the monitoring of navigation and maritime traffic**, as provided for in Directive 2002/59/EC.[1]

This report will show how the ideal location in the centre of the Mediterranean, the entrepreneurial presence and the great operational and technological skills related to the marine environment make Campania, and especially **Naples, the ideal location within the Basin to implement EMSA's mission fully, effectively and efficiently and to achieve remarkable results in the fields of safety of navigation and protection of the marine environment at the level of the whole Med Area.**

EMSA's mission is to serve the interests of the European Union in the maritime sector to ensure that this remains safe, secure, environmentally friendly and competitive at all times; while acting as the industry's point of reference not only in Europe but internationally (supporting the Union, offering its services to the Member States, and acting as a partner and knowledge hub for the maritime cluster). EMSA exploits its unique know-how by dealing with issues and tasks related to maritime safety, security, climate and the environment; it also provides governments and institutions with detailed and reliable real-time information about events occurring at sea so as to aid the efficient implementation of maritime policies.

At this juncture, where the changes due first to the pandemic and then to the war in Ukraine are having and will continue to have a strong impact on the course of maritime

[1] Directive 2002/59/EC establishes a vessel traffic monitoring and information system. The aim is to improve maritime and port safety and environmental protection and tackle the risk of pollution at sea. This legislation also permits the exchange and sharing of additional information to enable efficient maritime transport and traffic.

transport and all the stakeholders and livelihoods associated with it, **EMSA's activities have become even more important.**

The Agency's latest **Five-Year Strategy** (launched for 2020-2024) comes right in the middle of this new wave of change, where decarbonisation, sustainability, digitalisation, data exchange, safety and security are topics currently affecting the maritime sector and need to be addressed now and in the coming years. In particular, **the environment has become a priority** not only to fight pollution but above all to contribute to the creation of a sustainable maritime system, which meets the EU's ambitions in terms of climate neutrality goals.

Another asset that is having a major impact on the maritime industry is technology, and especially digitalisation. These represent opportunities that must necessarily be grasped to make the shipping industry cleaner, safer and more reliable. Opportunities that are also accompanied by related security challenges, such as cyber security which remains a key issue.

For EMSA to support the maritime sector, its **latest 5-year strategy's vision hinges on 5 priority areas:**

- ***sustainability*** (protecting the marine environment, dealing with climate change and responding to new environmental challenges).
- ***safety*** (promoting a strong safety culture in maritime transport is one of the Agency's founding missions, with the aim of contributing to the reduction of marine casualties and human losses)
- ***security*** (of ships and port facilities, through the surveillance capability of traffic monitoring systems employed against potential piracy or other security incidents or armed attacks on a global scale);
- ***simplification*** (of bureaucratic procedures for faster and smoother travel);
- ***surveillance*** (vessel traffic monitoring to improve safety and efficiency).

With these five pillars, EMSA has paved the way, as a centre of excellence in the European maritime sector, to achieve its goal of ensuring a high, even, and effective level of maritime safety and security, the prevention of and response to pollution caused by ships, as well as the response to pollution of the seas by oil and gas plants. In short: safer seas, cleaner oceans, sustainable and quality shipping.

Given these premises, **if Italy is a natural candidate to host the headquarters of this institution, it is Campania, and in particular the city of Naples**, **that represents the ideal location** to host the **EMSA Regional Centre for the Mediterranean.**

As will be evident in the following chapters that make up this report, locating the headquarters of the Regional Centre in Naples would be an excellent response to the needs associated with the activities carried out by EMSA, both those particularly related to the sustainability of transport and maritime safety & security, and those more closely related to environmental and climatic aspects. Indeed, the City of Naples and Campania are home to numerous institutions and organisations with particular expertise in maritime services and safety, civil protection, environmental and water monitoring, information management and georeferencing.

The centrality of Naples in the Mediterranean is also evidenced by EMSA's recent activities in the fight against marine pollution. Under the "OIL SPILL RECOVERY" contract between EMSA and SARDA BUNKERS S.p.A., the M/T vessel SB Borea is in fact operational and based right in the Port of Naples. The vessel has on board a complete set of state-of-the-art equipment for pollution response and has a heated storage capacity of 3,558 m3 of recovered oil. The ship is equipped with mechanical recovery equipment and recovery operations are supported by oil spill detection radar systems. The main area of operation is the Central Mediterranean Sea.

A fundamental location within the country but also at the centre of international traffic towards North America and the Far East and Mediterranean countries, Naples is a production-logistics reference hub for trade in the Basin area. **The city is a strategic maritime-logistics node for a number of factors. Its geographical position, industrial and logistical relevance, and tendency towards internationalisation, as well as its links with the world of universities and research, make it a renowned reference point.**

As well as Naples, **it is the entire Mezzogiorno that plays a leading role in the maritime economy** within our country, which is in itself an indispensable hub for transport to and from the Far East and the United States, and the main communication route between Europe and the MENA countries. Considering the port sector, the South is the macro-area, of Italy's four, that moves the most goods by sea. With 224 million tonnes handled in 2021, 46% of the national total is concentrated in southern ports.

In 2021, foreign trade by sea in southern Italy amounted to approximately €60 billion, almost twice as much as the 2001 figure of €31 billion; in addition, if the quantity of goods exchanged is considered, maritime trade contributes as much as 93% of the total. The South's trade therefore takes place predominantly by sea, making this macro-area a reference point for trade within the Basin, a strategic hub for the trade of several important manufacturing sectors (such as metals, mechanics and chemistry), as well as for the energy sector.

Within the framework of Campania's port system, **Naples is the reference port** serving a large, densely populated basin, with important production poles made up of a number of large companies and systems of small and medium-sized enterprises extending into Campania and some areas of Basilicata, Apulia and lower Lazio.

The city is located at the centre of the integrated infrastructure networks of Campania, which can be considered as the main macro-platform of southern Italy, with a condition that is certainly better than all the other regions of southern Italy. This means that services can also be offered to a large part of Lazio, Apulia, Abruzzo and Molise, Basilicata and Calabria. This is for two reasons: one is due to Naples' privileged geographic position while the second is linked to a high level of transport infrastructure in relation to the surface area.

The region also has a remarkable international openness. While Campania is the leading region for foreign trade in the Mezzogiorno, the **province of Naples**, with a value of €16.7 billion in trade, accounts for **57.5% of the region's foreign trade**. Most of these activities revolve around the sea. The top 10 partner countries in trade include China, Saudi Arabia, the US, Turkey and India, which means that, **thanks to an optimal geographic position, Naples and its port represent a key reference point, at the centre of trade relations involving the whole world and located in an area – the Mezzogiorno – that may play a leading role in Mediterranean maritime trade** in a wide range of sectors with varying degrees of technological development.

The development of Naples' ports is certainly also supported by the implementation of Special Economic Zones. In fact, the **Campania SEZ**, with a clear industrial-logistics vocation, is located in the area. Thanks to the creation of the SEZ - conceived with the fundamental task of 'systematising' the logistics and manufacturing of an area - the general growth of the area's attractiveness with the consequent improvement of the production system close to the port is desirable. If the presence of the SEZ can act as a magnet for

internationalised companies, which also tend to generate port and logistics traffic by strengthening the synergy between industry and logistics itself, the port can represent a point of reference especially for international projection towards the major routes.

As for the **presence of an innovative environment** that promotes research and an entrepreneurial fabric capable of exploiting its results, Campania stands out for its growing entrepreneurial capability, fuelled by the presence in the area of medium to large production facilities, a growing number of innovative companies, SMEs and start-ups, technological poles and important initiatives linking the academic world and the real economy.

In Campania**, 47% of companies with more than 10 employees can be defined as 'innovative'**; of these, almost 87% carry out an activity that is part of process and product innovation. Thanks to these numbers, the region is in the top ten at national level (ranking seventh) and first in the Mezzogiorno. This is mainly innovation generated through cooperation with external parties such as universities, research centres, start-ups, SMEs and innovators; therefore, a positive link can be found between the demands of companies and the skills present in the region. The region ranks first among southern regions in terms of the number of innovative SMEs and innovative start-ups.

Campania has always been home to research centres in various strategic sectors for the country's development, it possesses reputable universities, and provides a wide range of technological services located mainly in the city of Naples: 7 High-Tech Districts, 21 private public laboratories, 40 public authorities for advanced research and private institutions active in technology transfer and innovation services, and 30 facilities to support entrepreneurship. Some of the main initiatives linking academia and the real economy are also worth mentioning.

It is Naples that centralises a considerable share of the region's innovative strength: for example, 5 of the 7 regional universities are located there and in several cases the city’s leadership is recorded both at regional level and in the whole south. Naples is, in fact, the third largest province in Italy in terms of the number of innovative start-ups; it stands out in terms of patenting capacity and the weight of high-tech in the area of manufacturing specialisation; it is home to 9 academies within the San Giovanni a Teduccio technological pole, where collaboration agreements are developed between the University and international companies, and training pathways are offered that are of particular relevance to the manufacturing fabric, developing skills and soft skills through higher education centres.

Such a level of overall development that links Naples to the Mediterranean in various aspects such as culture, logistics, ports, production and innovation cannot be separated from an increasingly heightened need for security.

Regulating a sector that has reached such a high level of development, but which also presents - as we have seen in the light of the pandemic and the war - elements of vulnerability, is one of the core mandates of modern European policy, an area in which EMSA performs its task with quality, credibility and transparency.

It is precisely the vulnerability of the global system that highlights and urgently signals the need for traffic security and protection of the maritime space.

The enormous challenges that have arisen in the transport and logistics of goods by land, sea and air since the outbreak of the Covid-19 pandemic and even more so with the current conflict between Russia and Ukraine have challenged the model of global value chains and just-in-time (i.e.: maximum cost reduction in warehousing and demand-driven production in a continuous flow of the supply chain), which drove globalisation.

As a result, the debate on the need to bring all or part of certain strategic production chains 'back' to the continent through active reshoring and nearshoring policies has returned to the forefront. These policies are gradually being generated around the world and make Italy the second country in Europe after France in terms of companies moving back from abroad, according to estimates by the Politecnico of Milan.

This process of ‘regionalisation of globalisation’, which can be deduced thanks to the gradual transformation of maritime routes (80-90% of global import-export is seaborne and intraregional routes account for 43% of global traffic), will entail the development of new types of transport and production models linked to logistics tailored to shorter production chains and faster transport modes, with regional services. The increased regionalisation of trade is likely to morph into better prospects for short-range maritime routes (Short-Sea Shipping) whose concentration is already higher in the Mediterranean compared to the rest of Europe, with Italy in the lead with a 38% market share.

The **South is even more prominent for its short-haul routes**, concentrating most of the traffic related to the Motorways of the Sea and Ro-Ro (a mode of transport that consists of loading vehicles onto ships, thus reducing road journeys) with a weight of 53% of the national total. Ro-Ro is a mode of transport that in fact involves short-haul routes that can be directly related to the reshoring strategy since, as production chains are brought closer

together, it is likely that there will be an increase in this type of traffic in which the South specialises.

The South of Italy, already a leading player in short-haul shipping, will be able to seize new development opportunities thanks to reshoring/near-shoring. In this context and especially in this phase of the world economy**, Naples and its port can play a leading role.**

The Mezzogiorno, with Campania, and Naples, as a productive logistics point of reference, is also strategic from the energy point of view. In fact, it should not be forgotten that **the port** is also a **pole of energy development** for the country, as it is the terminal of oil traffic, but also of pipelines carrying energy products; this role can be played in particular by **the southern ports that have a strong vocation in the 'Energy' sector.** A further step in this direction is the recognition - as part of the latest Decree Law on national energy policies - for **ports** of the status of **energy community**, with the aim of promoting the consumption of energy from renewable sources in port and back-port areas.

If, on the one hand, the Mezzogiorno is a gateway for new energy flows from North Africa and the Caspian area to Europe (Transmed, Greenstream and Tap pipelines), on the other hand, the weight of the area's ports in terms of crude and refined oil is significant: the import-export by sea of oil products and coke in the Mezzogiorno is about €31 billion (63% of Italy's total).

The South is home to important energy ports; Cagliari, Messina-Milazzo and Catania-Augusta are among the top 5 Italian energy ports and handle 40% of national oil traffic.

Given the context in which we find ourselves and the compelling need for security and diversification of energy supply, now a priority for Europe, it is necessary for ports to be ready to explore new potential for cooperation and productive synergies between the two shores of the Mediterranean, which can no longer be limited to commercial and maritime connections but must include an increasingly crucial **energy connection**. This objective can only be achieved through an inclusive multilateral cooperation mechanism between the Northern and Southern shores of the Mediterranean, for the promotion of regional investment flows, to finance joint projects and to enable faster transfers of technology and know-how, on a broader scale than has been achieved so far.

Also in the energy context, it should be noted that port terminals and maritime logistics are strategic for the green energy sector and the transition to a green economy. Renewable

energies can also become a new frontier both for Euro-Mediterranean cooperation and as an area of new competition (compared to a fossil-based system) with other powers operating in the region. Moreover, the Mezzogiorno itself possesses significant renewable energy assets, producing over 54% of national Wind, Solar and Bioenergy.

Finally, it cannot be overlooked that **the National Recovery and Resilience Plan (NRRP) also places special emphasis on the South and Campania**. The South is confirmed as central to the pursuit of a structural, sustainable, and lasting recovery of the national economy, since it draws about 40% of the total resources. In absolute terms, this is equivalent to approximately €80 billion (out of a total of €206 billion that can be allocated on a regional basis) to be used up to 2026 and aimed above all at reducing the existing gap with the rest of the national economy. These resources can also rely on complementarity with the 2021-2027 structural funds planning (over €54 billion for the South including EU resources and national/regional co-financing) and with the React-EU programme (which allocates €9.4 billion to the South).

The focus on the Mezzogiorno is central in all the individual areas of intervention, where the regional allocation of resources always exceeds 34% of the national total.

Looking again at the general objectives of the Plan, the aim is therefore to increase the competitiveness of southern Italy by shaping a South that is better connected and more sustainable, whilst attracting more investment, and delivering social services, which cannot be separated from **the pivot role of Naples**. In this context, the benefits that can be achieved in the coming years are considerable: the Ministry for the South and Regional Cohesion estimates a growth in southern GDP, over the five-year period 2021-2026, of about 24% compared with the absolute value of 2020 (Italy average +16%).

This Report is made up of 5 chapters, one for each of the 5/S, the five priorities set out in EMSA's Five-Year Strategy. Its aim is to respond to the Agency's initiatives and activities to enhance European competitiveness, sustainable growth and the blue economy whilst contributing to the safety agenda and to increasing the international profile of the EU.

EMSA: framework, regulatory references, and governance

The European Maritime Safety Agency is one of the European Union's decentralised agencies. Based in Lisbon, the Agency's mission is to provide the European Commission and Member States with technical support in the development and implementation of EU legislation on maritime safety, security, and prevention of pollution by ships. In addition, operational tasks were assigned to EMSA in the field of oil pollution response, ship monitoring and long-range identification and tracking of ships.

The European Maritime Safety Agency (EMSA) was established with **Regulation (EC) n. 1406/02** and has its seat in Lisbon, Portugal. The location of the EMSA's headquarters in Lisbon required a particular agreement between the European Commission and the Portuguese government aimed at setting out and implementing a series of rules and mechanisms for the overall management of the headquarters as well as incentives and services for the Agency's staff. This document, which could be considered as a guide for the establishment of the regional centre in Campania, is **the memorandum of understanding of the Portuguese Ministry of Foreign Affairs of 22nd September 2004**.

Pursuant to article 5, par. 3 of the **Regulation (EC) n. 1406/02** (amended by successive regulations) "At the request of the Commission, the Administrative Board may decide, with the agreement of the Member States concerned, to establish the regional centres necessary in order to carry out tasks related to the monitoring of navigation and maritime traffic, as provided for in **Directive 2002/59/EC".**

Therefore, EMSA regional centres can be established provided that the following criteria are met:

- the Commission drafts a specific request
- the Administrative Board of EMSA passes a specific decision
- the Member State where the regional centre is to be established provides a specific agreement

- the regional centre is dedicated to carrying out tasks related **to ship and maritime traffic monitoring**

The role played by the Regional Centres is also based on **the specific features of the reference area**, among which geopolitical aspects are not a secondary consideration, and represent qualifying elements for submitting a candidacy to the commission.

In a letter dated 31/12/2018 to the President of the Conference of Regions (MP Stefano Bonaccini), the President of the Campania Region (Mr Vincenzo De Luca), proposed to discuss the candidacy of the Campania Region as the location of EMSA Regional Centre for the Mediterranean, in order to call on the Government to endorse and present this candidacy to the European Commission.

On 17/01/2019 the Conference of Regions unanimously declared its support for the candidacy. On 22/12/2021, the Campania Regional Council approved Resolution No. 517 " Candidacy of the Campania Region as the Mediterranean Headquarters of the European Maritime Safety Agency (EMSA)".

The agency is managed by an executive director whose duties and powers are set out in article 15 of Regulation (EC) n. 1406/02 and this person is directly supported by:

- an Executive Office
- 4 heads of department
- A policy consultant
- An accountant
- An internal auditor

Ms Maja Markovčić Kostelac is the Executive Director of EMSA, a position she took up on 1st January 2019. She is responsible for the running and development of the Agency under the oversight of the Administrative Board. The executive director reports to the Administrative Board which is usually convened three times a year and comprises:

- 27 government representatives, one for each of the EU Member States
- 2 representatives from the governments of Iceland and Norway with no vote
- 4 representatives of the European Commission
- 4 professionals from the maritime sector with no vote

The Administrative Board adopts and assesses the Agency's 3-year Single Programming Document, the budget and the establishment plan, as well as the Consolidated Annual Activity Report of the Agency.

Currently, the Agency has 11 units, 10 of which come under these 4 departments:

- Department 1: Sustainability & Technical Assistance (Sustainability; Visits & Inspections, Human Element; Capacity Building)
- Department 2: Safety, Security & Surveillance (Safety & security; Surveillance)
- Department 3: Digital Services & Simplification (Maritime Digital Services; Digital Infrastructure; Simplification)
- Department 4: Corporate Services (Human Resources; Legal, Finance & Facilities)

More than 270 people are currently employed at the Lisbon Headquarters.

REFERENCES

Consolidated text: Regulation (EC) No 1406/2002 of the European Parliament and of the Council of 27 June 2002 establishing a European Maritime Safety Agency

Regulation (EU) 2016/1625 amending Regulation (EC) No 1406/2002 establishing a European Maritime Safety Agency

Regulation (EU) 100/2013 amending Regulation (EC) 1406/2002 establishing EMSA

Regulation (EC) N° 1406/2002 Establishing the European Maritime Safety Agency (EMSA)

Regulation (EC) N° 1644/2003 of the European Parliament and of the Council of 22 July 2003 amends Regulation (EC) N° 1406/2002 establishing a European Maritime Safety Agency

Regulation (EC) N° 724/2004 of the European Parliament and of the Council of 31 March 2004 amends Regulation (EC) N° 1406/2002 establishing a European Maritime Safety Agency

Regulation (EU) No 911/2014 on multiannual funding for the action of the European Maritime Safety Agency in the field of response to marine pollution caused by ships and oil and gas installations (No longer in force since 31.12.2020)

MINISTÉRIO DOS NEGÓCIOS ESTRANGEIROS, Aviso n.o 157/2004

EMSA, Rules Of Procedure Of The Administrative Board Of The European Maritime Safety Agency

MINISTRY OF INFRASTRUCTURE AND TRANSPORT

GENERAL DIRECTORATE FOR MARITIME AND RAILWAY INVESTIGATIONS

NOTE

The **General Directorate for Maritime and Railway Investigations** performs the functions of an Investigative Body, as envisaged by Decree Law n. 50/2019 (investigations into railway accidents) and by Decree Law n. 165/2011 (investigations into maritime accidents). Since 1st January 2018, pursuant to law n. 172/2017, the scope of this Directorate's duties has been widened to include investigations into accidents involving fixed systems and facilities, all railway networks and internal navigation.

The **Marine Accident Investigators' International Forum (MAIIF)** is an international non-profit organisation dedicated to the advancement of maritime safety and the prevention of marine pollution through the exchange of ideas, experiences and information acquired in marine accident investigation. Its purpose is to promote and improve marine accident investigation, and to foster cooperation and communication between marine accident investigators.

The International Forum is the annual meeting of the **MAIIF** which serves as a means of enabling discussion between all the Member States' national Authorities dealing with investigations into maritime safety.

EMSA is the European Maritime Safety Agency, based in Lisbon, which provides governments and authorities with detailed and reliable information to improve the **protection of seas, the response to marine pollution, as well as maritime safety** whilst simultaneously helping institutions to effectively implement maritime policies.

A short-term strategy has been set out by the Campania Region and by the Port Network Authority of the Central Tyrrhenian Sea to establish **a regional centre of EMSA in the city of Naples**.

Chapter 1

The strategic importance of the maritime and logistics economy and the need for security in the Mediterranean

SECURITY: strengthen maritime security in Europe and globally where there is a European interest

With the aim of reinforcing the unique brand of global leadership of an internationally responsible Europe, **EMSA's work increasingly contributes to regional cooperation at sea-basin level**, providing technical assistance not only to EU states but also to neighbouring countries (the countries bordering the Mediterranean Sea, the Black Sea and the Caspian Sea) in the framework of the European Neighbourhood Policy[2]. Safety therefore remains a key priority in the face of increasing traffic and thus the centrality of the Mediterranean in global maritime transport.

1. The centrality of the Mediterranean in the maritime component of trade routes

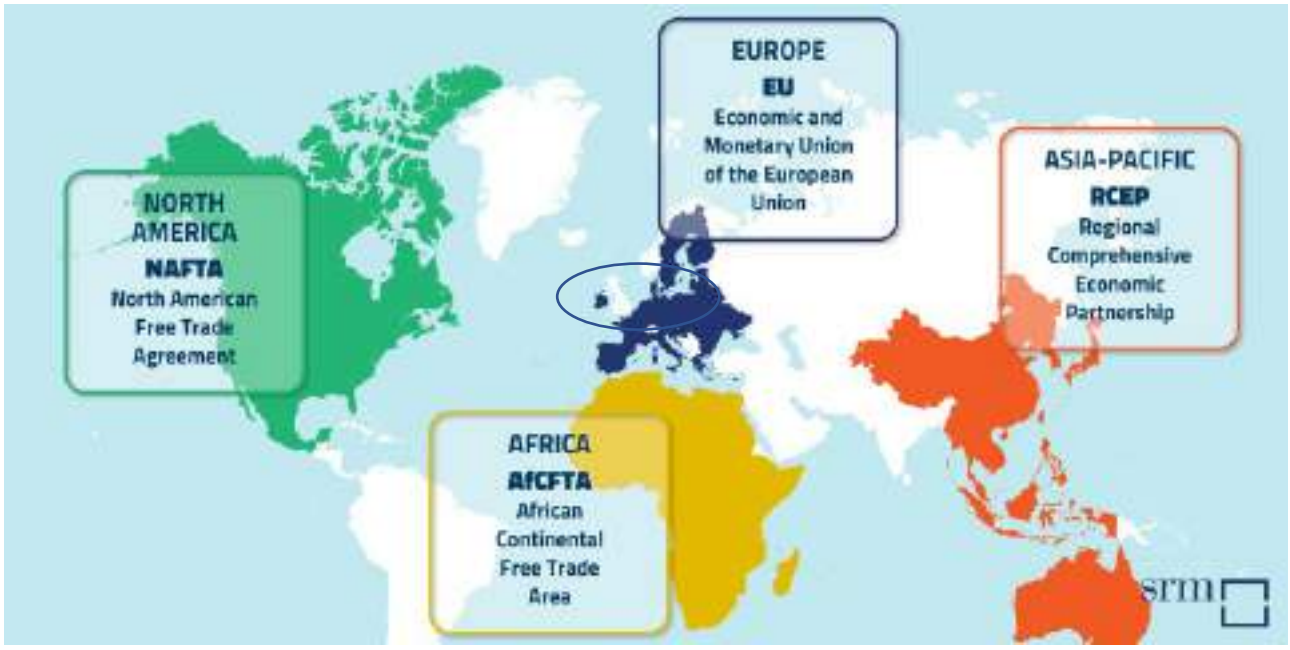
Over the last decade, the Mediterranean has become the global epicentre of geopolitical and geo-economic interests. This relevance has increased by virtue of the profound transformations that have passed through it and which continue to manifest themselves in increasingly fluid and changing forms. It is a vast area that cannot be defined by a single identity, let alone a well-defined culture, and that is both a fracture and a hinge within which profoundly distinct realities, a mix of cultures and different political realities coexist and interact. The Mediterranean operating context is therefore full of elements of conflict and controversy in which various challenges and opportunities are clearly evident.

Despite the fact that globalisation and the growing interest in the potential of new trade routes have shifted interest first to the Atlantic and then to the Pacific, the Mare Nostrum has regained its strategic centrality representing, on a more strictly geo-economic level, the crossroads between the great Atlantic and Northern European markets on the one hand and the Asian and African markets on the other; an area where huge quantities of goods and energy resources are moved and produced every day.

[2] The European Neighbourhood Policy governs the EU's relations with 16 of its closest neighbours in eastern and southern Europe. A key element of EU foreign policy, the ENP focuses on stabilising the region in political, economic and security terms.

A cradle of civilisation at the centre of 4 regional macro-areas advancing towards trade and economic integration at different speeds and intensity: North America's NAFTA[3]; Asia's RCEP[4] – the new Regional Comprehensive Economic Partnership, Europe's internal EU market and monetary union, Africa's AfCFTA[5] – the African Continental Free Trade Area. These macro-areas are and will be increasingly integrated within themselves while also engaging in growing competition in the global stage.

The Mediterranean at the centre of the main geo-political macro-areas



Source: SRM services

Its strategic centrality is the result of several factors: the concentration of huge investments in the area, the intensification of trade with China and the Gulf countries, the discovery of a few important energy deposits, and the optimisation of logistics aimed at profitability and the search for short routes capable of transporting large quantities of goods, generating economies of scale. **However, today this centrality is mainly related to the maritime dimension of trade routes.**

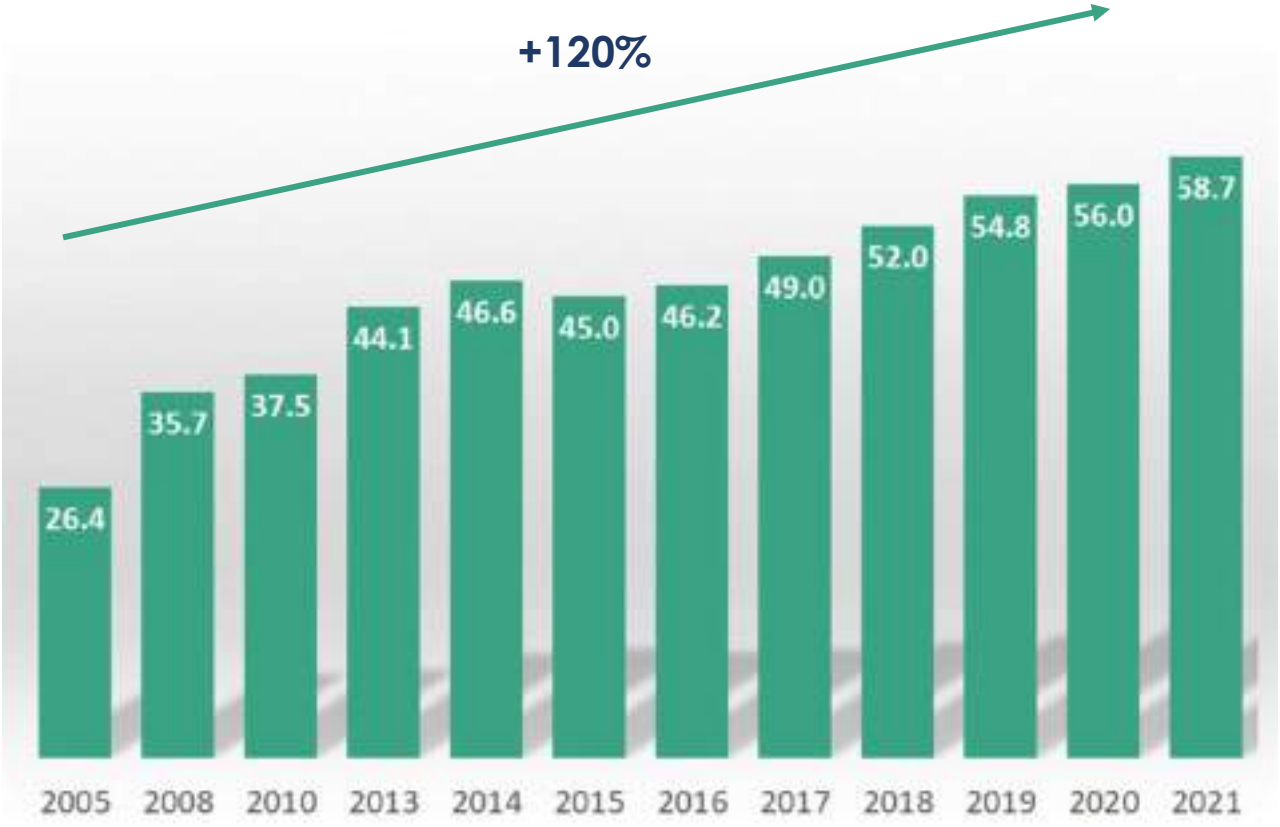
This basin represents a privileged route for trade by sea, accounting for 20% of traffic; a market where approximately 2 billion tonnes of goods transit every year, of which **587**

[3] North American Free Trade Agreement (NAFTA) signed on 1 January 1994 between the US, Canada and Mexico.
[4] Regional Comprehensive Economic Partnership (RCEP) of 15 November 2020 between the 10 ASEAN countries (Brunei, Cambodia, Philippines, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, Vietnam) plus China, Japan, South Korea, Australia and New Zealand.
[5] African Continental Free Trade Area (AfCFTA) of 30 May 2019 then commenced on 1 January 2021 due to the pandemic and involving all African countries except Eritrea.

million represent **short sea shipping**, for the share handled by European ports alone (32% of the total). In addition, its basin is the transit point for **30% of world oil trade** and almost 2/3 of other energy resources (including those transported by submarine pipelines) destined for Italy and other European countries.

It is a sea teeming with activity: the containers handled by its ports have increased enormously, rising from 26 million in 2005 to 59 million in 2021, with a growth rate (+120%) higher than that recorded by Northern European ports and a trend that did not even stop during the pandemic.

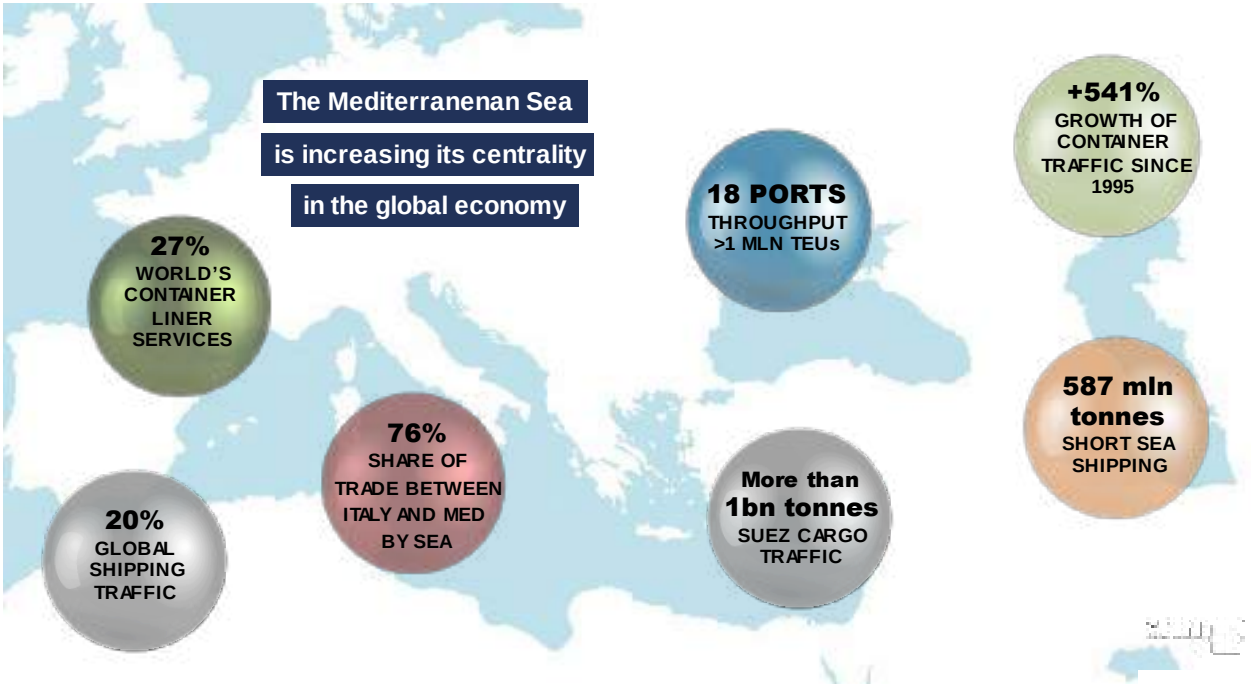
Traffic trend of the top 25 container ports in the Mediterranean 2005 – 2021 (million TEUs)



Source: SRM services on Port Authorities data

This area accounts for **27% of the world's container liner services**, but the container sector is not the only one which characterises freight traffic in the Mediterranean: the shares of liquid goods and general cargo remain significant, while the RO-RO component has taken on a decisive role in short-haul shipping.

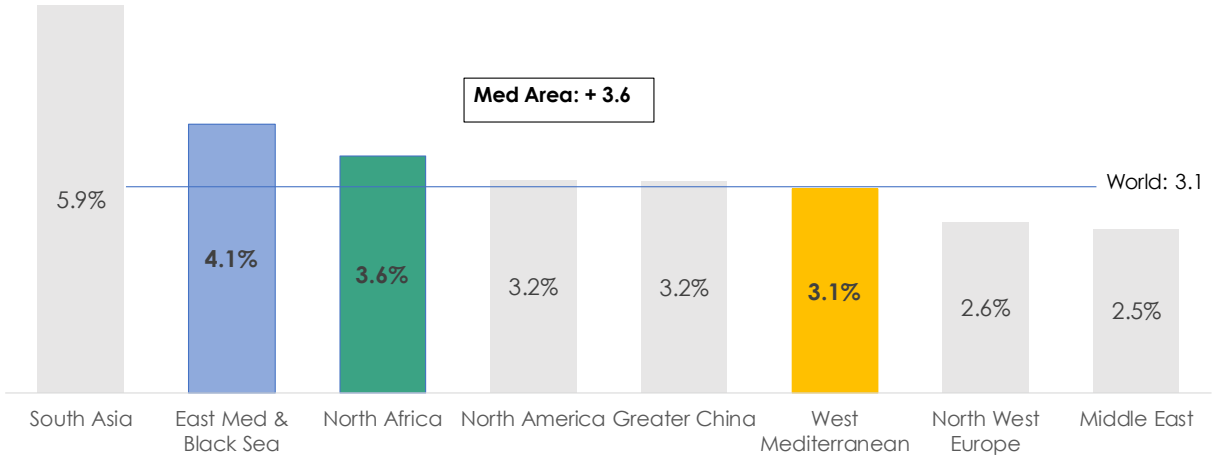
Key figures of the maritime Mediterranean – year 2021



Source: SRM services on Eurostat, Suez Canal Authority, ISTAT, Port Authorities

Looking to the future, container transport growth forecasts see the Mediterranean area as the second best performing region after South Asia over the next five years.

Global container growth forecasts – Annual Growth Rate 2021-26 (TEUs)



Source: SRM services on Drewry

However, there are several factors that are shaping the new port geography in the Mediterranean. Firstly, the **geographical element**, because the competitiveness of ports is enhanced by their location near canals. The doubling of the Suez Canal has led to the growth of Port Said not only as a container terminal, but also as an industrial free zone and energy

hub. Tanger Med, close to the Gibraltar Canal was only inaugurated in 2007, but has already doubled its terminals to a total capacity of 9 million containers, which has made the Moroccan port the leader in the Mediterranean container sector with 7.17 million TEUs handled in 2021, a 24% increase on 2020.

The geography of maritime transport is strongly affected by **the strategies of large shipping companies**, which in recent years have focused particularly on integration, both horizontal and vertical. The top ten (more than half are Asian) now control about 90% of the market and have been pushing the gigantism of ships, through the renewal of their fleets and, consequently, the adaptation of port terminals has become necessary (very long berths capable of accommodating ships of 400 m. and 18-20 m. deep seabed).

The Mediterranean has always been a Point of connection of the West and the East. It has experienced significant growth in maritime investment over the past two decades and become a strategically important logistical platform in the connection between global and regional markets fuelled by Suez on the East-West trade route. However, now **with the BRI project, Belt and Road Initiative**, promoted by Chinese President Xi Jinping in 2013, the region has become a **priority focus of interest due to the expansion of the Chinese economy** that is shaping a new maritime Silk Road. The country has launched a massive investment campaign in the Basin. Consider, for instance, the acquisition of the port of Piraeus by the Chinese state-owned shipping company COSCO.

Nevertheless, although Piraeus is probably the most emblematic case, there have been numerous other interventions through which China has strengthened its strategic control over the Basin's port infrastructure. Among these, one example closer to us is the investment in the Vado Ligure terminal. Another important point to highlight is the massive policy of infrastructure acquisitions in Spain, Malta, North Africa, Turkey, Israel, and France, where the Chinese giant holds an important share in the terminal of the large port of Marseille. China is present not only with shipping companies, but also with engineering firms such as China Merchants Holdings International, which operates within Malta Freeport (Marsaxlokk), together with the Turkish group Yildirim and the French CMA-CMG. COSCO and China Merchant's investments between 2013 and 2021 amounted to approximately $6 billion ($11.7 billion if the earlier first investment in Piraeus is included) in 12 ports.

2. The importance of the Suez Canal as a crossroads for any type of freight

The growth of goods in transit through the area confirms the relevance of the Suez Canal as an important route for all types of cargo. In 2015, the Egyptian government invested more than $8 billion to double the Canal, which generated steady transit growth. In the five-year period 2015-2020, 90,000 ships transited the Suez Canal carrying 5.5 billion tonnes of cargo, compared to 86,600 ships with 4.6 billion tonnes during the previous five years.

However, it was the container ship Ever Given's accident in March last year (which blocked passage through the Canal for six days, affecting hundreds of ships, with a daily damage estimated by Bloomberg at $9.6 billion) that prompted the Canal Authority to begin dredging work to widen the two-way section in the southern part of the waterway. The project, which started in July 2021, will cost a total of 3 billion Egyptian pounds ($191 million) with completion expected by the end of June 2023. This will result in an immediate improvement in navigation safety, especially for large ships with deep draught, while later on there will be an increase in traffic, which the Authority estimates at as much as 28%.

These investments define the key features of the authority's development strategy, revealing a long-term economic vision, made up of investments but also of an increase in tolls, which aims to maintain the leadership of Suez, with increases in transits, improvements in related services and a considerable development of the ports close to the Canal, so as to make this passage a faster, shorter and thus optimal choice, compared with other routes. This development has greatly affected the geo-political significance and balance of international trade by making it increasingly convenient for ships to pass through the Mediterranean avoiding other more costly or riskier routes (such as the Arctic route or the Cape of Good Hope).

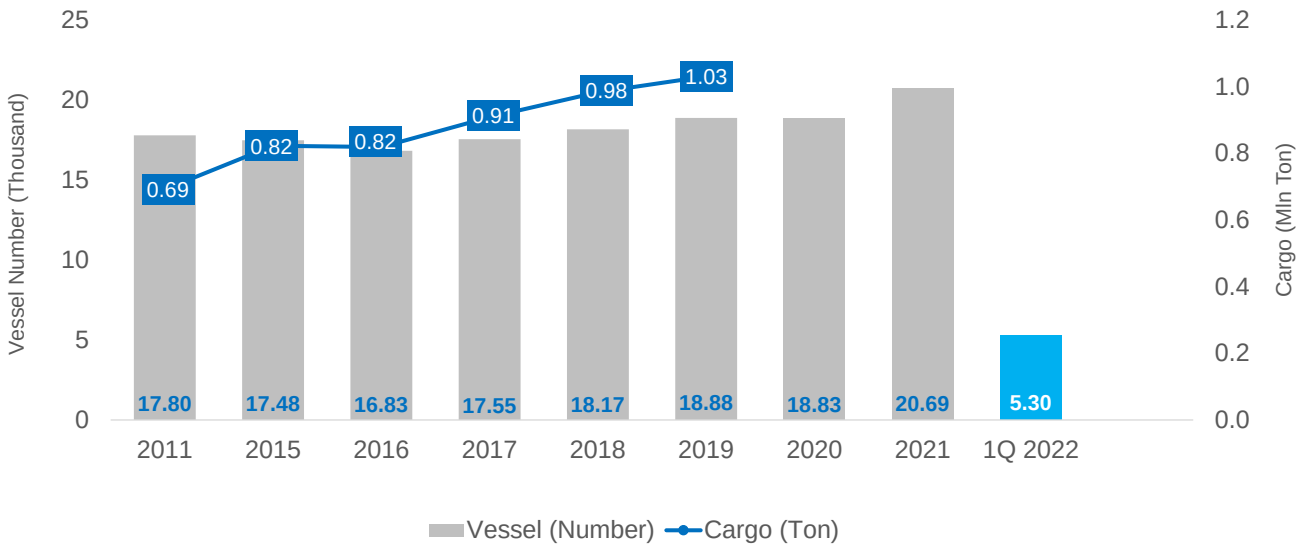
The increased concentration of liner services in the Mediterranean, facilitated by the Egyptian Canal, which, following its enlargement, places virtually no limits on the size of ships in transit, is an undoubted benefit for the ports on its shores, whose location thus adds to their appeal as destinations.

Despite the current historical circumstances and despite the blockade of the Canal last year, more than 56 ships used Suez every day **in 2021, totalling 20,694 transits (up 10% from 18,830 in 2020) and 1.27 billion net tonnes (up 8.5% from 1.17 billion net tonnes in 2020).** The new marketing policies succeeded in attracting 4,920 new ships passing

through the Suez Canal for the first time in 2021 (around 23% of all ships in transit), boosting infrastructure revenues.

Despite the pandemic, **Suez's revenue in 2021 was the highest in the Canal's entire history, with $6.3 billion,** up 12.8% (+$720 million) compared to $5.6 billion in 2020. The Authority expects this figure to rise to $7 billion by the end of 2022, or even exceed this threshold by more than $400 million due to planned toll rate increases. Thanks to the growth in transit traffic, 2022 also started with positive revenue numbers. In **the first quarter of 2022** as a whole, the Canal recorded a revenue of almost **$1.7 billion**, showing a **+20%** growth compared to $1.4 billion in Q1 2021.

Freight traffic through the Suez Canal (vessels, cargo). Trends in 2011 and 2015-2021 (Q1)



Source: SRM services on Suez Canal Authority data

Figures have been constantly on the rise as a consequence of both infrastructure investments and trade driven by the Chinese BRI. The growing role of the Canal has been noted and supported by Chinese policy, for which maintaining good order in the Mediterranean is functional to the **security** of the Indian Ocean-Suez-Gibraltar-Panama route and the western branch of the maritime Silk Road.

A further interesting aspect is that in recent years there has been an increase in the average size of ships passing through Suez, the so-called mega-ships with a cargo capacity of more than 10 thousand TEU. The average size of ships passing through Suez increased by 14% between 2014 and 2019. Thanks to the Canal's widening, the average size of container ships transiting Suez grew by 35% in 2019 compared to 2014; while the average size of tankers grew by around 15%.

Thus, investing in the Canal's infrastructure to allow the transit of all types of ships proved the right choice and secured a competitive advantage over the Panama Canal, which also completed expansion works in 2016 but still has limits to the passage of the largest ships.

The use of giant container ships will result in many financial and infrastructural implications, including the need to adapt Mediterranean ports and the challenge to govern change by gaining a geopolitical advantage over competitors.

Even in complex economic times, Suez has remained a strategic hub for Mediterranean trade, continuing to account for around **12% of global trade and 30% of containerised traffic**. The position of the Canal also makes it a key hub for the transport of oil and other hydrocarbons; and it is precisely on the global energy trade that the Canal Authority has announced it wants to focus: the goal is to **reach a 15% share of energy transport by 2040**, thus aiming to almost double the share that in 2019 was around 8%.

The pandemic first and then the Ever Given episode have emphasised **the vulnerability of the maritime system**, helping to highlight the fact that blocking the Mediterranean means halting production and logistics in an area that now has incalculable weight on global value chains. The mega-ship grounding caused oil price rises, delays in deliveries, a halt in the supply of raw materials by the world's main industries, and called into question the use of mega-ships, which in the event of an accident cause major operational difficulties. Another element of fragility became evident in the congestion of ports caused by Covid, particularly those in North America, due on the one hand to the increase in cargo volumes resulting from increased demand, and on the other hand to the reduced availability of port manpower due to contagions and stricter security protocols and subsequent longer lead times. Congestion not only affects the US but also China, where recent outbreaks of Covid-19 have led to new local 'lockdowns'. The recent restrictions imposed by the Chinese authorities on the inhabitants of Shanghai threaten to cause a new shock to world trade by sea. The conflict in Ukraine has intensified the problem in Europe, due to increased customs controls, for example. Congestion not only affects the container sector, but also bulk cargo and motor vehicles.

Therefore, it is precisely the vulnerability of the global system that urgently highlights and flags up the need for traffic security and the protection of maritime space.

The logistics of international transport have been profoundly transformed in recent decades, moving from the logic of warehousing to that of prompt delivery. Factories started to avoid stockpiling goods while waiting to sell them, and on the contrary, they produced exactly what the market demanded. In such a situation, without warehouses and with a supply chain was therefore bound to operate very efficiently to fulfil its obligations to customers, the transport chain found itself much more at risk than in the past. The enormous problems that have arisen in the transport and logistics of goods by land, sea and air since the outbreak of the Covid-19 pandemic have called into question the just-in-time model and global value chains that have driven globalisation and contributed to making maritime transport the backbone of world trade, given the concentration of production in a small area of the world located in Asia.

Therefore, if because of the pandemic many operators had discovered the distortions of a supply chain based entirely on the Far East, after the blockade of the Suez Canal, discussions began to spread about a possible detachment from the exclusive supply of Chinese goods, thinking in general about a reorganisation of the production chain oriented towards shortening some of the main global value chains, so as not to depend so heavily on distant supplies, and on long-haul sea transport. So, reshoring and nearshoring (i.e. bringing production to the company's country of origin or to countries that are closer) brought to the creation and development of short-haul production chains in order to shorten distances between production and consumption areas and to ensure that supply chains are more resilient. The current global emergency has therefore highlighted a new necessity, namely retaining control over the production cycle in order to better cope with risks and organisational costs while increasing the security of at least some productions considered essential.

As mentioned, it is likely that not all production will be able to be nearshored because most developed countries are probably unable to compete in labour-intensive production where the incidence of labour costs proves too high. Nearshoring strategies could therefore make it possible to rethink supply chains for only a number of products. **The most favoured areas of the world to accommodate those who decide to relocate their production facilities from Asia are in the Mediterranean and Gulf area.**

A strategy that, according to forecasts to 2026, will mark an important growth, albeit revised in light of the conflict that is affecting precisely part of this area. In detail, an average annual increase in container movements in Mediterranean ports is estimated at 3.1% for the

western part, 4.1% for the eastern part and the Black Sea, and 3.6% for North Africa. Obviously, these are complex business strategies that require a long-term vision, but certain signs are starting to materialise. Some companies, including Ikea and Benetton, have announced their intention to bring production and destination areas closer together, with the aim of cutting transport costs and reducing delivery times for goods. Their intention is therefore to **relocate to countries in the Mediterranean area part of the production** destined for the European and Middle Eastern markets and hitherto carried out in Asia.

3. The direct and indirect impact of the war in Ukraine on Mediterranean traffic

In addition to the crisis related to the spread of the pandemic, the international economic scenario was violently and abruptly hit by the conflict in Ukraine, which once again called into question the solidity of hyper-globalisation and just-in-time, highlighting the new need to retain control over production cycles in order to better cope with risks, organisational costs and increase security at least for certain goods deemed essential.

The crisis between Russia and Ukraine is already manifesting strong direct and indirect impacts on shipping in terms of both routes and trade flows. The two countries are major producers and exporters of food, mineral and especially energy commodities, many of which travel by ship. Although the consequences on traffic will also depend on the duration and outcome of the conflict, the substantial closure of the Black Sea to merchant ships (all the major companies have decided to avoid the port of Odessa) and the impossibility for Russian ships to dock at European ports already implies **changes for port logistics in the Mediterranean**, especially in those areas that boasted strong maritime trade relations with Russia and Ukraine. The consequence of this will be a repositioning of ships to routes other than the Black Sea. With European importers and Russian exporters seeking alternative markets, there will be an impact on route dynamics within the Basin.

Due to the embargo and sanctions, there will be reductions in oil transport and a probable substitution of European gas imports by land from Russia (via pipeline/railway) with supplies by sea (e.g. from the United States); this would lead to **an increase in gas tanker traffic in the Mediterranean area**. The conflict is already having an effect on bulk traffic as well, since Ukraine is also one of the largest exporters of wheat, corn, and sunflower oil, and the market is currently at a standstill; therefore, a more negative impact is expected on bulk carriers (wheat and coal), while the impact on containers (hardly affected) will be limited.

The effects of the conflict are also already being felt on the choice of modes of transport for goods. Restrictive airspace measures and security concerns are complicating all trade routes through Russia and Ukraine, two countries that are a key geographical component of the Belt and Road Initiative's Eurasian Land Bridge. In 2021, 1.5 million freight containers were shipped by rail from China to Europe. If these volumes were added to the Asia-Europe maritime transport demand, this would mean a 5% to 8% increase in an already congested trade route. In addition, the already expensive and overburdened maritime trade will find it difficult to replace these suddenly impractical air and land routes, so the impact of the war in Ukraine will almost certainly lead to even higher freight rates.

Above all, the war will cause an increase in transport costs and thus an inflationary push along with a drive towards regionalisation and reshoring/nearshoring. For this reason, the ports in the Basin area must be ready to redirect reception flows from new countries and new types of ships. In addition, in the medium to long term, the potential for cooperation and productive synergies between the two shores of the Mediterranean can no longer be limited to the commercial and maritime connection but must also include the increasingly decisive energy connection. An objective that can only be achieved through **increased cooperation between the North and South shores of the Mediterranean**, for the promotion of regional investment flows, to finance joint projects and to enable faster transfers of technology and know-how, on a broader scale than hitherto.

Chapter 2

Analysis of port competitiveness in the Mediterranean

SUSTAINABILITY | Contribute to the European green agenda for maritime transport by strengthening the EU capacity to protect the marine environment, manage climate change and respond to new environmental challenges.

SAFETY | Contribute to higher maritime safety standards, anticipate new maritime safety challenges and expectations and provide knowledge-based solutions with the aim of contributing to the reduction of marine casualties and human loss.

SURVEILLANCE | Strengthen EMSA's role as the core information management hub for maritime surveillance.

In view of the development of traffic in the Mediterranean and the centrality it assumes in the competition between regional and global powers, and the growth of port systems surrounding the Basin, **EMSA operationally supports the development and management of integrated maritime services**, with **ship monitoring**, promoting **attention to the human element** in maritime safety. It also supports **environmental protection**, taking action on pollution caused by ships and oil and gas installations.

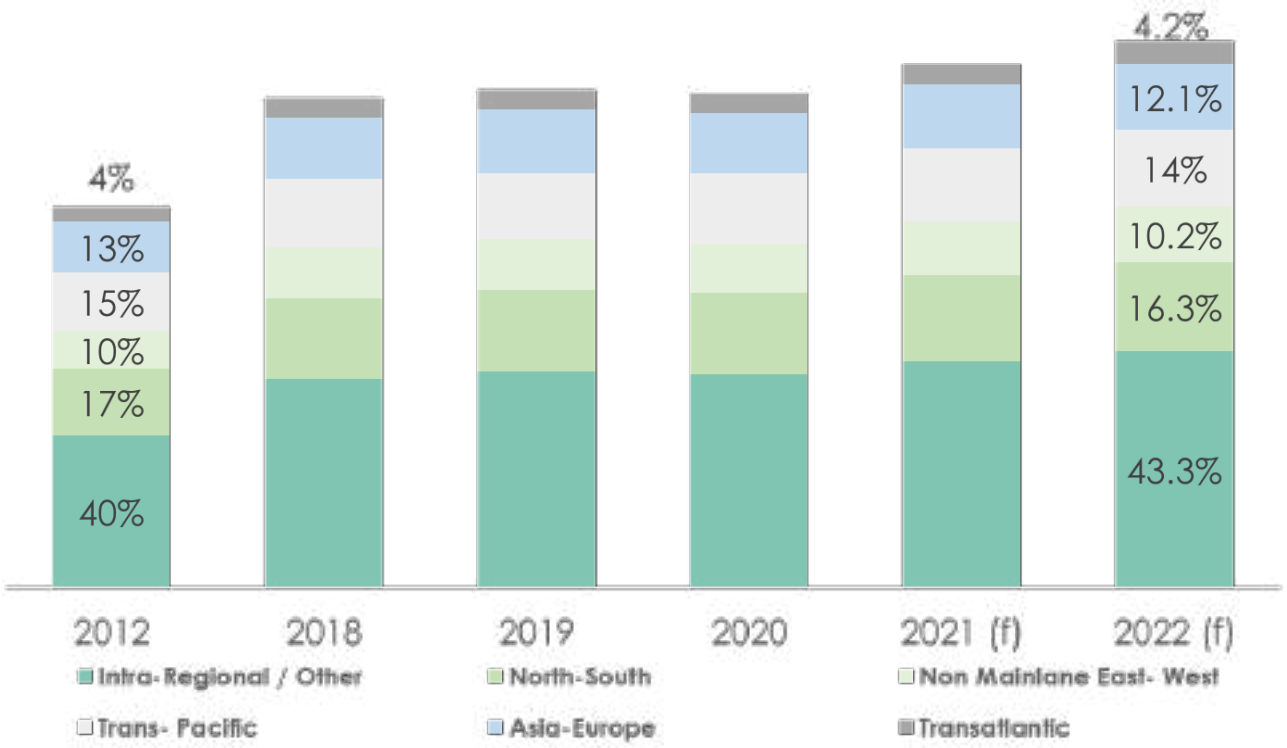
1. Maritime and port competitiveness in the Mediterranean

It is highly likely that the world's large macro-regions will tend to trade goods more within large blocks than on a global scale. Thus, maritime traffic could spread over multiple secondary, intra-regional routes, creating new markets, new development, new supply chains. Regional integration could in fact not only increase trade flows, but also facilitate structural change, as it would make it easier for local companies to export goods with higher added value to regional markets than to international ones.

Container trade is concentrated along the many intra-regional routes (Intra-Asia, Intra Med/Black Sea, North Sea/Baltic Sea, North American Atlantic Coast, Gulf of Mexico) which are expected to show the most significant growth in the future, thus fulfilling expectations of increased regionalisation of trade and shipping. As can be seen in the chart below, intra-

regional routes have grown significantly in recent times and are expected to continue to grow, reaching 43.3% of the total by 2022.

Seaborne container traffic on global routes (2012-22 - % of TEUs)



Source: SRM services on Clarksons

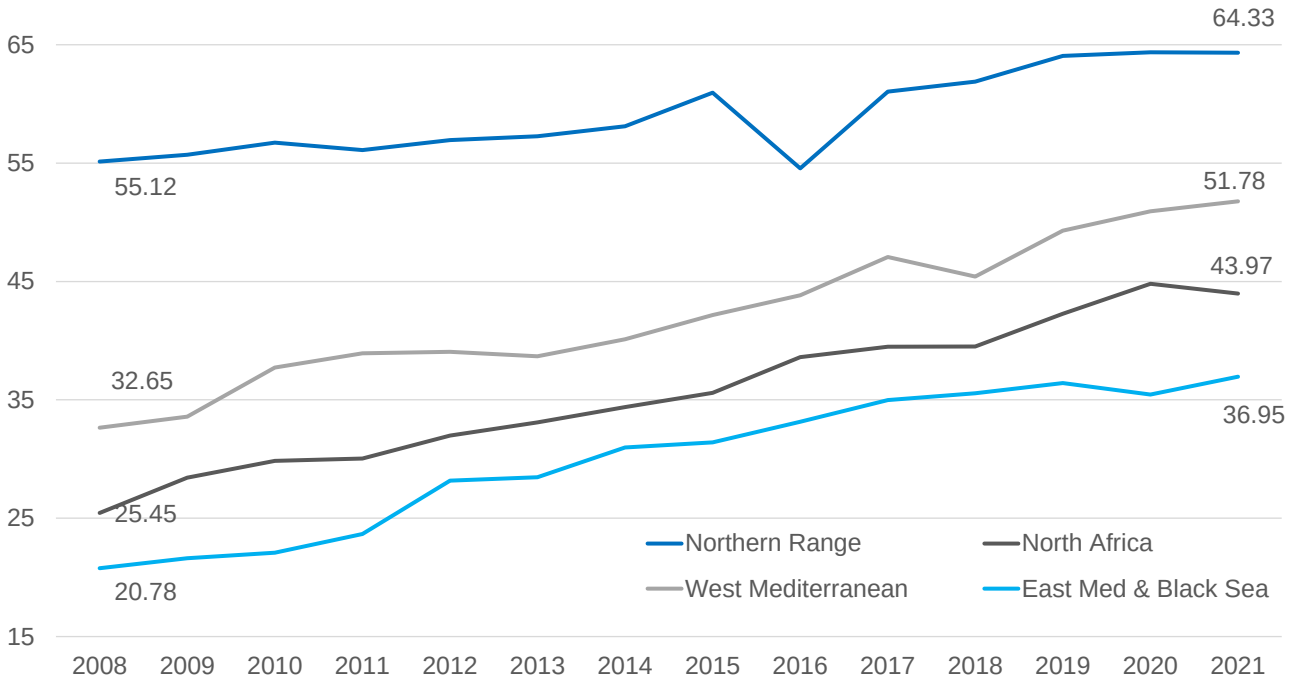
Thanks to this development, and provided they focus on efficiency, over the next ten years, certain southern ports could get closer to those of northern Europe in maritime connectivity. A progressive convergence process in maritime connectivity between Mediterranean and Northern European ports can already be observed.

The dynamics of UNCTAD's Liner Shipping Connectivity Index (LSCI) since 2008 help to understand the evolution of maritime connectivity in the long term and how positions on the playing field of port competitiveness are changing.

To this end, SRM developed a graph comparing the average Liner Shipping Connectivity Index over the period 2008-2021 in 4 different port areas: Northern Range (NR), North Africa (NA), West Mediterranean and East Mediterranean and Black Sea[6].

[6] The Northern Range (NR) includes Germany, the Netherlands, Atlantic France and Belgium. The West Mediterranean includes Spain, Mediterranean France, Italy and Greece. North Africa comprises Morocco and Egypt. East Mediterranean and Black Sea includes Greece, Israel, Malta, Slovenia, Turkey, Lebanon, Ukraine, Russia.

Growth of the Liner Shipping Connectivity Index in 4 port areas between 2008 and 2021



Source: SRM services on UNCTAD, 2021

The graph shows how the gap between the ports of the South-Eastern Shores compared to the Northern Shores has significantly narrowed over the period analysed, confirming the increasing competitiveness of the establishments of those areas that, despite political and social instability, continue to strengthen their position in the market.

To further improve regional integration, however, the economies of the area must further increase the capacity and efficiency of their ports and ensure connectivity with inland areas. This includes reducing travel bottlenecks and waiting times while linking ports with railways and other multimodal transport for smoother connectivity with large inland areas as well as to ensure safety and certainty of trade timings.

The ports on the southern and eastern shores (North Africa and Turkey) are pursuing important development policies for their port systems, aware that this represents a key element for the economy, development and foreign projection of an area. We are witnessing not only a new layout of world trade by sea, but a change in the rules of competitiveness of ports, which now cannot base their growth solely on infrastructure, both tangible and intangible, but must be able to innovate and offer value-added services, back-port areas where manufacturing and logistics activities can be set up, in environments that are also favourable from a fiscal and bureaucratic point of view. **Attracting maritime traffic**

therefore means potentially attracting high value-added activities that can boost the economy of the areas around ports.

This is the key element underpinning the development of Free Zones, i.e. areas where there are tax, customs and bureaucratic concessions for export-oriented production facilities. These activities can be developed in synergy with ports to create a win-win situation.

The most striking example in the MENA region is in the vicinity of the port of Tanger Med in Morocco. The port logistics and 'free trade' area is home to a total of over 1,000 companies employing 80,000 people from all manufacturing sectors that generate total exports of over €8 billion. It is an area founded on heavy manufacturing investment, especially in the automotive sector (Renault), but also in other industrial sectors; the port has rapidly turned from a transhipment port to a multipurpose port (transhipment now accounts for around 40%), with a strong development of passenger and Ro-Ro traffic, which showed a +14% in 2021. The traffic of vehicles produced in the Automotive Free Zones is also very high, with almost 430,000 vehicles handled in 2021, an increase of 20%.

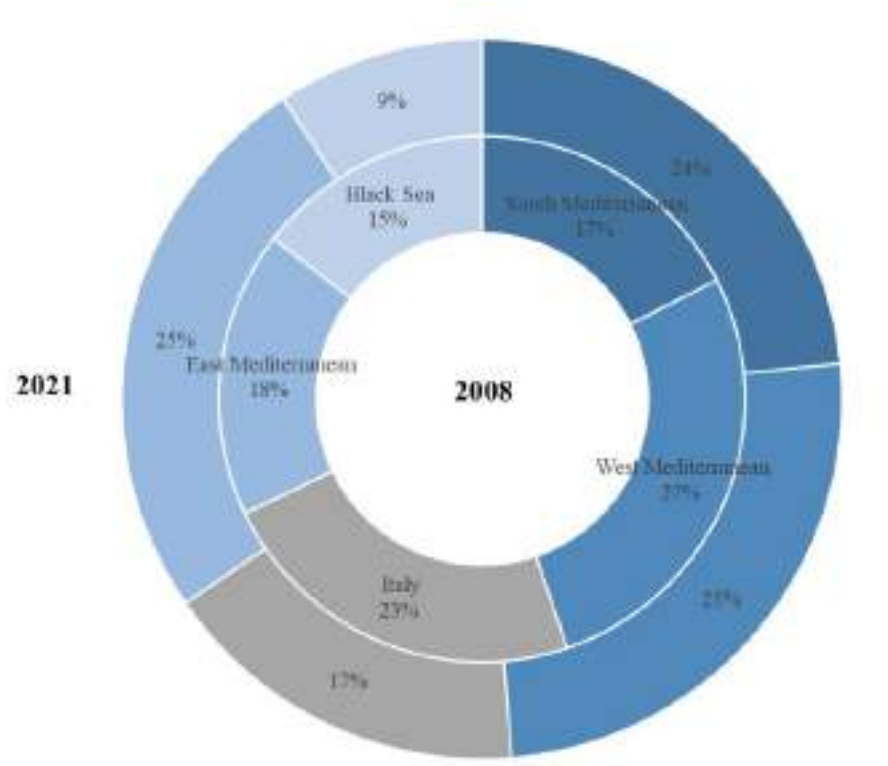
The country's companies can count on the presence of the Mediterranean's first container port, at the centre of the Moroccan government's strategies for years, and on the expertise of international logistics companies (Danish and German) that manage the port's terminals.

Other important investments of great geo-economic importance in the area include the large Suez Canal Zone involving 6 seaports and 4 Industrial Zones, with 14 industrial operators working on the development of the area and a total investment of $18 billion, developing opportunities for 100,000 workers. These include DP World, Egyptian Chinese J.V. Co. for Investments, East Port Said, Sokhna Refinery & Petrochemicals Co.

As a result of this growing importance as a global connection platform, **the Mediterranean has increasingly become the focus of competition between regional and global powers.**

The graph below shows that in over 10 years the Mediterranean port systems have increased their market share thanks to these investments. The ports on the Southern and Eastern shores show a greater competitive intensity, a growth (+7% for both groups) that has been mainly to the detriment of the Italian ports and those on the Black Sea.

Share of container handling (TEU) in port areas of the Mediterranean



Note: Only ports that handled more than 400,000 TEUs in 2021 were considered.

Source: SRM services on Port Authorities

Even analysing the performance of individual ports, as shown in the table displaying the data for the Top 10 container ports in the Mediterranean, it can be seen that the first two national ports record a container traffic that is 5.7 million TEU lower than both the first two Spanish ports (10.4 million) and the first two North African ports (11 million). It should be noted, however, that overall container traffic in Italy exceeds 11 million TEU, it is distributed across many ports, both on the Tyrrhenian and Adriatic sides, and has been gaining market share in recent years. Container traffic in our country is therefore characterised by a lower concentration compared to competitors.

Container traffic in the top 10 ports of the Mediterranean and the Black Sea

	TEU 2021	*Var. % su 2020*
Tanger Med	7,173,870	+24.3%
Valencia	5,614,454	+3.43
Piraeus	5,320,000	-2.2%
Algeciras	4,796,665	-6.09
Port Said	*3,865,320*	*-3.6%*
Barcelona	3,530,814	+19.36
Gioia Tauro	3,146,533	-1.5%
Marsaxlokk	2,970,000	+21.7%
Ambarli	2,932,000	+1.5%
Genoa	2,557,847	+8.7%

Note: estimates in italics.

Source: SRM services on Port Authorities

2. The strategic role of the Italian port system and the value of ports located in the Mezzogiorno

The Mediterranean has thus become a sea characterised by great competition among countries that implement aggressive policies for investment attraction, and this is the context where Italy operates. It is therefore of utmost importance that the Italian system is capable of attracting growing shares of those trade flows. **Italy** can leverage its **privileged position at the centre of the Mediterranean** which is, and will also be in the future, the major hub for transport to and from the Far East and between Europe and the MENA countries. Getting ready for this challenge entails investment in modernisation and the upgrade of ports with a view to sustainability but it also involves providing ports with the land transport infrastructures needed for connections with the rest of Europe.

In 2021, Italian ports handled 482 million tonnes of freight, which marked an 8.4% growth on 2020, but they failed to reach pre-Covid levels.

Goods handled by Italian ports in 2021

Italian ports	General cargo					TOTAL THROUGHPUT	TEUS		
	Liquid bulk	Dry bulk	Container	RO-RO	Other cargo		"hinterland"	"transhipment"	TOTAL
	tonn.	*tonn.*	*tonn.*	*tonn.*	*tonn.*	*tonn.*	*number*	*number*	*number*
2021	63,807,537	56,800,474	117,012,416	123,484,496	20,419,763	481,524,686	7,195,426	4,101,293	11,296,719
21/20	4.4%	15.2%	2.4%	15.3%	24.6%	8.4%	8.8%	0.7%	5.7%
21/19	-10.4%	-4.8%	5.1%	9.1%	-12.6%	-1.8%	-0.2%	14.8%	4.8%

Source: Assoporti

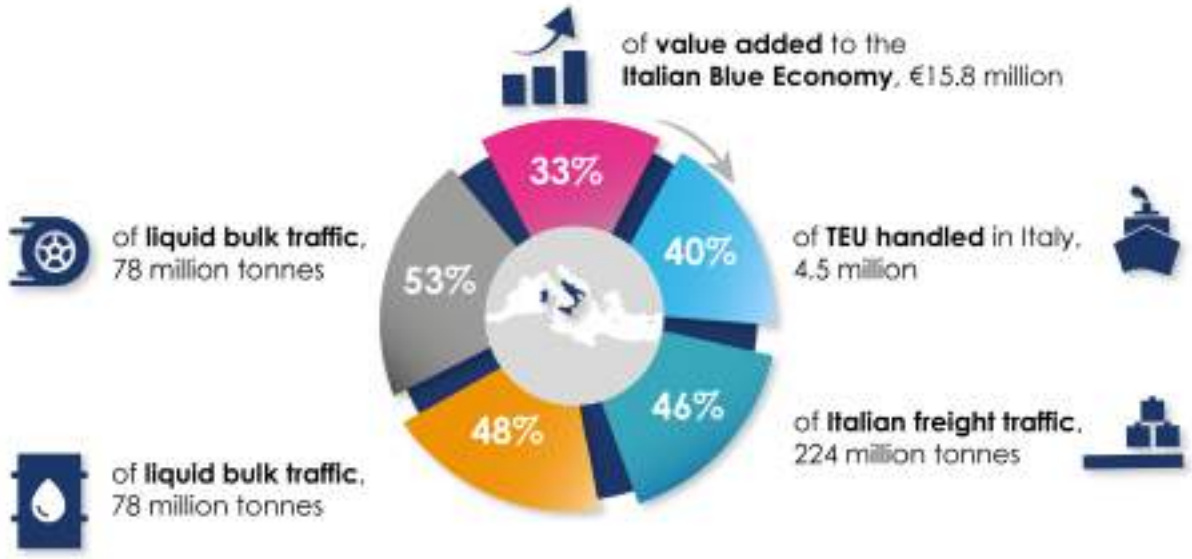
Positive signs can be detected in all traffic segments (liquid bulk +4.4%, dry bulk +15.2%) but the best performance was that of RO-RO, with 123.5 million tonnes (+15.3% on 2020 and +9% on 2019). RO-RO (a mode of transport consisting of getting the vehicle onto the ship, thus reducing road journeys) has emerged as the most resilient and viable maritime transport segment in the cargo sector. Overall, considering both the cargo and passenger components, the Motorways of the Sea segment remains the most dynamic in the national maritime panorama from a medium to long term perspective. The trend in RO-RO traffic since 2005 has been clearly better than the overall traffic volumes. 64% of RO-RO traffic originates from other Italian ports, while the remaining 36% originates from or is directed to other Mediterranean ports[7]. The ports of the central and southern Adriatic area recorded significant RO-RO traffic figures, as did the entire central and southern Tyrrhenian area from Salerno to Civitavecchia. Container traffic in Italy also recorded above-average growth in 2021, exceeding the 11 million TEU threshold (11.3, +5.7% on 2020 and +5.1% on 2019 vs. 111.3, +4.8% on 2019); this increase was mainly observed with hinterland traffic.

In this context, the **Mezzogiorno** plays a leading role in the maritime economy in general, and considering the port sector, the South is the macro-area, among the four Italian ones, that **moves the most goods by sea**. With 224 million tonnes handled in 2021, **46% of the national total** is concentrated in southern ports, a 7% increase on 2020. The largest component of southern ports is represented by liquid bulk traffic with 78 million tonnes, followed by RO-RO with 65 million, a figure representing more than half (53%) of the Italian RO-RO total.

[7] ISFORT, Confcommercio (2021), *La transizione ecologica dei Trasporti e della Logistica e l'Intermodalità.*

Containers, with 4.5 million TEU, account for **40% of national traffic**. The passenger component still prevails, with 70% of total movements and 30 million units, a much better figure than in 2020 (+29%) but still far from 2019 numbers (-33%).

Ports in the Mezzogiorno: a pivot for the whole Italian economy



Source: SRM services

Ports in the South of Italy have considerable expertise in RO-RO and Motorways of the Sea as the main Italian regions operating in these types of shipping are Sardinia, Sicily, Apulia and Campania which are all located in Southern Italy. It should be taken into account here that **Italy is the leader in Short Sea Shipping in the Mediterranean with a volume of 225 million tonnes of freight handled, equivalent to a 38% market share.**

Top 5 ports in the Mezzogiorno by goods handled in 2021

	General Cargo						TEUs			Passengers			
Port	**Liquid Bulk**	**Dry Bulk**	**Container**	**RO-RO**	**Other Cargo**	**Total Throughput**	**hinterland**	**transhipment**	**Total**	**Local**	**Ferry**	**Cruise**	**Total**
	tonn	*tonn*	*tonn*	*tonn*	*tonn*	*tonn*	*number*	*number*	*number*	*number*	*number*	*number*	*number*
Gioia Tauro	515,000	-	37,962,338	81,964	-	38,559,302	-	3,146,533	3,146,533	-	-	-	-
Cagliari-Sarroch	24,853,365	774,480	308,649	5,285,864	-	31,222,358	77,191	32,462	109,653	-	165,821	57,199	223,020
Augusta	23,872,133	1,243,769	-	-	-	25,115,902	-	-	-	-	-	-	-
Naples	5,510,790	1,282,217	6,552,380	4,544,468	-	17,889,855	641,951	10,648	652,599	3,578,596	597,483	251,821	4,427,900
Taranto	4,256,063	9,771,650	156,366	-	3,345,104	17,529,183	-	11,841	11,841	-	-	80,309	80,309

Source: SRM services on Assoporti

Short Sea Shipping in the Mediterranean (million tonnes and % of total)

Source: SRM services on Eurostat, 2022

The analysis by individual port of call, in the table below, shows instead the representativeness of our ports by category of freight and the concentration of these categories for the various ports of call. It should be noted that the **southern ports appear in all the charts** with Taranto in second place in the segments of solid bulk and various goods and Naples well placed for containers, while Salerno and the Strait hold important positions in Ro-Ro; Cagliari, Augusta and Gioia Tauro also stand out in the charts.

There is no ranking that does not include at least one southern port in the top three places. This is an indicator of the importance of the South in the national arena and of the importance that ports can take on as part of a more general strategy to relaunch the port system. Moreover, this can be useful to debunk the myth that the ports of the centre and north hold the largest traffic shares.

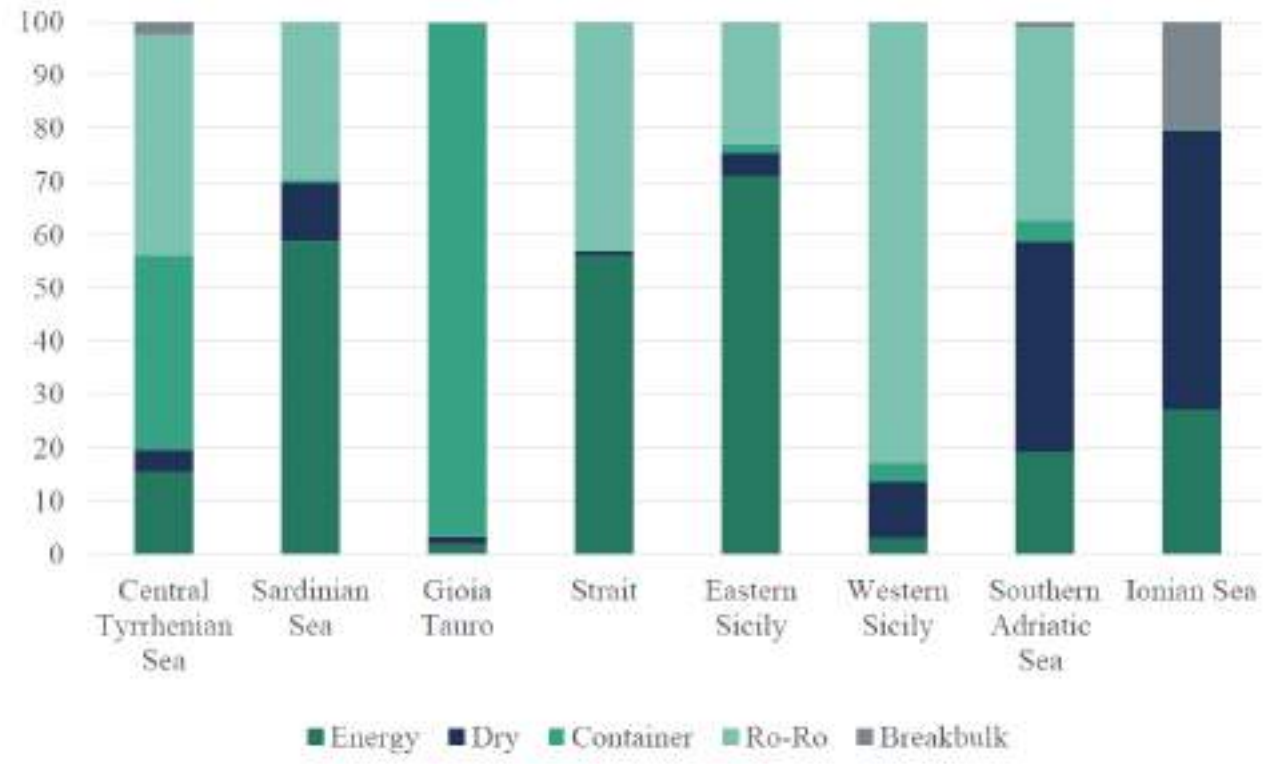
Top three ports in each freight category and traffic concentration (tonnes, TEU for containers)

Energy		Dry		Container (gateway)	
Ports	*Tons*	*Ports*	*Tons*	*Ports*	*TEUs*
Trieste	37.564.687	Ravenna	9.433.803	Genoa	2.068.046
Augusta	22.987.553	Taranto	8.290.604	La Spezia	1.104.335
Cagliari	21.701.411	Venice	4.975.274	Naples	634.191
Total	**82.253.651**	**Total**	**22.699.681**	**Total**	**3.806.572**
% share	52,4	% share	46,1	% share	57,6
Container (transhipment)		**Ro-Ro**		**Breakbulk**	
Ports	*TEUs*	*Ports*	*Tons*	*Ports*	*Tons*
Gioia Tauro	3.193.364	Livorno	13.989.301	Ravenna	5.140.585
Genoa	284.723	Stretto	11.388.187	Taranto	3.151.815
Trieste	281.693	Salerno	8.800.779	Venice	2.161.352
Total	**3.759.780**	**Total**	**34.178.267**	**Total**	**10.453.752**
% share	92,3	% share	32,5	% share	63,9

Note: a breakdown by single port rather than by Port Network Authority was preferred so as to provide a clearer indication of the origin of freight.

Source: SRM services on Assoporti, 2022

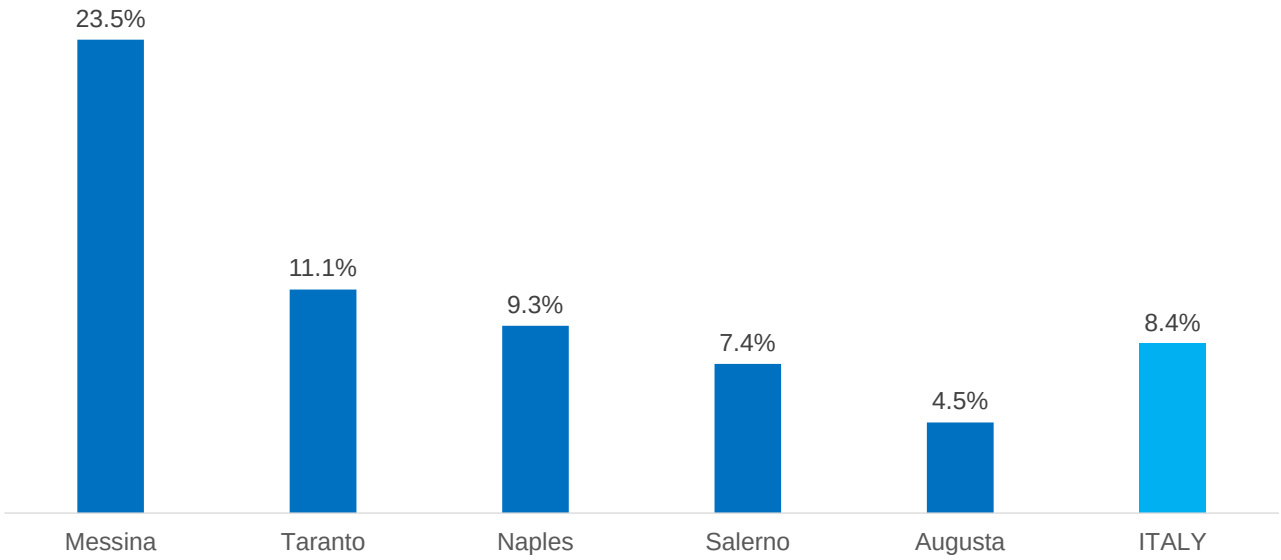
Main types of traffic in ports of the Mezzogiorno area (% values)



Source: SRM services on Assoporti

The considerable contribution of southern ports in the Ro-Ro sector is a positive sign for a country in several ways that go beyond the growth of the blue economy, which presents southern ports as an asset for a more competitive Italian system. In fact, Ro-Ro is a mode of transport that affects the safety of the country as it contributes to reducing road accidents and pollution, factors that tend to burden the health system with higher costs and cause reductions in the quality of life. As it involves short-haul routes, Ro-Ro is a mode of transport that is strongly connected to the reshoring strategy since if production chains are brought closer together, it is likely that there will be an increase in this type of traffic in which the South is specialised.

Performance of some ports located in the Mezzogiorno area (% var. 2021/2020, total freight in tonnes)



Source: SRM services on Assoporti

Ports represent a central element of the entire logistics chain and are also poles of energy development for a country because they are terminals of oil traffic as well as of pipelines carrying energy products; this role can be played especially by **the southern ports** that **have a strong focus on the 'Energy' sector**.

While on the one hand the Mezzogiorno is **a gateway for new energy flows from North Africa and the Caspian area to Europe** (Transmed, Greenstream and Tap pipelines), on the other hand the weight of the area's ports in terms of crude and refined oil is significant: seaborne imports/exports of oil products and coke in the Mezzogiorno amount to about €31 billion (63% of Italy).

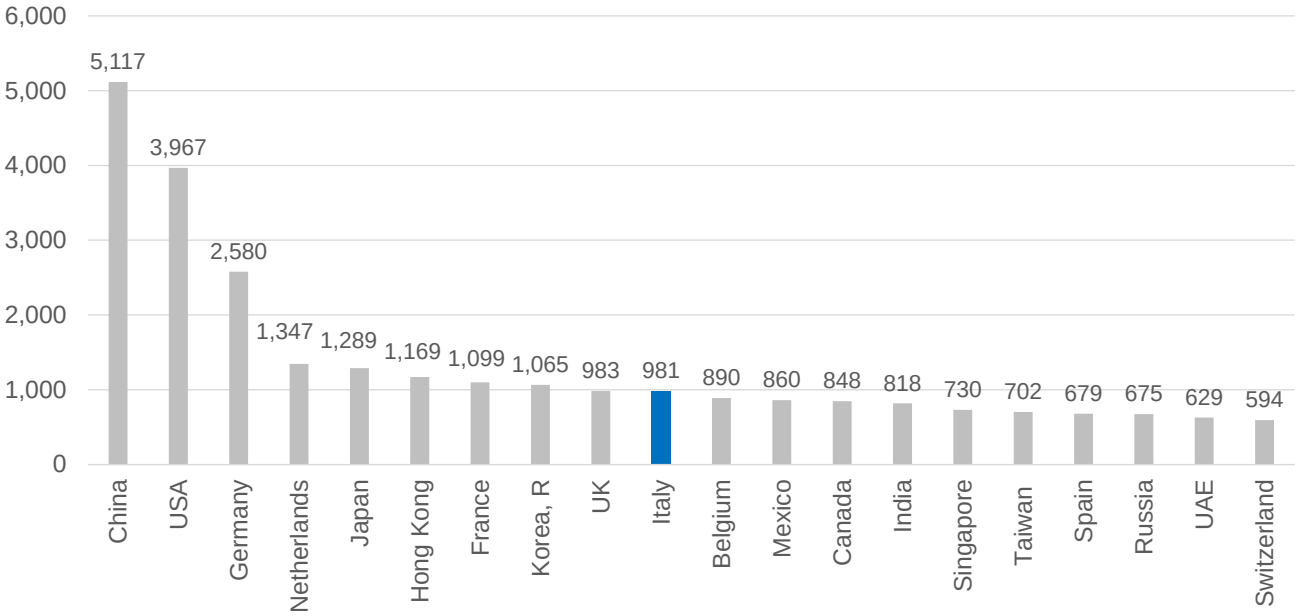
The South hosts important energy ports; Sardinia and Sicily stand out thanks to Cagliari, Messina-Milazzo and Catania-Augusta, which boast large refineries and oil plants that make use of port services and are among the top 5 Italian ports with **64 million tonnes of liquid bulk** (40% of Italian oil traffic).

3. The maritime sector supporting internationalisation of the Mezzogiorno area

The maritime sector supports internationalisation and our country's ports link us to foreign markets; companies make extensive use of the sea in their international relations.

Italy is the 10th largest country in the world in terms of international trade and **the 2nd in the Mediterranean area** (with a value in 2021 of approximately €980 billion). Between 2001 and 2021, Italy's trade volume almost doubled (+83%).

Top 10 countries in the world by foreign trade (2021, bn €)



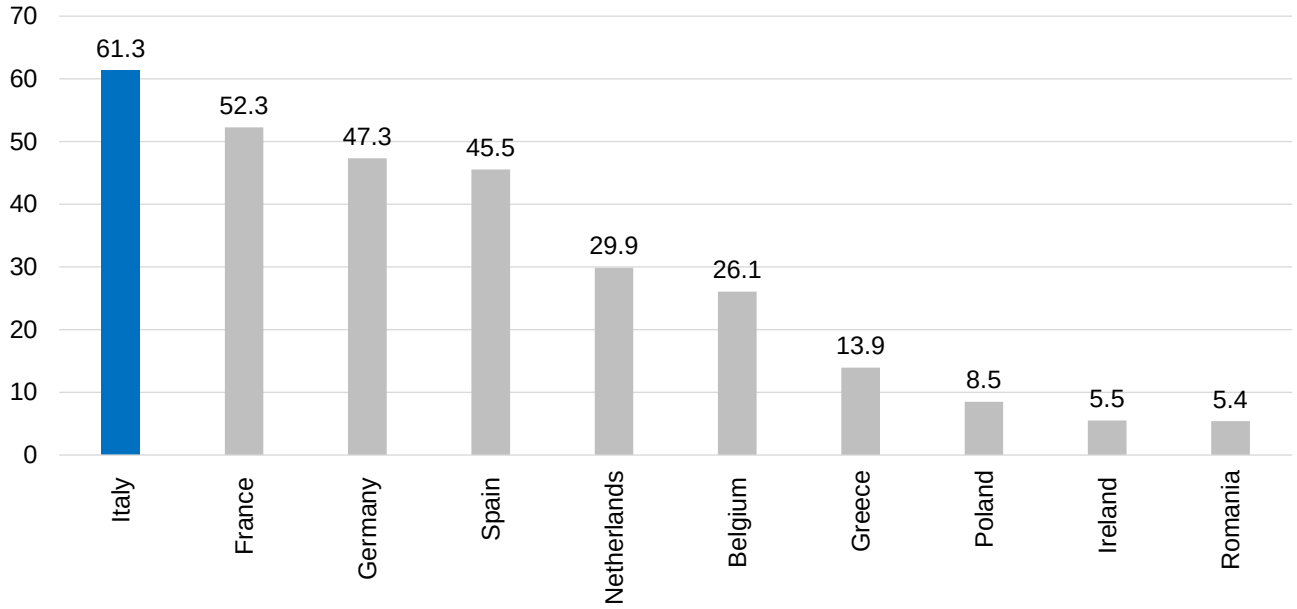
Source: SRM services on UNCTADStat data

Its position in trade with the MENA (Middle East and North Africa) area is also noteworthy: Italy is among the European countries with the greatest trade relations with the area (around €61 billion, 19% of the total trade between the EU-27 and the MENA countries). This figure has grown by 60% over the last 20 years.

The country has **a strategic location**, even when looking further ahead, as it lies **in the centre of the Mediterranean** and is **one of the first ports of call for ships crossing the Suez Canal on the Europe-Asia routes.**

Given these circumstances, it is no coincidence that maritime trade is the most important component of Italy's international trade, especially with regards to the quantity of goods traded (**93% of trade with non-EU countries is by sea**).

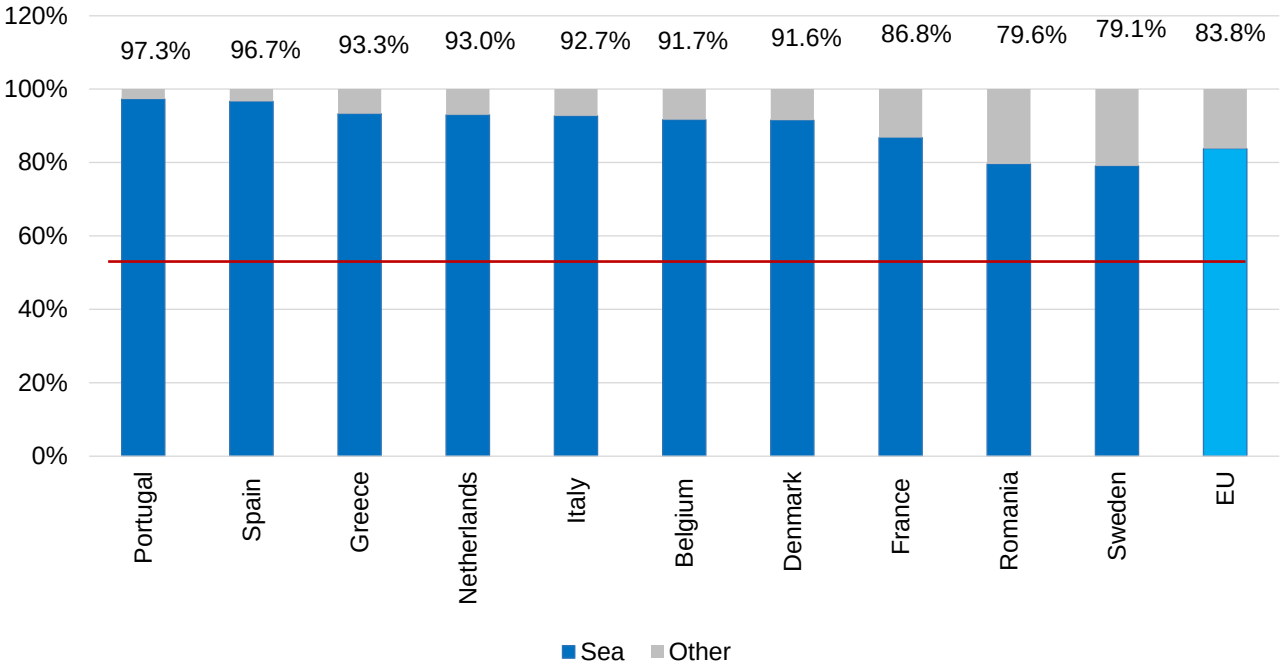
Top 10 EU countries by foreign trade with MENA countries (2021, bn €)



Source: SRM services on UNCTADStat data

The role of the maritime component in Italian foreign trade

(% of seaborne foreign trade to non-EU countries on total of the 4 modes of transport - sea, road, rail, air; quantity)



Source: SRM services on EUROSTAT data

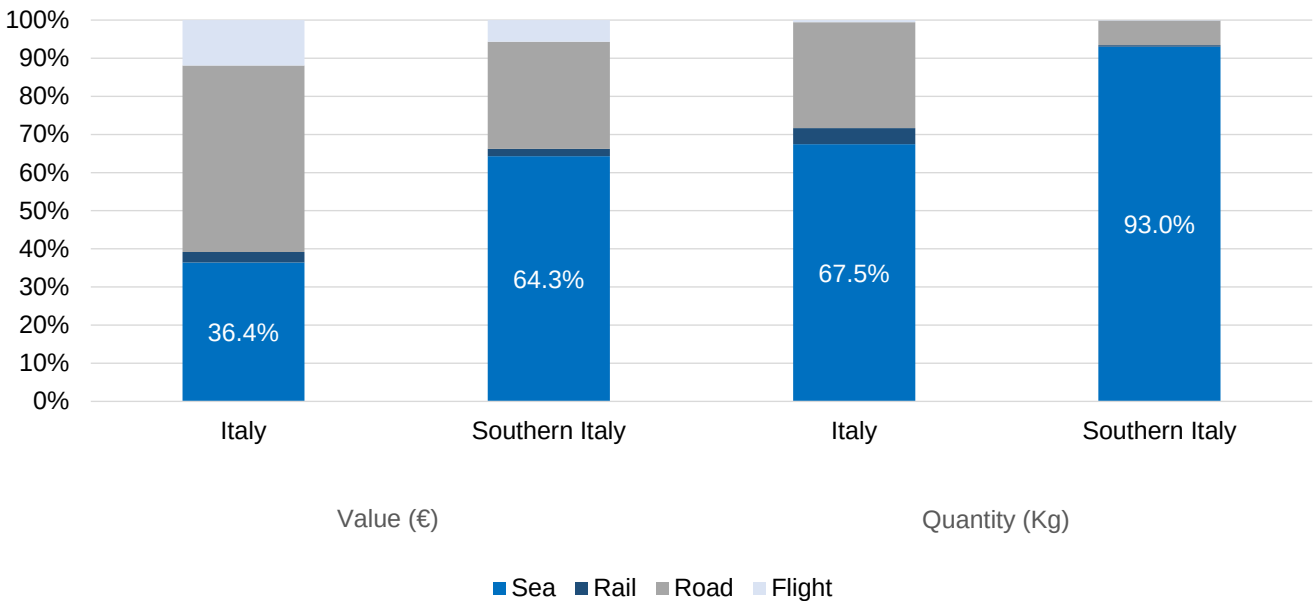
One of the **special features of Italian trade** compared with that of other Mediterranean countries is the presence of a rather **diversified manufacturing sector**, which makes this region a crucial hub not only for trade in commodities, but also for more technologically sophisticated products.

If we leave out the agri-food and oil components from seaborne trade with non-EU countries in quantity, Italy ranks better (33% share of sectors mainly including manufacturing products) than other European countries located in the Mediterranean, namely Spain (32.6%), France (27.5%) and Greece (19%).

In this context, the southern regions play a key role for Italy. In 2021, foreign trade by sea in the Mezzogiorno amounted to approximately €60 billion, accounting for 22% of Italy's maritime trade. **The maritime mode contributes 64.3% of the Mezzogiorno's value** of foreign trade in the four modes (sea, rail, road, air), which is higher than the figure for Italy (36.4%). Its impact is even greater when **considering quantity of goods exchanged**: in this case, **trade by sea contributes 93% of the total** (67.5% for Italy).

Shares and modes of transport in trade

(% calculated based on data relating to quantity and value)

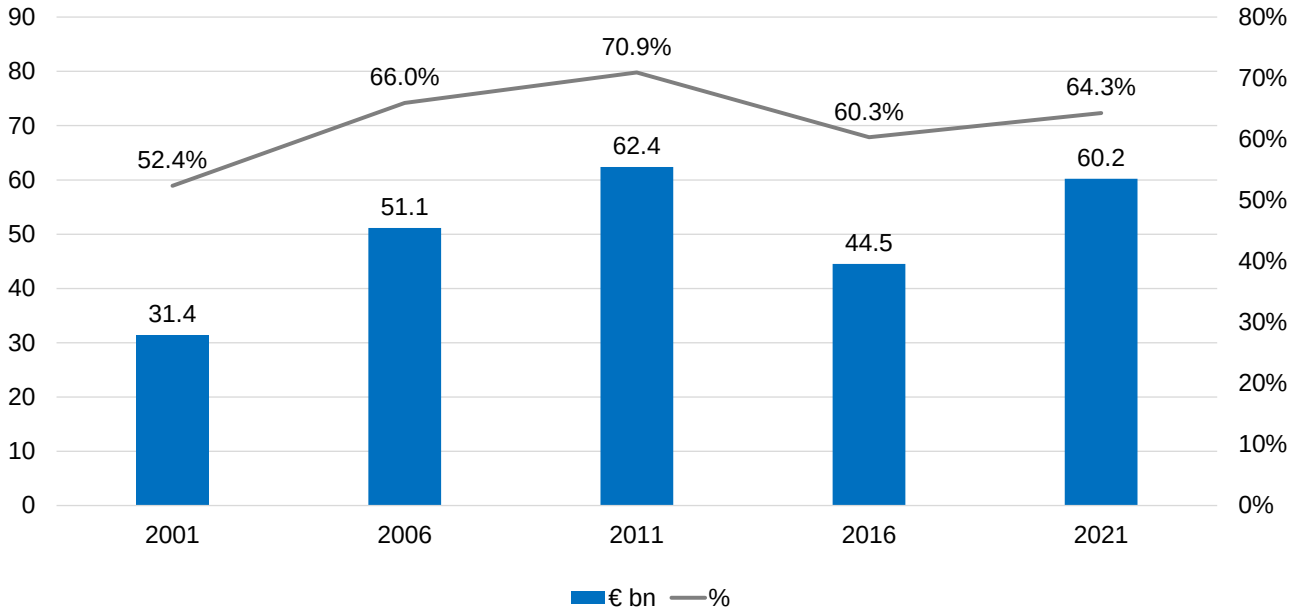


Source: SRM services on ISTAT data

Moreover, this is a strongly expanding phenomenon both in value and in terms of weight in foreign trade. Over the last 20 years, the value of maritime trade of the Mezzogiorno has almost doubled (+90%), rising from €31 billion to €60 billion, with the share of the four modes rising from 52.4% in 2001 to 64.3% in 2021.

Maritime trade of the Mezzogiorno and of Italy between 2001 and 2021 (value)

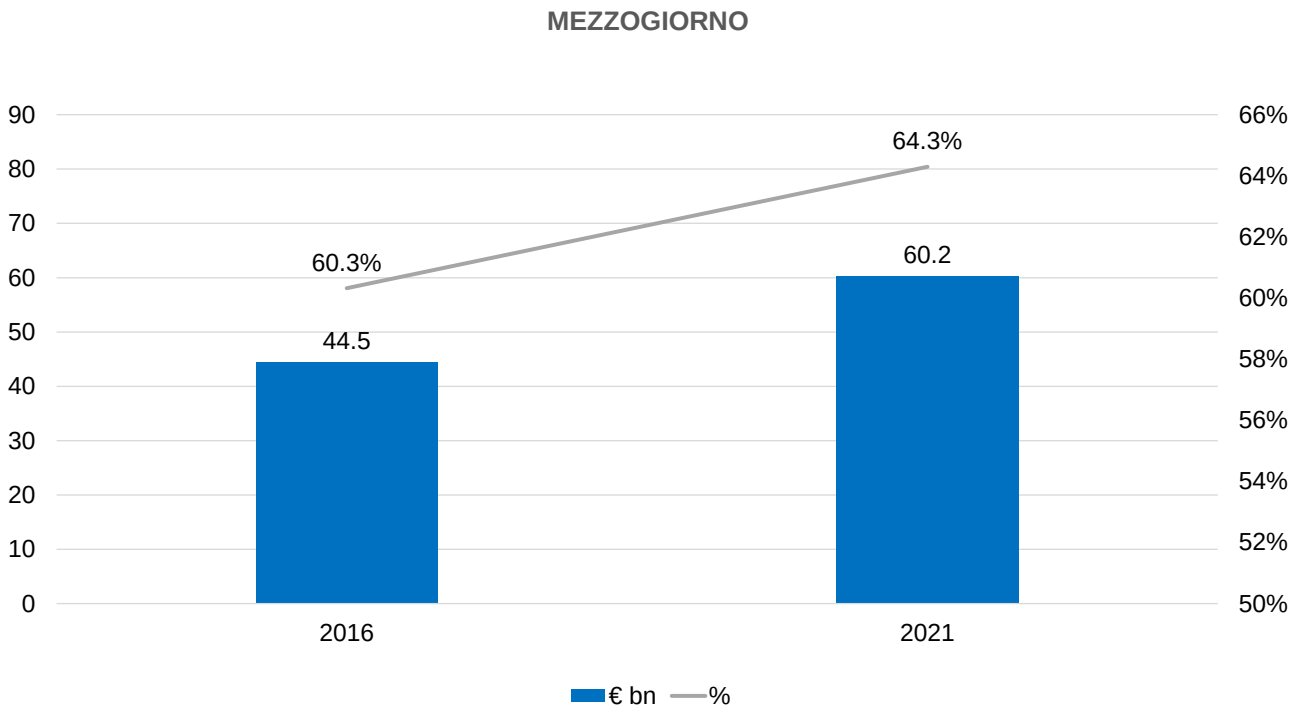
(figures in billion euros and % of total trade of the 4 modes - sea, rail, road, air)

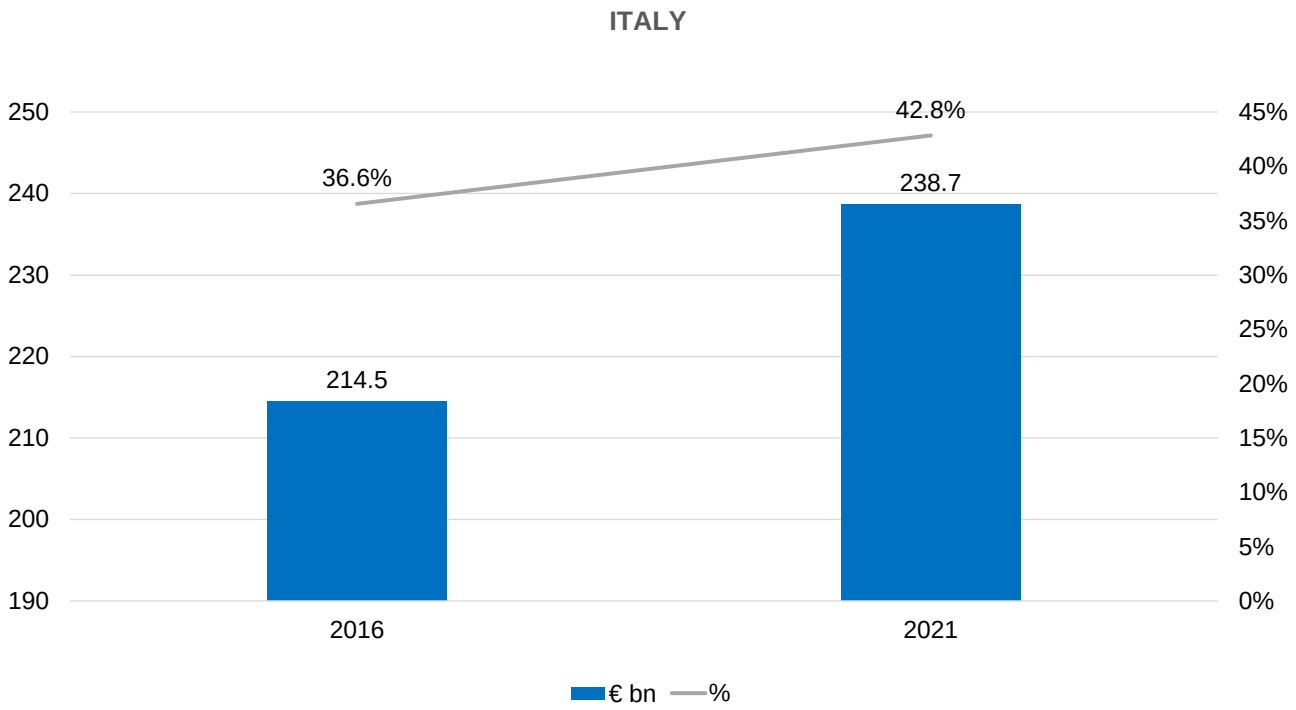


Source: SRM services su dati ISTAT

Maritime trade of the Mezzogiorno and of Italy, comparison 2016 - 2021 (in value)

(figures in billion euros and % of total trade of the 4 modes - sea, rail, road, air)

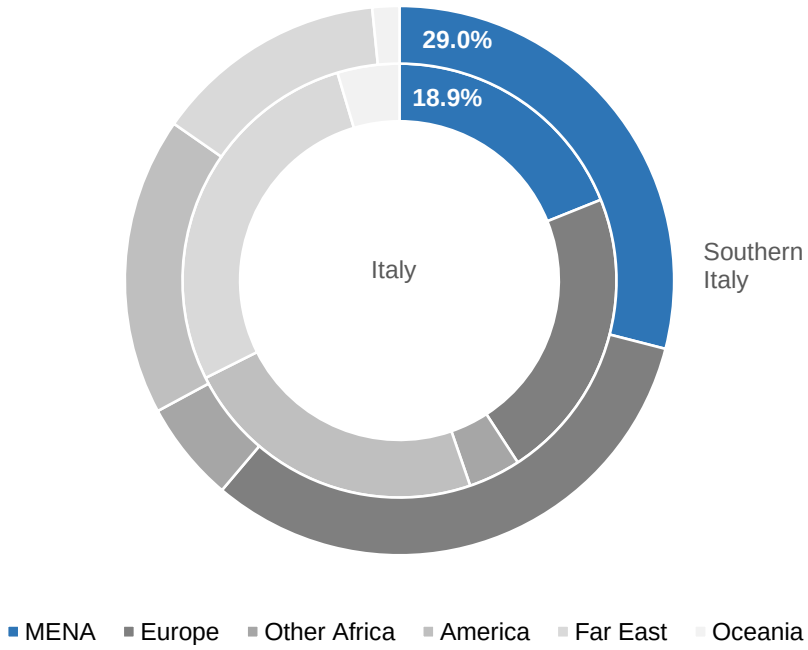




Source: SRM services on ISTAT data

The Mezzogiorno is Italy's most suitable and relevant area for international trade within the MENA area which accounts for almost 30% of southern Italy's seaborne trade, a much higher percentage than Italy (18.9%). Moreover, seaborne commercial trade between Southern Italy and MENA in value has grown by 67% over the past 20 years, more than it has for Italy (+64%). Finally, if we look at the data in volume, the MENA share in Mezzogiorno's maritime trade is even higher, representing 35% of the total (compared with 31% for Italy).

Seaborne trade by region: the share of the MENA area



Source: SRM services on ISTAT data

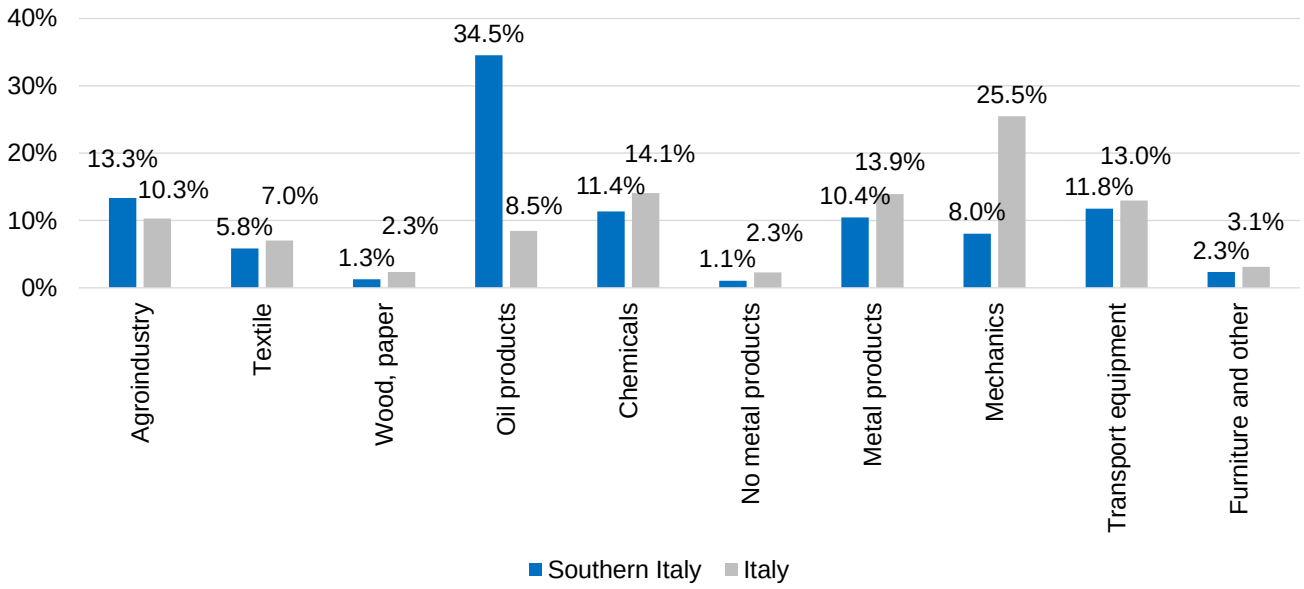
A final consideration should be made regarding **the sectoral distribution of maritime trade in the Mezzogiorno**, which, despite the higher 'oil' component, preserves the typical characteristics of the Italian context, with marked manufacturing diversification and important sectors, such as metals, mechanics and chemicals, which are less robust in other Mediterranean countries. Excluding oil products, manufacturing in the Mezzogiorno accounts for as much as 42% of foreign trade in value terms. If "oil products" are also included, the share is 64%.

Therefore, **not only does the Mezzogiorno represent a strategic hub from an 'energy' point of view for Italy and the Mediterranean, but it also boasts its own presence in other typical Italian manufacturing sectors**, in particular Agri-food (13.3% of manufacturing in the Mezzogiorno), Transport Means (11.8%), Chemistry (11.4%) and Metallurgy (10.4%).

Finally, seaborne foreign trade in value of manufacturing in the Mezzogiorno has doubled in the last 20 years, although the share has only increased slightly from 62% to 64%.

Seaborne manufacturing trade: distribution by sector

(% share on seaborne maritime trade)



Source: SRM services on ISTAT data

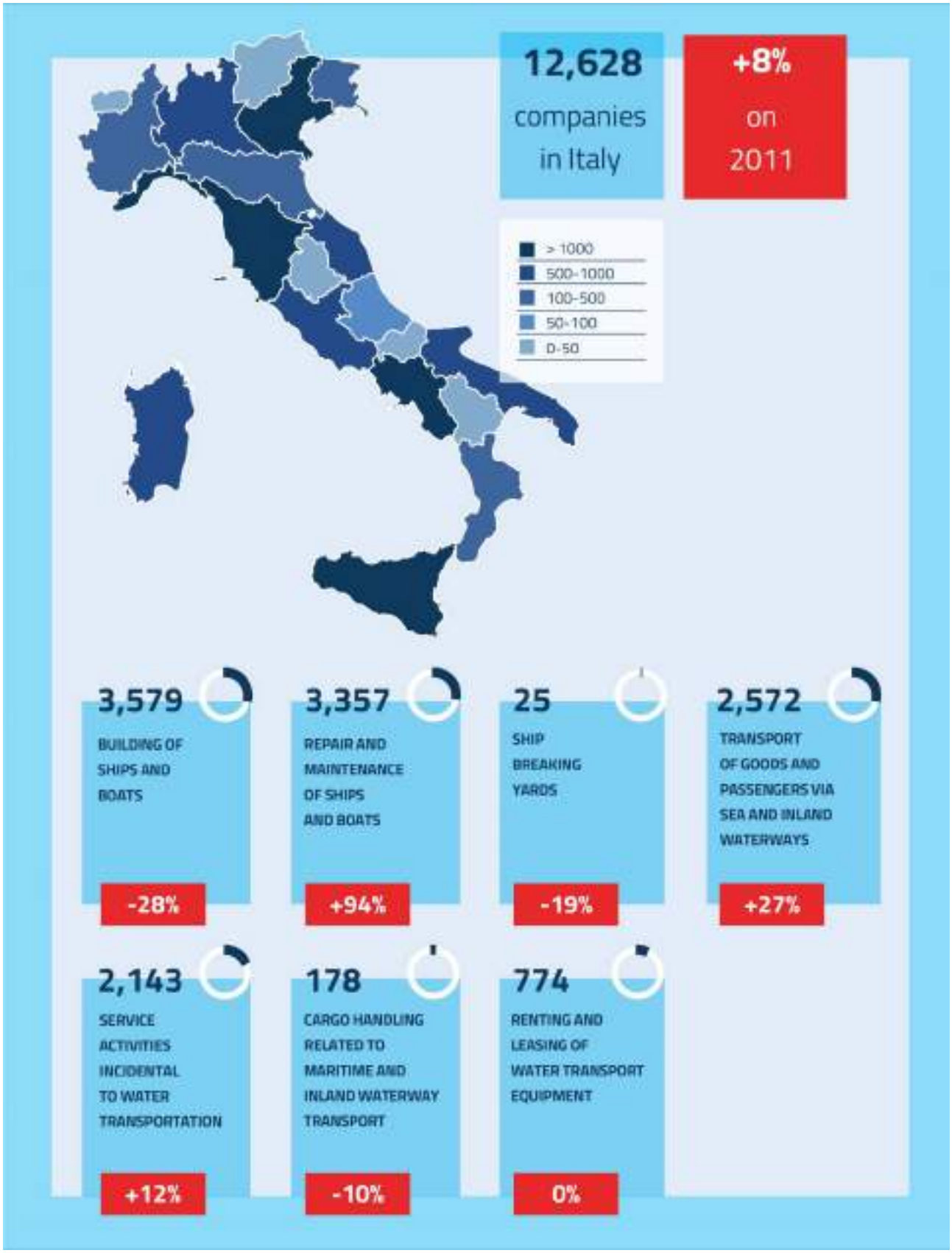
4. Companies operating in the maritime cluster

Shipping activities include the shipbuilding chain, transport and related services and comprise an overall number of over 12,600 companies spread across the whole Italian area with more than 4,600 operating in the Mezzogiorno. [8]

The Mezzogiorno is the macro-area with the largest number of active companies (4,611). Looking at the cross-section by type of activity in the Mezzogiorno, companies in shipbuilding and services related to maritime transport make up about half of the total number of active companies.

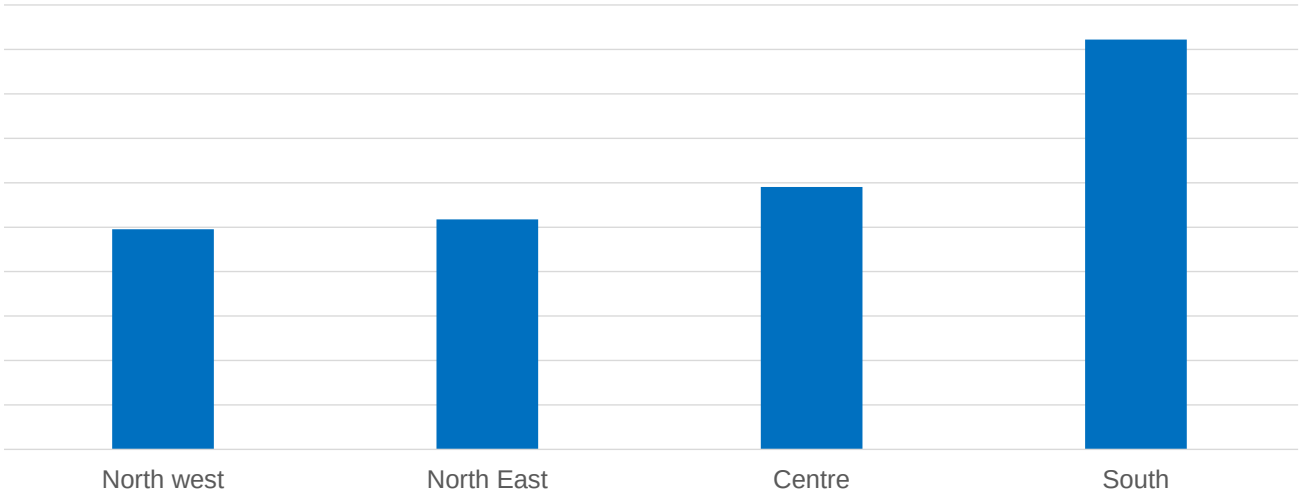
[8] This number has been calculated considering the following ATECO codes of economic activities: 30.1 Building of ships and boats, 30.11 Building of ships and floating structures, 30.11.01 Building of seats for ships, 30.11.02 Shipyards for metal and non-metal constructions (excluding seats for ships), 30.12 Building of pleasure and sporting boats, 33.15 Repair and maintenance of ships and boats (excl. engines), 38.31 Dismantling of wrecks, 50 Inland Water transport, 50.1 Sea and coastal passenger water transport, 50.2 Sea and coastal freight water transport, 50.3 Inland passenger water transport, 50.4 Inland freight water transport, 52.22 Service activities incidental to water transportation, 52.22.01 Liquefaction and regasification of gas for transport by sea and waterways conducted away from the site of extraction, 52.22.09 Other service activities incidental to water transport, 52.24.2 Cargo handling related to maritime and inland waterway transport, 77.34 Renting and leasing of water transport equipment.

Shipping companies in Italy



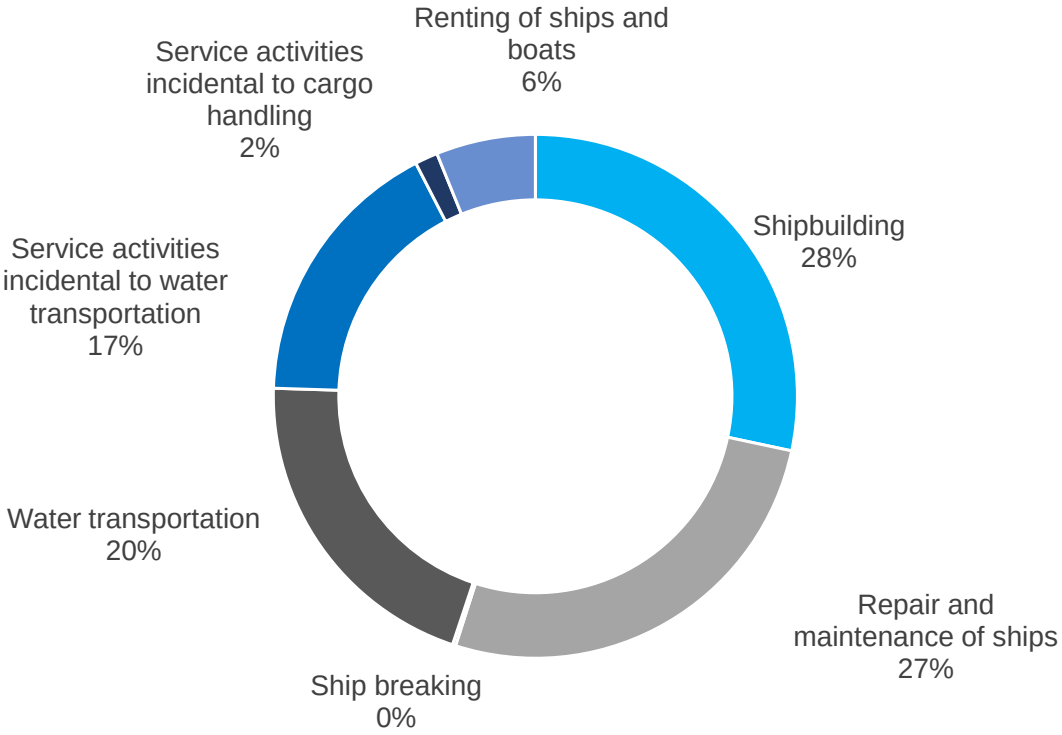
Source: SRM services on Chamber of Commerce of Marche region (% var. on 2011)

Companies operating in the maritime cluster by region, 2021



Source SRM Services on Chamber of Commerce of Marche region

Companies operating in the Mezzogiorno by sector, 2021



Source SRM services on Chamber of Commerce of Marche region

If we take a look at the entrepreneurial fabric at regional level, it seems clear that the supply chain is varied and complex. Over the course of ten years, all sectors have experienced growth with especially significant performances in the repair and maintenance of ships as well as transportation.

Ranking of Shipping companies in Italian regions

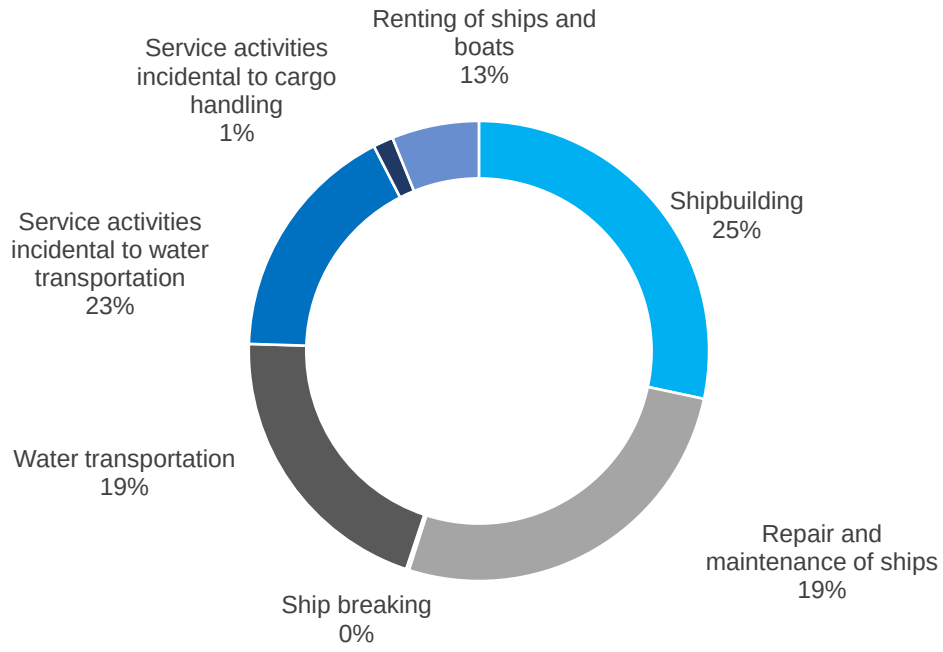
	TOT. NUMBER OF COMPANIES	SHIPBUILDING	MAINTENANCE	SHIP BREAKING	TRANSPORTATION	SERVICES	HANDLING	RENTING
VENETO	1.731 +20%	219 -28%	224 +129%		1.126 +25%	111 +22%	14 -7%	37 +12%
CAMPANIA	1.587 +8%	391 -21%	302 +86%	8 +33%	303 +27%	360 +6%	17 -37%	206 +2%
TUSCANY	1.493 +3%	535 -35%	650 +85%	2 0%	63 +29%	188 +7%	22 -8%	33 +38%
LIGURIA	1.488 +4%	398 -42%	610 +88%	6 -14%	157 +21%	247 +10%	27 +8%	43 +10%
SICILY	1.234 +14%	365 -19%	239 +91%	4 -43%	187 +39%	280 +13%	16 -11%	143 +40%
LAZIO	937 0%	297 -22%	224 +107%		80 +3%	200 +13%	18 +50%	118 -36%
SARDINIA	924 +23%	146 -40%	269 +117%	2 +100%	228 +68%	193 +15%	11 -39%	75 +27%
LOMBARDY	774 0%	299 -33%	174 +118%		133 +28%	138 +30%	3 -25%	27 +29%
MARCHE	502 +6%	287 -11%	149 +88%		25 +47%	32 -11%	5 0%	4 +300%
APULIA	501 +12%	154 -21%	96 +78%	3 -40%	77 +67%	132 +27%	12 -8%	27 +16%
FRIULI V. GIULIA	452 +7%	175 -28%	189 +136%		21 -32%	50 -2%	12 +33%	5 -38%
EMILIA ROMAGNA	374 -6%	142 -27%	105 +62%		45 -18%	55 -2%	8 +11%	19 +19%
CALABRIA	217 +11%	58 -15%	33 +175%		32 +68%	69 +13%	9 -36%	16 -20%
PIEDMONT	213 -8%	57 -38%	39 +63%		73 0%	34 -3%	1 n.a.	9 0%
ABRUZZO	97 +26%	28 +8%	28 +100%		6 +20%	27 +17%	3 -0%	5 -17%
TRENTINO A. ADIGE	30 +36%	7 +40%	9 +125%		8 +33%	5 +67%		1 -67%
MOLISE	26 +13%	4 -43%	5 +67%		5 +67%	9 -10%		1 n.a.
BASILICATA	25 +19%	8 -27%	3 0%		3 +50%	8 +100%		3 +200%
UMBRIA	21 +90%	8 +14%	9 +200%			4 +100%		
VALLE D'AOSTA	2 -	1 -				1 -		

Source: SRM services on Chamber of Commerce of Marche region (% var. on 2011)

Campania is among the southern regions with a complete supply chain, and with 1,587 enterprises it is the first in the Macro-area and the second at national level after Veneto.

On the other hand, looking at the breakdown of the sector at Campania level, similarly to the Macro-area, companies in shipbuilding and services related to maritime transport make up about half of the total number of active companies. It should be noted that the 'water transportation' category appears to be higher, as does the rental activity (13% in Campania versus 10% at Mezzogiorno level).

Companies operating in Campania by sector, 2021



Source: SRM services on Chamber of Commerce of Marche region (% var. on 2011)

Chapter 3

The present and future role of the port of Naples as a strategic hub possibly benefiting from the regionalisation of globalisation

SUSTAINABILITY | Contribute to the European green agenda for maritime transport by strengthening the EU capacity to protect the marine environment, manage climate change and respond to new environmental challenges.

SAFETY | Contribute to higher maritime safety standards, anticipate new maritime safety challenges and expectations and provide knowledge-based solutions with the aim of contributing to the reduction of maritime casualties and human loss.

SURVEILLANCE | Strengthen EMSA's role as the core information management hub for maritime surveillance.

EMSA is "the EU's eye on the sea", as it effectively implements the original concept of a Community system for vessel traffic monitoring and information gathering, in order to improve the safety and efficiency of maritime traffic. **Choosing the Port of Naples, a strategic port of call at the centre of the Basin, for EMSA's regional centre, would adequately respond to the specific features of the Agency's activities**.

1. The port of Naples as the first multi-purpose port in the Mezzogiorno

The enormous problems that have arisen in the transport and logistics of goods by land, sea and air since the outbreak of the Covid-19 pandemic have called into question the model of global value chains and just-in-time (i.e.: maximum reduction of warehouse costs and production tied to demand, in a continuous flow of the distribution chain), which has driven globalisation. As a consequence, discussions have come back to the fore on the need to 'return' all or part of certain strategic production chains to the continent through active reshoring and nearshoring policies.

This process of 'regionalisation of globalisation' is clearly reflected in the progressive transformation of maritime routes (with 80-90% of the world's total import-export carried out via sea, intra-regional routes now account for 43% of global freight traffic) and will lead to the development of new types of transport and new production models linked to logistics

geared towards shorter production chains and thus faster transport modes with regional services.

The greater regionalisation of trade is likely to result in a stronger outlook for short sea shipping routes, which has the Mediterranean as the most active area at European level[9], with Italy leading the way with a market share of 38%.

The South of Italy excels even more for its short-haul routes, concentrating most of the traffic related to the Motorways of the Sea and Ro-Ro (a mode of transport that involves putting the vehicle on the ship, thus reducing the distance travelled by road) with a share of 53% of the national total. Ro-Ro is a mode of transport that in fact envisages the use of short-haul routes which can be strongly connected to the reshoring strategy since, as production chains come closer together, it is likely that there will be an increase in this type of traffic in which the South is specialised.

The South of Italy, already a leading player in short-haul shipping, will be able to seize new development opportunities thanks to reshoring/near-shoring. In this context and especially in this phase of the world economy, **Naples and its port can play a leading role**.

The port of Naples together with the other ports of Campania, forms a multipurpose system, serving a large and dense population basin, important production poles made up of a number of large companies and systems of small and medium-sized enterprises extending across Campania and areas of Basilicata, Puglia and lower Lazio.

This system is almost entirely developed in the central part of the Campania coast and is based on the ports of Naples and Salerno (goods and passengers), Torre Annunziata (goods transport), Castellammare di Stabia (shipbuilding), Pozzuoli (goods and passengers), as well as the ports of Ischia, Casamicciola, Capri, Procida and Sorrento, mainly for passengers. This complex system sees the presence of a Port Network Authority, that of the Central Tyrrhenian Sea, which includes the ports of Naples, Salerno and Castellammare di Stabia, which in the cargo segment operates both in the container market and in some 'general cargo' sectors, such as the car industry.

In 2021, the port system of the Central Tyrrhenian Sea handled 33.4 million tonnes of freight, with a system performance indicating a 1% growth compared to pre-pandemic levels

[9] For a more in-depth analysis see Chapter 2.

(2021/2019), therefore a positive performance compared to a negative value (-1.8%) of the national average.

In particular, the port of Naples ranks as the first multipurpose port in Southern Italy with just under 18 million tonnes handled in 2021; and in terms of total tonnes, it only comes after Gioia Tauro (38.6 million tonnes essentially of transhipment) and the two oil ports of Cagliari (31.2 million tonnes) and Augusta (25.1 million tonnes). The total handling of the port of Salerno was about 15.5 million tonnes.

Fright traffic in the Port Network Authority of the Central Tyrrhenian Sea in 2021

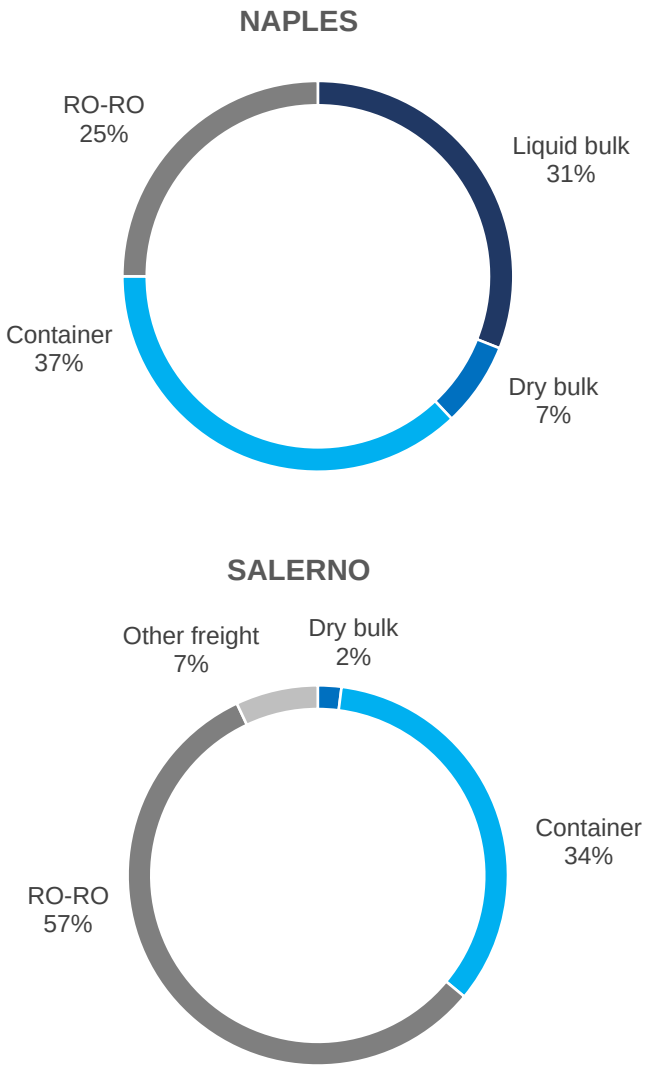
Port Network Authority	Liquid bulk	Dry bulk	Container	Container	RO-RO	Other freight	TOTAL	Var 2021/2019
	tonn.	*tonn.*	*tonn.*	*TEUs*	*tonn.*	*tonn.*	*tonn.*	
Central Tyrrhenian Sea	5,510,790	1,672,937	11,833,796	1,071,701	13,326,641	1,030,916	33,375,080	1.0%
Naples	5,510,790	1,282,217	6,552,380	652,599	4,544,468	-	17,889,855	-3.6%
Salerno	-	390,720	5,281,416	419,102	8,782,173	1,030,916	15,485,225	6.8%

Source: SRM services on Assoporti

Looking at the first of the two pie charts below, a more even distribution of the type of freight handled in the Neapolitan port emerges, with a minimal share of dry bulk (7% of the total).

On the other hand, in Salerno, the share of Ro-Ro traffic (57% of the total) appears more marked, and container follows (34% of the total).

Type of freight handled by the ports of Naples and Salerno in 2021



Source: SRM Services on Port Network Authority of the Central Tyrrhenian Sea

It should be noted that Naples is one of the reference ports of the 2M Alliance - the maritime alliance linking the two largest shipping companies in the world: Maersk and MSC - for routes to the United States. In this regard, by way of example, the map below shows one of the routes served by the Neapolitan port in traffic to the States.

Maersk Line TA6 Eastbound Route, Italy-US East Coast

Source: SRM services on Maersk

The ports of Naples and Salerno are involved in NRRP projects, and with **Ministerial Decree 330/2021** a programme of **synergetic infrastructural interventions** was approved for a total amount of €2.8 billion for the years 2021 to 2026. For the development of maritime accessibility and the resilience of port infrastructures to climate change, €271 million have been allocated to the Port Authority of the Central Tyrrhenian Sea (€176 million for the Port of Naples and €95 million for Salerno); for increasing port capacity, €20 million have been earmarked for Naples; for the last/penultimate railroad mile/street, €20 million for Naples and €10 million for Salerno. In particular, the same decree allocates €25 million for cold ironing in Naples and €15 million in Salerno.

Priority port interventions and programmes that will affect the area are indicated in the annex to **the 2022 DEF (Economic and Financial Document)**, for which the resources allocated are summarised below:

Last/penultimate railroad mile and network connections	Naples	€146.50 mil
Maritime accessibility	Naples	€196.13 mil
	Salerno	€88 mil
Resilience of infrastructure to climate change	Naples	€97.59 mil
	Salerno	€40 mil
Energy and environmental efficiency	Naples	€18 mil
Cold Ironing	Naples/Salerno	€40 mil
Waterfront and cruise and Passenger services	Naples	€20.10 mil
Industrial activities in ports	Naples	€29 mil
	Castellammare	€35 mil
Increase in port capacity	Naples	€20 mil

In order to guarantee high levels of efficiency and cost-effectiveness, a logistics system must be able to set up a beneficial infrastructural dialogue, i.e. it requires the presence of adequate and well-distributed transport infrastructures throughout the territory.

Campania and **Naples in particular**, from the point of view of integrated infrastructure networks, can be considered as **the main macro-platform of Southern Italy**, boasting a condition that is certainly better than all the other regions of Southern Italy and which allows it to offer services to a large part of Lazio, Apulia, Abruzzo, Molise and Calabria. This is due to two reasons: firstly, its privileged geographical position; secondly, a high level of transport infrastructure in relation to the surface area.

Thus, Campania has a good level of infrastructure as regards road and rail networks, not only in the port sector.

The road network of the Campania Region has a total extension of more than 13,500 km, which includes motorways, state, regional, provincial and municipal roads. Campania's road offer includes: 444 km of motorways, 9,119 km of regional and provincial roads, 1,303 km of roads of national interest and about 2,700 km of municipal roads. The region has a road density in relation to the land area considerably higher than the national one, and a higher density of circulating vehicles, while this figure is clearly lower than the national one in relation to population.

The rail network in Campania, as a whole, extends just over 1,400 km and is managed by the following companies: RFI spa (78.5% of the total); EAV srl (20.5% of the total); ANM spa (1.3% of the total). The network of interest for the logistics system in Campania is essentially that managed by RFI which extends over 1095 km of lines; a total of 125 stations are in operation.

Another important point to consider is freight villages. In Campania, the freight villages of Marcianise and Nola are two well-established realities in the sector. The freight village of Nola, managed by Interporto Campano S.p.A., is located in an extremely favourable position, a short distance from the International Airport of Naples - Capodichino (approx. 20 km), the port of Naples (approx. 30 km) and Naples railway station (approx. 28 km) and directly connected with major motorway junctions (A1 Naples-Milan, A3 Salerno-Reggio Calabria, A16 Naples-Bari, A30 Caserta-Salerno). In addition, it is the only intermodal platform in Italy with a proprietary freight railway station included in the PIR (Network Information Prospectus). The station (entrusted to the management of Rete Ferroviaria Italiana), named 'Nola - Interporto', with a handling potential of 30 trains/day, is directly connected to the Intermodal Terminal through 13 pairs of 1-km- long pick-up and delivery tracks. This allows trains, up to 750 m in length in line with European standards, to enter the Terminal as a 'block' in just 20 minutes from their arrival at the station, thus speeding up the handling of Intermodal Transport Units (ITUs) and the related delivery of goods. The rail facility is integrated with the Intermodal Terminal. The current surface area of Interporto Campano is approximately 3 million square metres, 500,000 of which are occupied by warehouses. It is characterised by an intermodal terminal, a trucking area, a cold storage area, warehouses and an area dedicated to large logistics operators, as well as a customs area. There are 138 companies with approximately 3,500 employees. When fully operational, the freight village system is designed to handle up to 8.5 million tonnes of goods per year, of which 5.5 million tonnes using intermodal techniques and 3 million tonnes by road. Two companies, both controlled by Interporto Campano S.p.A., operate within the

Freight Village with different tasks: Interporto Servizi Cargo (ISC) and T.I.N. S.p.A., a company that manages the Intermodal Terminal of the Nola Freight Village, which occupies an area of 225,000 square metres.

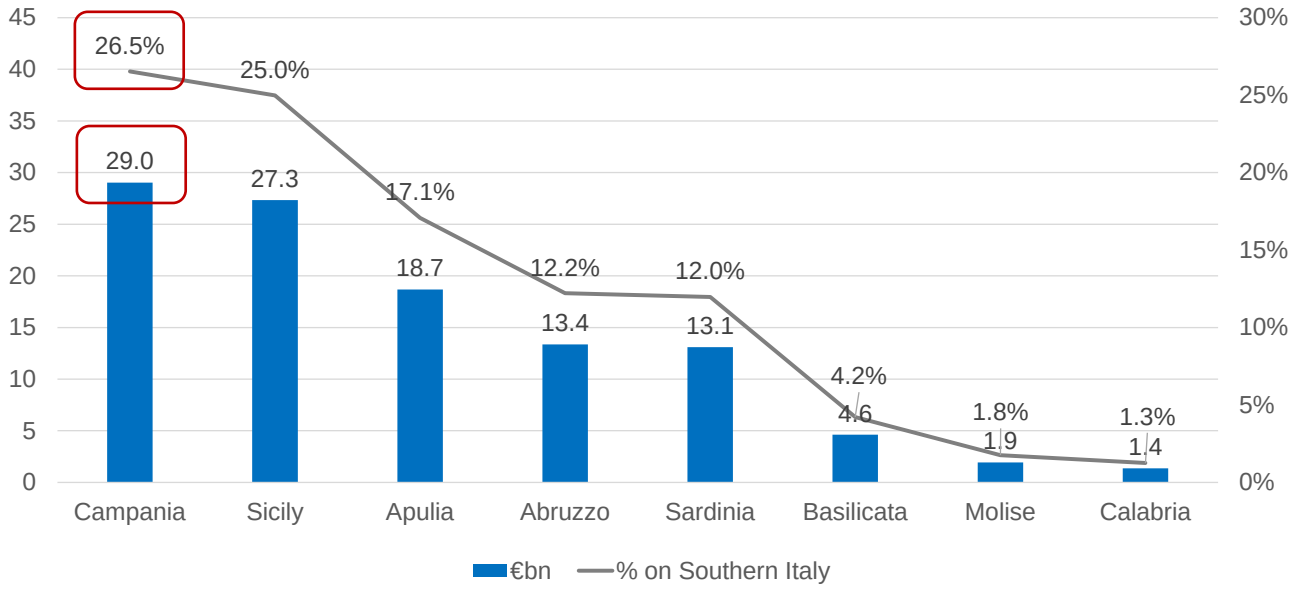
The Marcianise freight village is managed by the company Interporto Sud Europa S.p.A. and is located within the ASI area of Caserta, 7 km from the Nola freight village, at the centre of an important road and rail junction. It is located at the crossroads of the southern motorway system (A1 and A30), close to the Marcianise marshalling yard, and it has a direct connection with the national railway network. It covers an area of more than 4 million square metres, in addition to the more than two million of the RFI railway yard, the largest freight railway station in Italy (the Maddaloni-Marcianise freight yard). Currently, inside the yard there is a railway station consisting of an arrivals bundle of 21 650-meter-long tracks, a transit bundle and a direction and departure bundle with 48 tracks. Located near the High Speed and High-Capacity line along the Tyrrhenian ridge, it can receive trains coming from North to the South and vice versa and from the Tyrrhenian side to the Adriatic and vice versa, with a potential daily capacity of approximately 200 trains per day. In 2015, the terminal handled 360 pairs of intermodal trains totalling 6,728 TEUs, which connected Marcianise to destinations throughout Europe. As for conventional train pairs, these amounted to 769 and connected the freight village to Villach (Austria), Lecco, Cittadella and Brescia. In the same year, Road-road traffic consisted of 720,000 trucks. The companies that are located here carry out mainly courier, logistics and intermodal activities. There are 40 large companies operating on 50 lots, employing a workforce of 500.

The entire logistic system of Campania for **international traffic** includes, first of all, the main logistic nodes, i.e., the ports of Naples and Salerno, the freight villages of Nola and Maddaloni/Marcianise, and Naples-Capodichino airport. The above-mentioned main logistic nodes are all located along the main north-south route consisting of the A1 Rome-Naples, the A30 Caserta-Salerno and the A3 Salerno-Reggio Calabria which represents the only fast connection with the southern regions of the peninsula. As far as rail connections are concerned, the Nola freight village in the Naples area has an inland railway station that is directly connected to the national network; the Sud Europa (CE) freight village is connected to the large RFI marshalling yard in Maddaloni/Marcianise and thus to the regional and national railway lines and, through the Capua connection, it is also connected to the Rome-Naples high-speed/capacity line.

2. Naples and Campania as pivots of international trade in the Mezzogiorno

Naples and its port are the main reference point for maritime trade in the region, its provinces, and, more generally, the whole of the Mezzogiorno; in fact, **they are located in one of the main regions of the Mezzogiorno in terms of international and maritime trade**. Indeed, **Campania** is **the leading region for foreign trade in the Mezzogiorno**, with a share of 26.5%, and €29 billion worth of trade. This value has grown by about 80% in the last 20 years, highlighting the region's strong and growing international orientation.

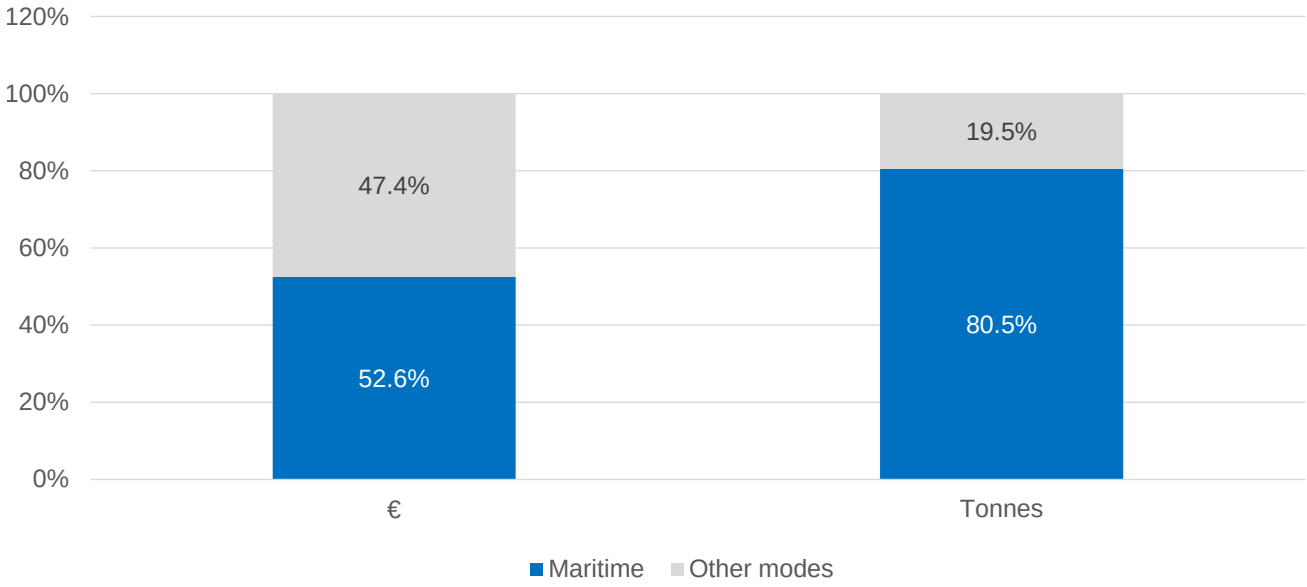
Foreign trade of regions in Southern Italy (2021, € bn and % on the area's total)



Source: SRM services on Istat data

Campania is a region with a marked maritime profile, given that **52.6% (approximately €12 billion) of trade in value and 80.5% of trade in volume is seaborne** (overall figure for the four modes sea, rail, road, air). Over the last 20 years, Campania's maritime trade in value has more than doubled (+111%).

Campania's maritime trade (2021, % on 4 modes of transport)

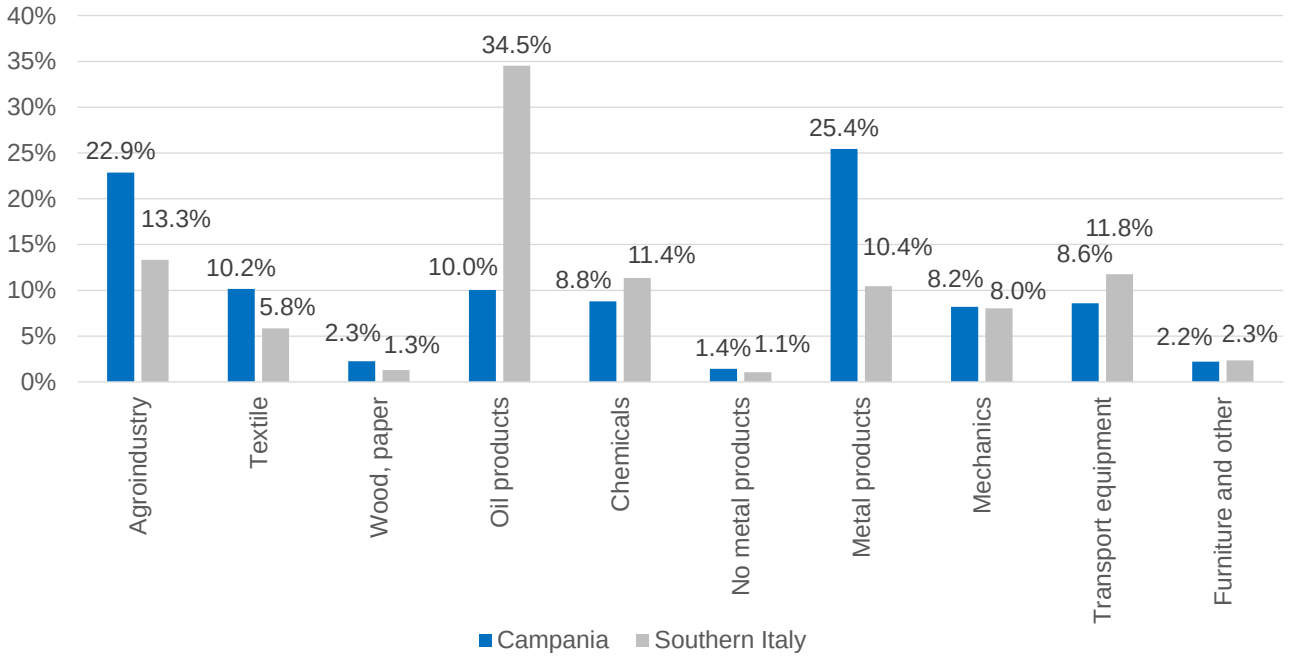


Source: SRM services on UNCTADStat data

The sectoral aspect is noteworthy. **The manufacturing component is strong, accounting for 91.1% (around €11 billion) of the region's maritime trade** compared with 64% recorded for the Mezzogiorno. The Campania-Mezzogiorno gap increases further if we consider manufacturing net of energy products (82% for Campania; 41.9% for the Mezzogiorno). The region is particularly specialised in maritime trade of metal products (25.4% of the region's maritime manufacturing trade; 10.4% the figure for the Mezzogiorno), agri-foodstuffs (22.9%, versus 13.3% for the Mezzogiorno) and textiles (10.2%, versus 5.8%).

Similar considerations apply to maritime trade figures in terms of quantity: agri-food accounts for approximately 30% of Campania's maritime manufacturing trade (13.4% the figure for the Mezzogiorno), metallurgy accounts for approximately 15% (6.8% for the Mezzogiorno) and textiles for 3.7% (1.4% for the Mezzogiorno). This distinguishes Campania from other regions, such as Sicily and Sardinia, which are more focused on energy (69% and 81% of manufacturing trade by value for the two regions), or Apulia, which is more specialised in mechanics (15.5%, 8% for the Mezzogiorno). **Campania**, in other words, **is at the centre of an area characterised by international flows that differ from region to region.**

Campania's maritime trade: a breakdown by sector (2021, %)



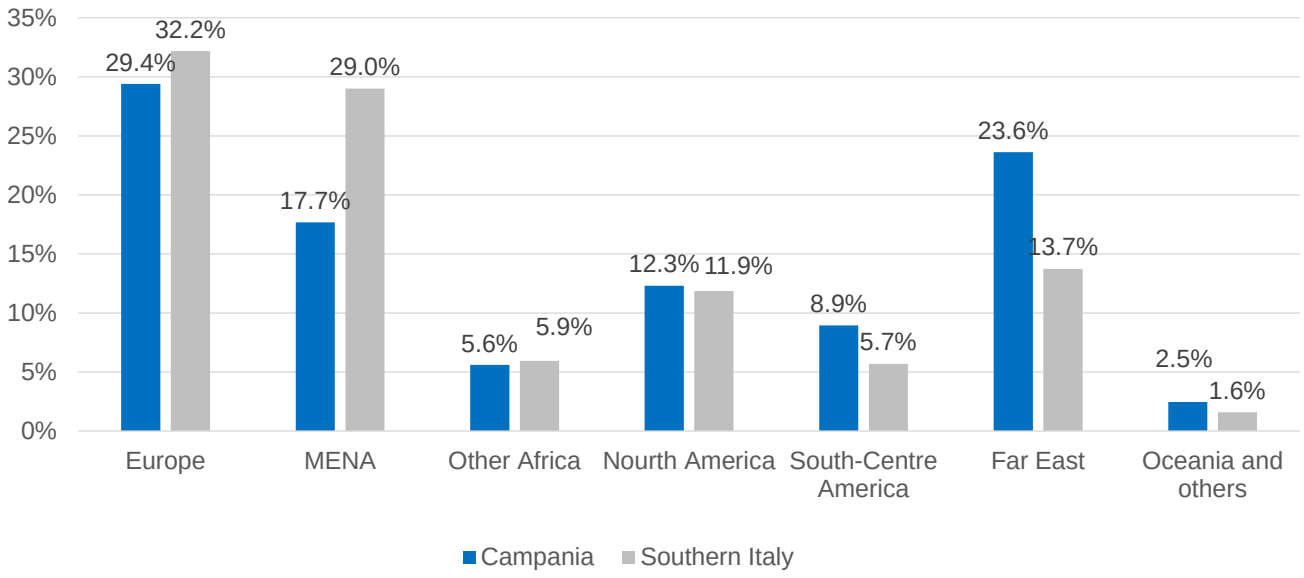
Source: SRM services on ISTAT data

A similar point should be made in terms of geography. **The region is characterised by a strong contribution of the Far East to its maritime trade** (23.6%, versus 13.7% recorded for the Mezzogiorno). The share of Latin America is higher than average (8.9%, 5.7% the figure for the Mezzogiorno), and the presence of the MENA countries is significant although lower than average (17.7%).

In line with the rest of the southern regions is the figure for Europe (29.4%). Apulia's maritime trade is concentrated mainly in Europe, but also has a significant presence in North America and the Far East. The share of MENA countries is much higher in Sicily (43.1%) and Sardinia (40.5%).

Once again, it can be said that Campania is at the centre of an area characterised by a good geographical diversification of maritime trade, with significant trade relations in particular with MENA and Far East countries.

Maritime trade in Campania: breakdown by geographical area (2021, %)

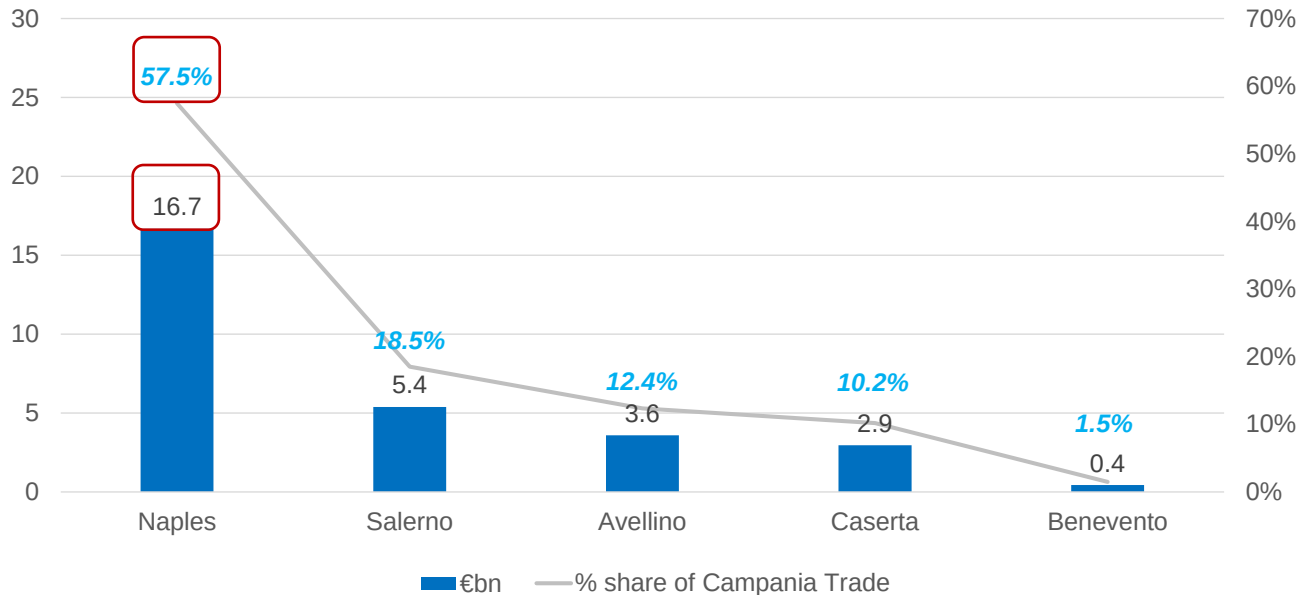


Source: SRM services on ISTAT data

Naples is the province with the greatest international openness in Campania; in fact, with a value of €16.7 billion in trade, it accounts for 57.5% of the region's foreign trade. Growth over the last 20 years has been very significant (+79.3%).

Trade of the province of Naples and of other Campania's provinces

(figures in € bn and % on total Campania's trade)

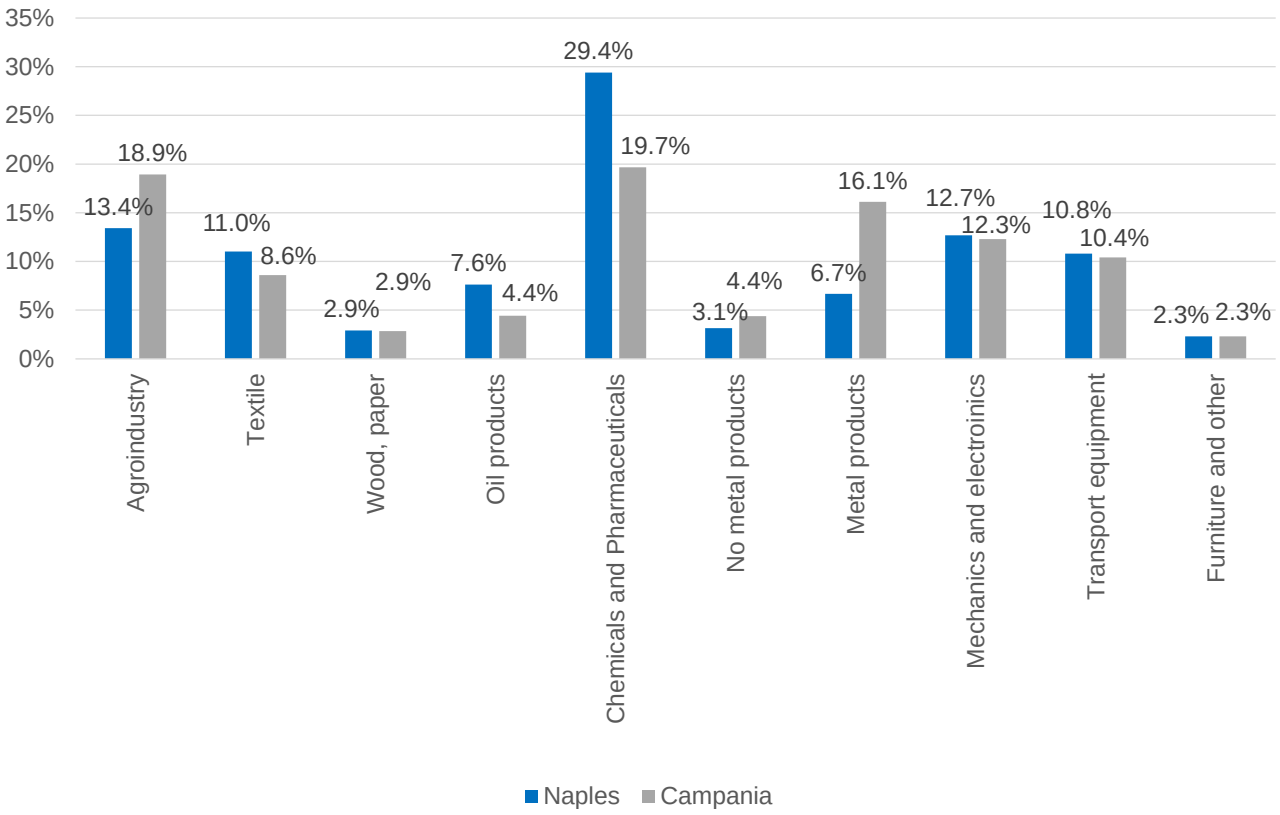


Source: SRM services on ISTAT data

From a sectoral point of view, **Naples has a rather diversified manufacturing structure with a marked specialisation in chemicals and pharmaceuticals**, which together account for 29.4% of the province's foreign trade (around €4.5 billion). In second place is the agro-industrial sector, which accounts for around 13.4% of the province's foreign trade (lower than the figure for the entire Campania region, 18.9%). Mechanics and electronics together cover 12.7% of the province's trade (in line with the regional figure).

Trade of the province of Naples: breakdown by sector [10]

(% of each sector on total manufacturing)



Source: SRM services on ISTAT data

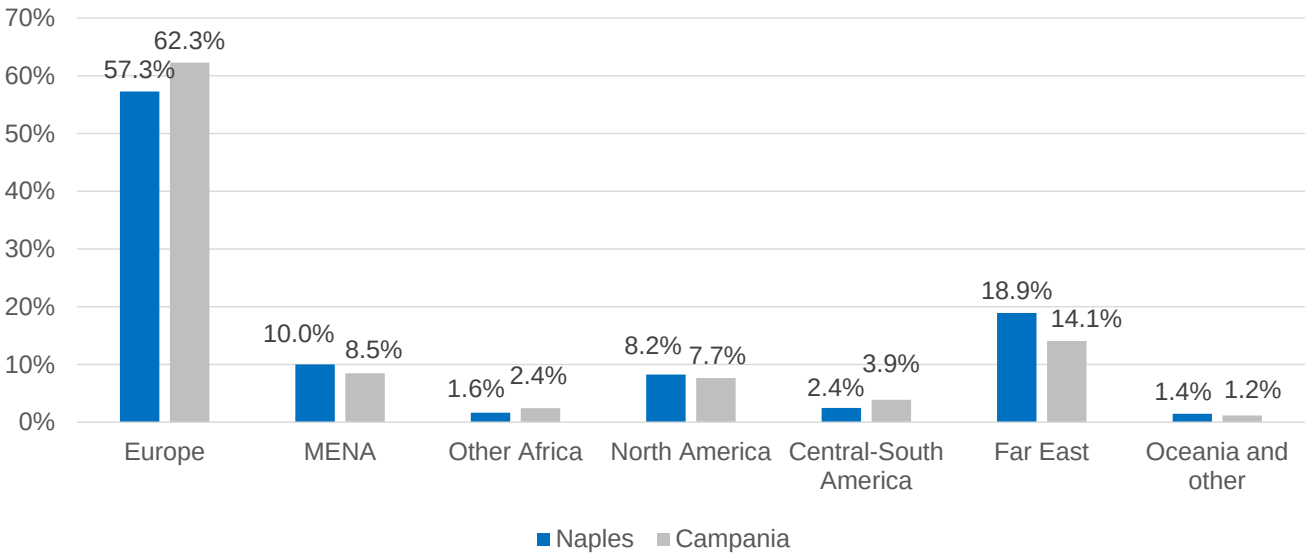
It is clear that each province of Campania is characterised by rather diversified and sector-specific trade: Caserta specialises in metallurgy (20%), Benevento in agro-industry (38%), Avellino in metallurgy (50%) and Salerno in agro-industry (38%) and metallurgy (20%).

From a geographical point of view, the province of Naples also has its own specialisation. First of all, it should be noted that it has **a significant medium-long range trade**

[10] The data for Campania differ from the data presented in the previous section where reference was made only to the maritime component of the region's foreign trade.

component outside Europe, which accounts for 43% of trade (38% is the figure for Campania). In particular, Naples has a significant presence in the Far East (18.9%) and in the MENA countries (10%).

Trade of the province of Naples: breakdown by geographical area [11]



Source: SRM services on ISTAT data

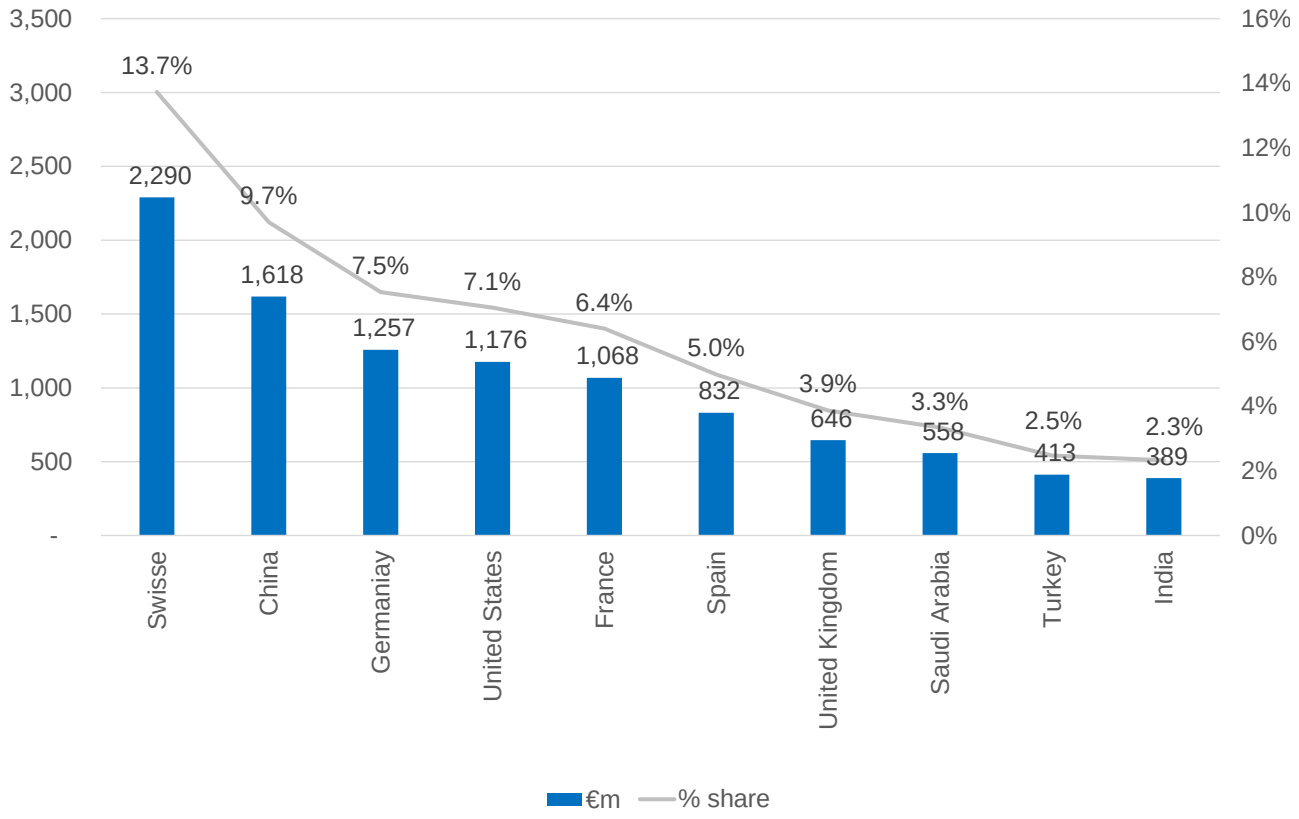
Among its top 10 partner-countries are China, with over €1.5 billion in trade (a threefold increase on the 2001 figure of around €550 million), the United States (€1.2 billion; -24% on 2001), Saudi Arabia (€550 million; a 15-fold increase on the 2001 figure of just €36 million), Turkey (€413 million; +85%) and India (€388 million; a six-fold increase on 2001).

Therefore, **Naples** has diversified international relations and is, at the same time, **at the centre of the Mediterranean and represents the hub for the international trade of other regions** such as Basilicata and Molise which, with a marked specialisation in the automotive sector, have excellent relations with the North American market, as well as Abruzzo, which is well connected with the Far East and North and Latin America.

[11] See previous footnote.

Top 10 partner-countries of the province of Naples

(Trade in million Euros and % on total)



Source: SRM services on ISTAT data

In conclusion, **thanks to its excellent geographical position, the port of Naples is at the centre of trade relations that concern the entire globe and of a Mezzogiorno area that can play a leading role in maritime trade in the Mediterranean** in a wide range of sectors with different technological content.

Chapter 4

The Special Economic Zone as a driver of development

SIMPLIFICATION | Facilitate the simplification of EU shipping by supporting EU-wide digital maritime solutions.

EMSA's work with regard to the administrative simplification of maritime transport aims to contribute to the creation of a European maritime transport space without borders, supporting smart and sustainable mobility and promoting the free movement of people, services and goods. In the same way as in Special Economic Zones, where the objective is the creation of a favourable environment of simplifications and facilitations for business growth.

1. Special Economic Zones as tools for strengthening synergies between industry and logistics

The new rules of competitiveness of world trade emphasise a port's ability to innovate and offer value-added services to boost its reference area's economy.

This is the key element behind the development of Free Zones, i.e. areas where there are tax, customs and bureaucratic advantages to favour the export-oriented production establishments present. The creation of such zones has proved to be a successful territorial marketing tool in many countries bordering the Mediterranean and the Black Sea, enabling industrial and logistical development thanks to lower labour costs and tax advantages. Free zones, through tax breaks and a vocation for re-exportation, make it possible to follow economic dynamics through the adoption of price policies enabling timely responses to market demands.

Italy is also currently focusing strongly on Special Economic Zones (SEZs) in the southern regions of Italy and Special Logistic Zones (SEZs) in the central-northern regions, in order to attract further investment in production and compete with the great maritime-logistics realities of the Mediterranean.

The ports of southern Italy can thus represent a driver of economic development thanks to SEZs, which have the potential to boost the establishment of new industrial settlements, leading to an improvement of the production system close to the port and strengthening the interplay between industry and logistics.

It is possible that with the establishment of a SEZ, the port can become a reference point, especially for international projection towards major routes.

The SEZs - conceived by the Italian legislator in 2017 with Law 123 entitled 'Urgent provisions for economic growth in the Mezzogiorno' - represent an absolute innovation for Italy in the management of the development of a territory. These, in fact, have precisely the fundamental task of **putting the logistics and manufacturing of an area 'into a system'**, favouring the entry of investors, as well as the strengthening of infrastructure, technologies and, generally, the growth of the attractiveness of that area.

The products of excellence that Italy exports around the world need efficient and effective logistics to travel and enter markets, so that goods can be delivered quickly, safely, and above all now more than ever, in a sustainable manner.

And if industry and logistics should work in a cohesive, indissoluble way, increasingly aimed at enhancing the competitiveness of the country, **ports are the infrastructure that more than any other must be able to guarantee efficiency to the entire chain** as they connect ships to land (road or rail) and air transport. The port is therefore considered as a 'pivot' guiding a system aimed at creating the economic growth of a specific area; the entire development strategy and investment planning must be outlined in such a way as to favour the growth of the port of call, its traffic, import-export by sea, short, medium and long-haul routes and, at the same time, businesses.

Special Economic Zones have precisely the task of uniting manufacturing and the maritime system and ensuring that the territory is more attractive to both national and international investments. They should be seen, in fact, not only as a tool for granting incentives to those who come and settle in an area, but as a pivot for activating in the territory itself a series of wider-ranging drivers, such as innovation, internationalisation, and last but not least sustainability, an extremely prominent factor in the debates of recent months.

As far as **internationalisation** is concerned, since one of the SEZ's primary tasks is to attract foreign investments, these make the area in question more dedicated to international relations. It has been proven that multinationals from all over the world have arrived in the large Arab, Chinese and African Free Zones, contributing to the growth of the country's human and infrastructural resources, including ports and logistics. Secondly, **sustainability**: SEZs make it possible to activate and envisage investments in the territory related to specific vocations such as light manufacturing, highly innovative sectors, renewable energy and sectors linked to the concept of the green economy. Thirdly, **intermodality**: the

consolidation of infrastructures and the modernisation of the port and logistics system is inherent in the concept of the Special Economic Zone because, as mentioned, it is precisely a tool to make ports grow and to better adapt them to the needs of the industrial fabric of reference. Furthermore, the SEZ stimulates other types of infrastructures such as road and rail connections, freight villages, airports and logistics platforms, making them more attractive and more suited to business. Fourthly, the development of **innovation**, **research** and **human capital**: the SEZ is a tool for stimulating the entire system involving research centres of excellence, universities in the area, which can be at the service of potential major investors but also learn innovation processes, new know-how and even new professional skills.

Last but not least, security, in terms of monitoring and control of the territory which, being well-defined and limited, includes several institutions (Region, Port Network Authority, Industrial Development Consortia, Municipalities, etc.) that have an interest in ensuring that the area has all the parameters of legality expected to be protected, also through the signing of special protocols. Therefore, thanks to this tool, a growth process aimed at generating and increasing the territory's competitiveness is activated with some well-defined drivers that must be well structured to give the SEZ efficient operating mechanisms.

The excitement related to SEZs is noticeable throughout the southern regions; in fact, the approval process for the 8 Special Economic Zones located in the southern regions has been completed with the appointment of the extraordinary commissioners by the government. At present, several noteworthy investments by manufacturing and logistics companies have been launched in the Campania SEZ.

Therefore, SEZs are crucial elements as their implementation ensures that:

1) New production establishments can be created
2) The area’s internationalisation and innovation levels are boosted
3) New opportunities are created for the whole logistics system
4) The strategic value of the reference port is increased
5) The integration between manufacturing system and local infrastructure is facilitated

In summary, they give more competitiveness to an area, eventually triggering an endless virtuous circle.

SRM estimates have shown a possible growth in exports of up to 4% per year and a growth in port container traffic of up to 8.4%.

These areas represent the location where foreign trade and investments are potentially most concentrated, and an analysis of the Italian regions' trade highlights the key role of maritime transport in the foreign projection of the country's southern regions. Import-export by sea in the South, in fact, accounts for over 64% of the South's import-export, while in Italy this percentage is just over 36%.

2. The Campania SEZ

The **Campania SEZ** was established in 2018 over an area of more than 5,000 hectares, involving territories in all the provinces of Campania with a specific **industrial-logistics vocation** that characterises the region; main export sectors: automotive and aerospace, food & beverage, pharmaceuticals.

22 industrial areas, all ASI areas, PIPs (production settlement plans) as well as the Ports of Naples, Salerno and Castellammare, 2 airports and 2 freight villages have been included in the SEZ.

In particular, as regards the areas falling within the Municipality of Naples, 4 strategic territories (out of a total of 29) are identified in the Development Plan, totalling 413.17 hectares (8% of the total SEZ area), including the Port of Naples.

Strategic areas of the Campania SEZ within the territory of the Naples' Municipality

AREA	HECTARES
Port of Naples	158
Napoli Capodichino Airport	53.68
Bagnoli-Coroglio	32.57
East Naples	168.82

Source: SRM services on ZES Campania

Companies operating within the Special Economic Zone receive benefits in terms of simplified customs processes, tax breaks, financial advantages and streamlined administrative procedures. The objective is to foster the growth of companies already operating in the SEZ area and attract new ones.

The Italian SEZs (and therefore the Campania SEZ), are based on a model with 6 incentive profiles.

These range from a state tax credit of up to €100 million for the purchase of capital goods by companies, to a 50% income tax reduction for those who start a new business (a new incentive introduced by the 2021 Budget Law), and also include specific incentives established by the respective regions. Other advantages are represented by bureaucratic simplifications mostly consisting in the reduction of time and procedures for obtaining permits and licences, and the possibility of benefiting, where established, from Inter-Customs Free Zones which make it possible to operate under a VAT and customs duty suspension regime for goods imported from non-EU areas. Finally, the possibility of accessing credit facilities thanks to agreements with banks is offered.

The Campania Region supports the SEZ with specific support instruments geared towards regional economic development. In its Strategic Development Plan, it envisages activating financial instruments for businesses (small, medium and large) that invest in the territory and 'privileged routes' in bureaucratic terms for those who invest in SEZs.

First and foremost, specific planning agreements for companies or business clusters located within the Special Economic Zone are aimed at coordinating activities between local, regional and national administrations to support industrial development within the region.

Moreover, the region refunds regional taxes up to 100% for all companies setting up a new production plant within the SEZ. There are also tax breaks for innovative start-ups (IRAP relief can be up to 100 per cent).

Furthermore, there are measures to ensure energy efficiency, research and innovation, incentives for the innovation of production processes, tools to strengthen the technological platforms in Campania, and financial instruments in the planning of structural funds.

Regarding bureaucratic and administrative simplifications, in particular, Decree 12 of 2019 envisaged a general reduction by one third of the procedural deadlines for various procedures, including environmental impact assessment (EIA), strategic environmental assessment (SEA), building permits and port state concessions.

The new state simplifications introduced by Law 108 of 29/7/'21 (NRRP Governance) strengthen the activities and powers of the SEZ Commissioner. This person will be in charge of the one-stop shop procedures and will be the main interlocutor for economic players interested in investing in the area; the Commissioner will also perform the function of

contracting station (this includes extraordinary powers in exemption from legal provisions for the use of NRRP funds) guaranteeing the rapid implementation of interventions.

In addition to the simplifications provided for at national level, there are also those envisaged by the Campania Region in the Strategic Development Plan of the SEZ, to the benefit of companies that will invest in the area, including: a) deadlines, of a maximum 90 days, for the conclusion of administrative procedures for which it is responsible, b) the prohibition for the public administration to request documents it already has in possession, c) the establishment of a special regional one-stop shop (Sportello Unico Regionale per le Attività Produttive SURAP), in order to simplify and make it possible to open a new business in a short and specific time.

The development of Naples' ports will undoubtedly be enhanced by the implementation of Special Economic Zones, together with the implementation of a true intermodality, which makes the port, the back-port and the freight village a single and efficient production area. This makes it possible for ports and freight villages to play a joint role of attractors of foreign investments and drivers of exports.

The NRRP allocates resources to ensure an adequate development of connections between the **SEZ areas** and the national transport network; for the Special Economic Zone of Campania, €136 million has been earmarked for projects related to last mile and logistics.

Industrial area of Valle Ufita: freight terminal with marshalling yard (€26 million)
Port of Salerno: new Metro station (€12 million)
Port of Salerno: improvement of the road infrastructure (€20 million)
Marcianise-Maddaloni: freight mobility infrastructure, yards and access roads (€30 million) Fisciano-San Severino: upgrading the road system (€5 million)
Battipaglia: Upgrading logistics area and redevelopment of road system (€13 million)
Nola: re-industrialization and environmental interventions (€30 million)

Chapter 5

The innovative context of Campania

SIMPLIFICATION | Facilitate the simplification of EU shipping by supporting EU-wide digital maritime solutions.

Supporting simplification, coordination and rationalisation of formalities is one of EMSA's priorities. Ensuring harmonised reporting and the reuse of information that has already been reported whilst also pushing that information to the next port of call will contribute to swifter, more seamless journeys**. This is why the development of open data applications alongside the use of services based on cloud computing will facilitate the performance of maritime activities**. **Information security** is also an important element for the safe operation of a ship; **developing robust solutions to protect one's maritime applications** and information services becomes a priority. EMSA therefore stands as a reference for offering a new generation of services, which could include business-to-administration services, electronic certificates, machine learning and artificial intelligence, among others. **The innovation ecosystem in our region is an excellent support for the Agency's activities.**

1. Introduction

The presence of an innovative environment that promotes research and an entrepreneurial fabric capable of exploiting the results and skills of individuals is a condition now considered essential in advanced economies for the competitiveness and sustainability of an area. This is why, in recent years, several initiatives have been launched to promote reforms aimed at supporting the technological transition.

However, while on the one hand it is a question of defining new trajectories to be followed on the basis of the most recent national and Community indications, on the other hand it is necessary to deepen our knowledge of the territory in order to discover how the productive fabric reacts to the transformations taking place, what opportunities have been seized and what potential there is to be exploited.

Hence, the aim of this chapter is to shine a light on the innovative dimension of the production system in Campania (and Southern Italy), highlighting the characteristics, strengths and growth pathways of the area through the study of variables useful for analysing the region's innovation and technological ecosystem.

In order to analyse Campania's overall innovation performance, the Regional Innovation Scoreboard (RIS) can be taken into consideration, which represents a regional-level extension of the European Innovation Scoreboard (EIS). This is a composite indicator that summarises the performance of 21 indicators (out of the 32 used for the EIS) related to four macro-areas, namely the general framework, investments, innovative activities and impact[12].

Regional Innovation Scoreboard, Italy

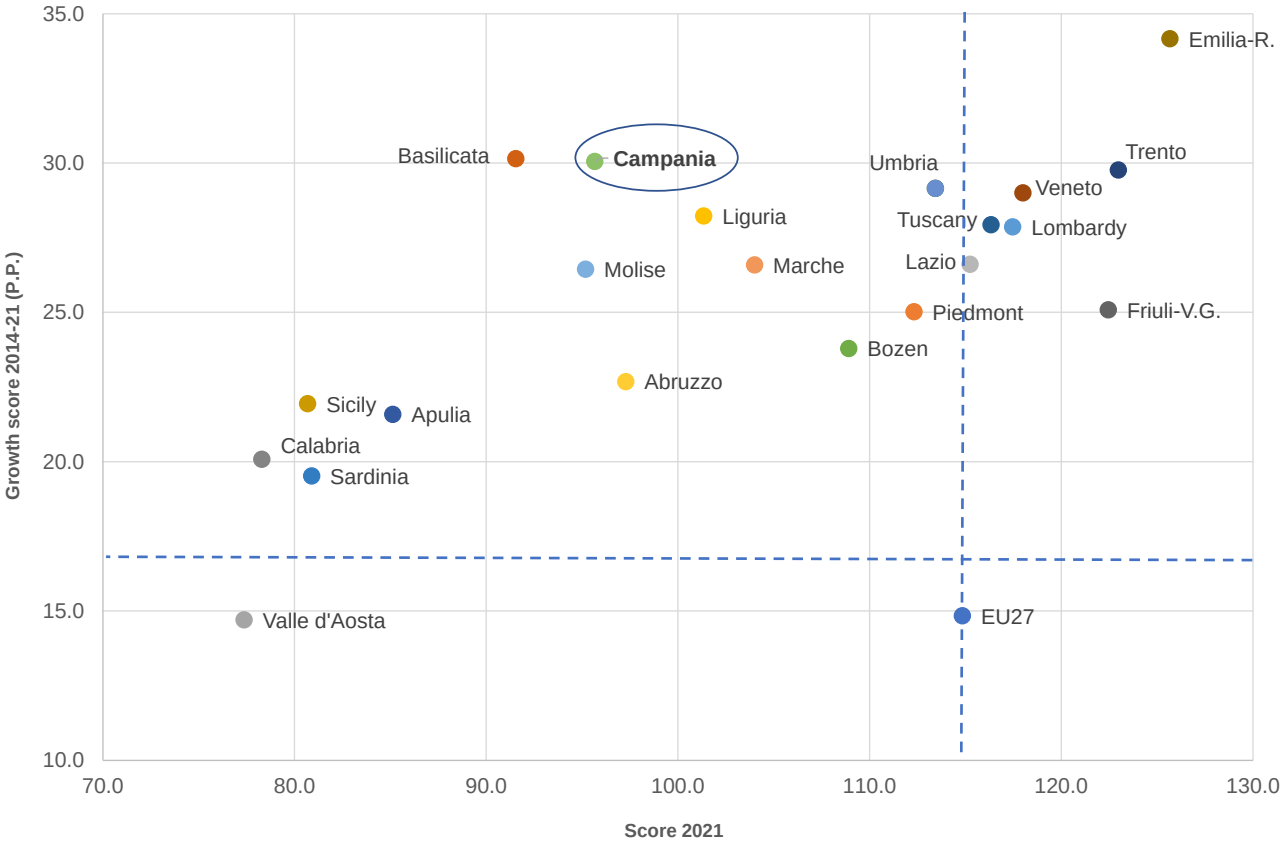
	Performance subgroup	2021* score
EU28		114 .8
Emilia-Romagna	Strong innovator	125 .7
Autonomous province of Trento	Strong innovator -	123 .0
Friuli-Venezia Giulia	Strong innovator -	122 .5
Veneto	Strong innovator -	118 .0
Lombardy	Strong innovator -	117 .5
Tuscany	Strong innovator -	116 .3
Lazio	Strong innovator -	115 .2
Umbria	Moderate innovator +	113 .4
Piedmont	Moderate innovator +	112 .3
Autonomous province of Bolzano	Moderate innovator +	108 .9
Marche	Moderate innovator +	104 .0
Liguria	Moderate innovator	101 .4
Abruzzo	Moderate innovator	97 .3
Campania	**Moderate innovator**	**95 .7**
Molise	Moderate innovator	95 .2
Basilicata	Moderate innovator -	91 .6
Apulia	Moderate innovator -	85 .1
Sardinia	Moderate innovator -	80 .9
Sicily	Moderate innovator -	80 .7
Calabria	Emerging innovator +	78 .3
Valle d'Aosta	Emerging innovator +	77 .4

** The indicators considered here have been linked to the EU 2014 figure.*

Source: SRM services on European Commission data, 2021

[12] Framework (or general) conditions: measures the main drivers of innovation performance external to companies; investments: measures public and private investment in research and innovation activities; innovation activities: measures innovative activities carried out at company level; effects: measures the effects of companies' innovation activities.

Regional Innovation Scoreboard, Italian Regions



** The indicators considered here have been linked to the EU 2014 figure. **The variation is computed in the period 2014/2021 and the indicators considered here have been linked to the EU 2014 figure.*

Source: SRM services on European Commission data, 2021

In order to better understand the specific features, dynamics and pathways of innovation in Campania and the Mezzogiorno, several variables are analysed in this chapter, namely R&D investments, companies with innovative activity, their relationship with ICT, and the availability of public training and research. Local, national and European policies supporting innovation are also analysed.

2. Investment in R&D

Statistics on investment in 'R&D' can indicate the state of scientific progress of industry and of a country in general and thus offer insights into the future orientation of science or technology.

The Mezzogiorno has an intramural R&D expenditure of €3.4 billion. Campania, with €1.4 billion, is seventh in Italy and first in the Mezzogiorno, accounting for 38% of the southern figure and 5.5% of the national one. Moreover, with a weight of 1.3% of GDP, the

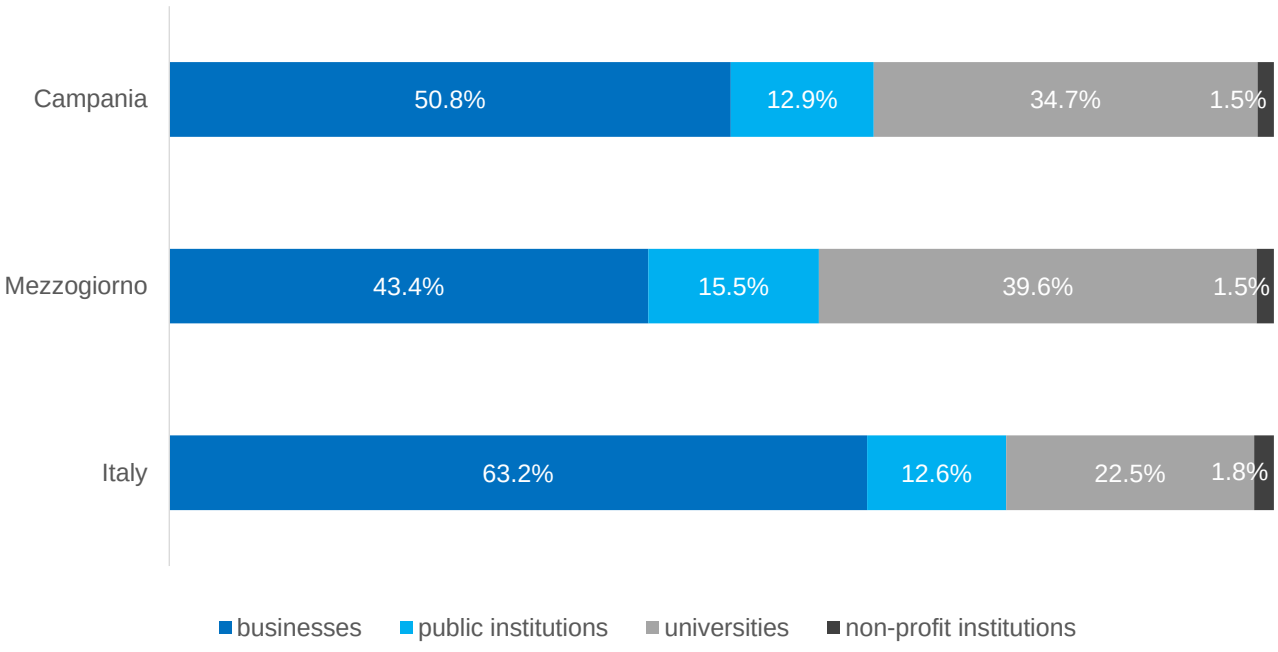
region shows a research and development intensity that is better than the southern figure (1%).

The main institutional sector contributing to intra-mural R&D expenditure is the private sector (companies and private non-profit institutions) with a percentage of 52.3%, higher than the Southern average (45%). The region accounts for 44% of business R&D expenditure in the South.

Business investment in R&D helps to preserve a pathway of continuous improvement, ranging from finding solutions to eliminate waste to developing products that maximise investment while efficiently utilising production resources. It therefore becomes important for companies to allocate resources to the sector. It is well known that companies mainly focus on applied research and experimental development while dedicating less attention to basic research. On the contrary, the commitment to experimental development is more limited for other sectors, while basic research remains the primary source of expenditure for universities.

Contribution to R&D expenditure by institutional sector. Comparison between geographical areas

Year 2019



Source: SRM services on ISTAT data

Looking at the value of R&D expenditure compared to the previous year, a 2.2% growth can be seen for Campania. In particular, the growth attributable to businesses is +12.5%, a higher variation than both the southern (+11.1%) and national (+4.1%) figures. The increase in the contribution of public institutions is also significant, hitting almost 10% in the region,

twice as much as the national figure. On the other hand, the contribution of universities (-11.5%) and non-profit institutions (-4.3%) decreased.

If we broaden the scope of the chronological comparison to the 2014-19 period, business expenditure on R&D shows an average annual growth of almost 6%, in line with the national figure (+6.3%) while the expenditure of public institutions is 1.4% (2% in Italy). On the other hand, in this region and in Italy there is a gradual disinvestment of other institutional public sectors, with universities in Campania showing a -1.8% and non-profit private institutions dropping by 8.8%.

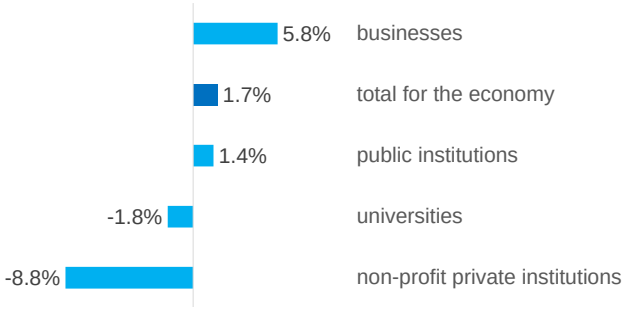
Variation of expenditure in R&D by institutional sector in Italy and the Mezzogiorno

Chronological comparison

2014-2019

	Campania	Mezzogiorno	Italy
businesses	12.5%	11.1%	4.1%
public institutions	9.6%	6.4%	5.1%
universities	-11.5%	-4.6%	2.5%
non-profit private institutions	-4.3%	30.2%	17.2%
total for the economy	2.2%	3.9%	4.1%

2014-2019 Campania



Source: SRM services on ISTAT data

In conclusion, the commitment of companies to R&D in Campania is anything but marginal. This becomes important as it allows, on the one hand, for the acquisition of new knowledge regarding the fundamentals of phenomena and observable facts (basic and applied research) or experimental development to implement new production processes. On the other hand, it offers a solution to the continuous downsizing of public institutional sectors and universities, which risks weakening many regions (especially in the South) that in the past could only rely on public and academic interventions.

3. The availability of public education and research

Campania stands out from the broader southern context thanks to several elements which, in light of the theory of regional systems of innovation, take on special significance.

Firstly, Campania is not only one of the most populous regions (3rd in Italy) but it also has the youngest population in the country, with an average population age of 42.5 years according to Istat 2021 calculations on 2018-2019. This information is particularly relevant

to aspects like the demand for higher education and job turnover rates. More than half of the region's population is concentrated in the province of Naples, where the top 6 most densely inhabited municipalities can also be found with highs of 12,195 people per square kilometre. It is no coincidence that 5 of the 7 (non-online) universities in Campania are based in the city of Naples. Several implications derive from the geographical concentration of the supply of university education. On the one hand, this trend in location allows the formation, at least in principle, of a cluster involving public and private stakeholders. A second aspect of interest is the geographical location of Campania. Rome is just over an hour away from Naples by high-speed train. The recruitment of academic staff in Neapolitan universities is affected by this proximity: more than in other southern regions, Neapolitan universities can incorporate the knowledge developed in the academic world of the capital and thus in close proximity to places of government. Thirdly, certain technological and socio-economic problems exacerbated by strong urbanisation guide the academic research of Campania's universities and research authorities.

Turning to the analysis of the universities' teaching staff and researchers, in Campania, 5 out of 7 universities (with the exception of the Orientale and the Suor Orsola Benincasa) have 3,508 teaching staff and researchers in the academic disciplines of interest (areas 1 to 912F). There are almost 900 staff in the medical area; more than 600 in industrial and information engineering; almost 500 in civil engineering and architecture and about the same number in the area of biology; almost 300 in mathematical and computer sciences; more than 200 in physics, chemistry and agriculture; just over 100 in earth sciences.

A figure on the scientific quality of university departments in Campania concerns the MUR programme on Departments of Excellence. Among the 350 university departments selected by the MUR as eligible for the call for Departments of Excellence 2023-2027, 20 belong to universities in Campania in CUN areas 1-9.

Finally, as mentioned above, the demographic and geographical characteristics of Campania make it a favourable place for the formation of innovative ecosystems or clusters in which companies, universities, public and private research centres, third sector players and institutions contribute, through collaboration, to the advancement of the technological frontier. Among the technology transfer activities carried out by Campania's universities in recent times, **patents** stand out. Considering the statistics on patenting per university in Campania, whether filed or granted, the University of Campania Vanvitelli leads the regional ranking, with 7 patents, followed by Unina (4), Unisa (3) and Uniparthenope (2). In total,

there are 16 patents. Unicampania's advantage is particularly surprising in view of the small size of the teaching and research staff in the CUN areas of interest.

The academic and university spinoffs are noteworthy. Of the spinoffs surveyed, 109 are associated with Campania universities. Unisa tops the regional ranking with 38 spinoffs. Unina follows with 33, Unisannio with 18, Unicampania with 16 and Uniparthenope with 3. Finally, there is a joint Unina-Unisannio spinoff. The sectors with the highest number of spinoffs are life sciences (25), energy and environment (24) and innovation services (23).

Finally, the institutions linking public research and business should be noted. The panorama of institutions linking public research and businesses in Campania is rich and varied. Worthy of mention is the funding by the MUR and under the NRRP of innovation ecosystems: 27 projects have been financed.

4. Innovation and digitalisation in Campania’s businesses

The reference situation drawn by the latest ISTAT data (2016-2018 three-year period) shows us a Campania region in which as many as 5,025 companies (headcount above 10 employees - thus excluding very small enterprises, which are also the most numerous) out of 10,658 (47.1%, 48% in the South) can be defined as 'innovative', i.e. businesses that carry out activities aimed at introducing new products, processes, organisational or marketing methods.

To illustrate, almost 87% of innovative enterprises in Campania carry out an activity that falls under process and product innovation (4,357 innovative enterprises).

In terms of innovation expenditure, these enterprises invested €1.3 billion with a value per employee of about €7,000, higher than the average figure for the South (€6,400).

The entrepreneurial fabric is therefore attentive to the theme of innovation, with an awareness that has improved over time. In fact, compared to 2014, the number of innovative enterprises in Campania grew by over 71%, a significant variation, noticeably larger than the national (34.3%) and southern Italy (52%) averages, making it first in Italy, also due to the greater liveliness of the entrepreneurial fabric present. The significant growth of innovative enterprises in Campania has been transformed into an increase in the spread of these types of enterprise over the total, from 32.5% in 2014 to 47.1% in 2018. If this trend continues, all the conditions are in place for enterprises with innovative activities in Campania to outnumber the ones that haven't invested in innovation.

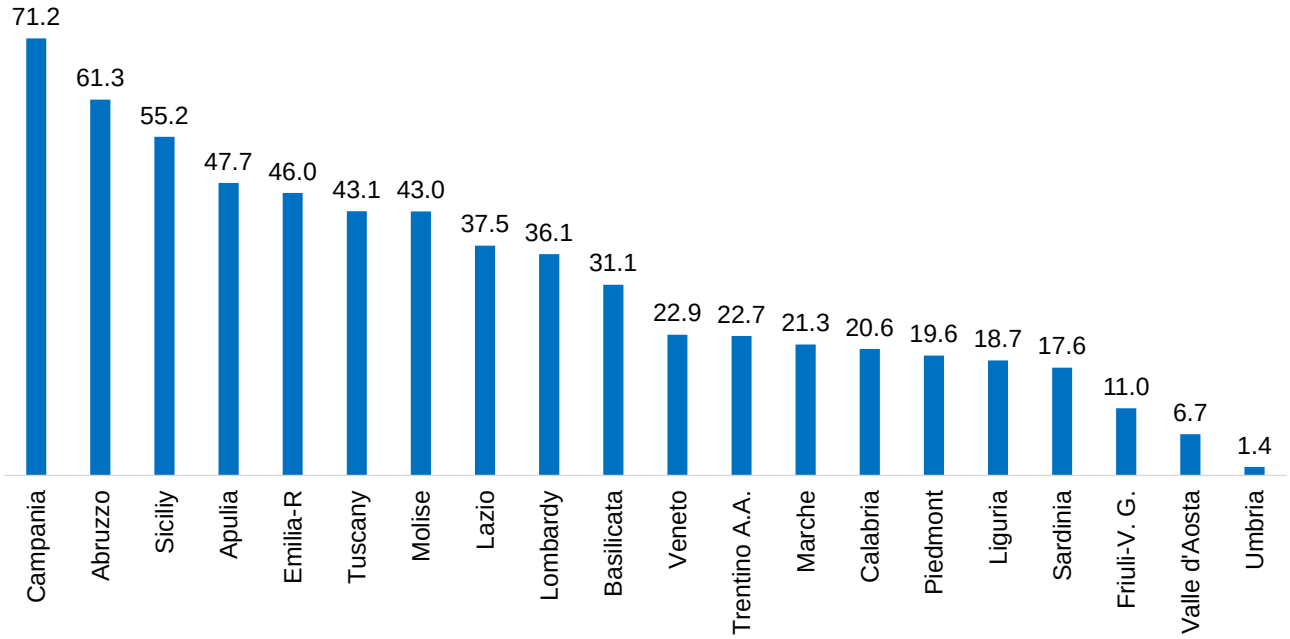
Top ten innovative companies (headcount above 10) *

Rank	Region	Companies with innovative activities	% of innovation expenditure on total	Innovation expenditure per employee (in thousands of Euros)
1st	Lombardy	23,572	60.5%	7.9
2nd	Veneto	12,442	62.4%	8.1
3rd	Emilia-Romagna	10,093	61.4%	10.6
4th	Tuscany	7,298	56.9%	7.4
5th	Piedmont	6,724	54.8%	9.0
6th	Lazio	5,981	51.1%	10.7
7th	**Campania**	**5,025**	**47.1%**	**7.0**
8th	Apulia	3,501	49.1%	5.6
9th	Sicily	2,877	47.6%	7.3
10th	Marche	2,548	45.1%	6.4

** total industry and services.*

Source: SRM services on ISTAT data (companies year 2018)

The growth of innovative companies (headcount above 10)* in the period 2014-2016-2018



** total industry and services.*

Source: SRM services on ISTAT data (companies year 2018)

As regards the methods used to develop the aforementioned innovations, although the prevailing one is that of carrying out innovation internally, in recent years there has been increased use of tools and skills generated by other players such as universities, research

centres, start-ups, SMEs and innovators; this is especially true in Campania where companies with cooperation agreements for innovation are 22.5% of the total number of companies with innovative activities, compared with 16.5% in the Mezzogiorno and 21.6% in Italy.

In this context, it is then necessary to analyse the directions of Campania's enterprises towards digital innovation. The availability of adequate scientific and technological infrastructure and investment in the digital skills of human capital are indispensable conditions for the digital transformation of enterprises to be a harbinger of development opportunities.

An assessment of companies' behaviour can be Illustrated using the 2021 DESI regional indicator[13], which measures digitalisation levels of areas within the country by looking at the following categories: human capital, connectivity, digitalisation of companies and digital public services (data referred to year 2020).

In Campania, in contrast to the national trend, there is a growing level of digitalisation as the index marks 44.3 points while the previous year this figure was 34.9. At the same time, the gap with the national average has narrowed (current national average is 50[14] down from 53.8).

In recent years there have been some signs of reaction to the difficulties caused by the global pandemic. In Campania, a growth can be observed in the period 2019-2021 in the share of businesses with a fixed or mobile broadband connection (+4.2%). Particularly significant is the increase in both the number of businesses with a website/home page (+11.7%) and the share of businesses with online sales via the web and/or EDI-type systems (+14.2%). As a result of the pandemic, the share of enterprises that provide employees with portable devices and mobile Internet connections for work purposes is also growing (+1.2%).

[13] DESI regionale 2021 – elaborated by the Osservatorio Agenda Digitale of the Politecnico of Milan.
[14] It should be noted that the average value for Italy, calculated in the figure as a weighted average of the regions' scores, is different from that provided by the European Commission for the continental DESI, since some of the indicators used to replicate the DESI at the regional level are not exactly the same as those used at the European level, due to the unavailability of comparable data.

ICT in Campania's companies with headcount above 10. Key variables

	2021	2019-2021 var.
Businesses with broadband connection (fixed line or mobile) %	99.2	4.2%
Businesses that have a website/homepage or at least one page on the internet (%)	64.5	11.7%
Businesses providing employees with portable devices and mobile Internet connections for work purposes (%)	50.9	1.2%
Businesses that have operated online via web and/or EDI systems (%)	17.7	14.2%

** All ATECO codes of economic activity, from C to N, including 951 and excluding K.*

Source: SRM services on ISTAT data

In addition to the availability of an adequate scientific and technological infrastructure, the issue of skills, especially digital skills, takes on a strategic importance in this scenario, both in Campania and in Italy, as it rapidly influences changes in the world of work, and in the performance of new jobs based on new knowledge and destined to replace those linked to previous production models.

The pathway of transformation and innovation of the economy, and of manufacturing in particular, must be completed through a contextual process of modernisation and development of human capital by means of so-called 4.0 training, enabling people to programme and manage 4.0 machines and digitalised processes, and the NRRP provides this opportunity.

In order to bring SMEs closer to Industry 4.0 models, a strong awareness-raising action is therefore necessary, as envisaged in the Plan, to spread '4.0 culture' and knowledge of digital technologies among SMEs.

5. Factors enabling the technology transfer within the productive fabric

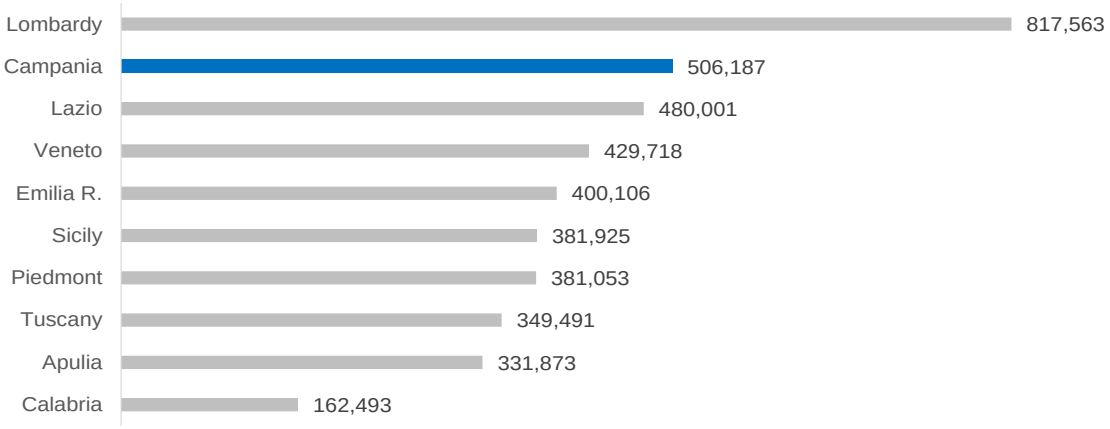
Besides the previously mentioned aspects, Campania and the Mezzogiorno possess specific elements that may contribute to the technology transfer within the productive fabric, thus favouring its completion.

For example, there are medium to large manufacturing entities, which are not numerous but have a clear understanding of their innovative needs and can foster the transfer of technologies along the entire value chain.

In particular, **there are 146 local units with 250 employees operating in the southern manufacturing sector, of which 43 in the Campania region**, which has the largest number of manufacturing enterprises in the Mezzogiorno.

The appetite for business is marked. The South is the first national area by number of active companies, **more than 1.7 companies in Q1 2022. Campania, with 506,187 companies, is the second region in Italy**.

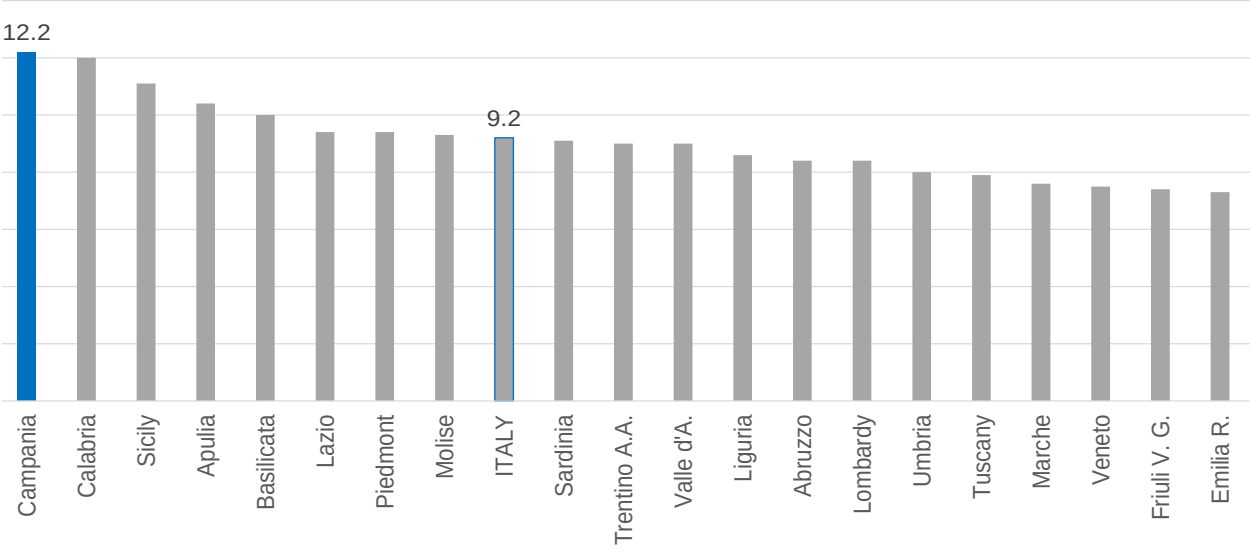
Top-ten regions by number of active companies



Source: SRM services on Movimprese, Q1 2022

This entrepreneurial sub-layer is also associated with a significant contribution from youth entrepreneurship. In Q4 2021 more than 190,000 youth enterprises were active in Southern Italy, of which 61,943 in Campania. Campania is the region in Italy with the highest youth entrepreneurship rate (12.2%, compared to 9.2% in Italy).

Share of youth enterprises on total of active companies by region (Q4 2021)



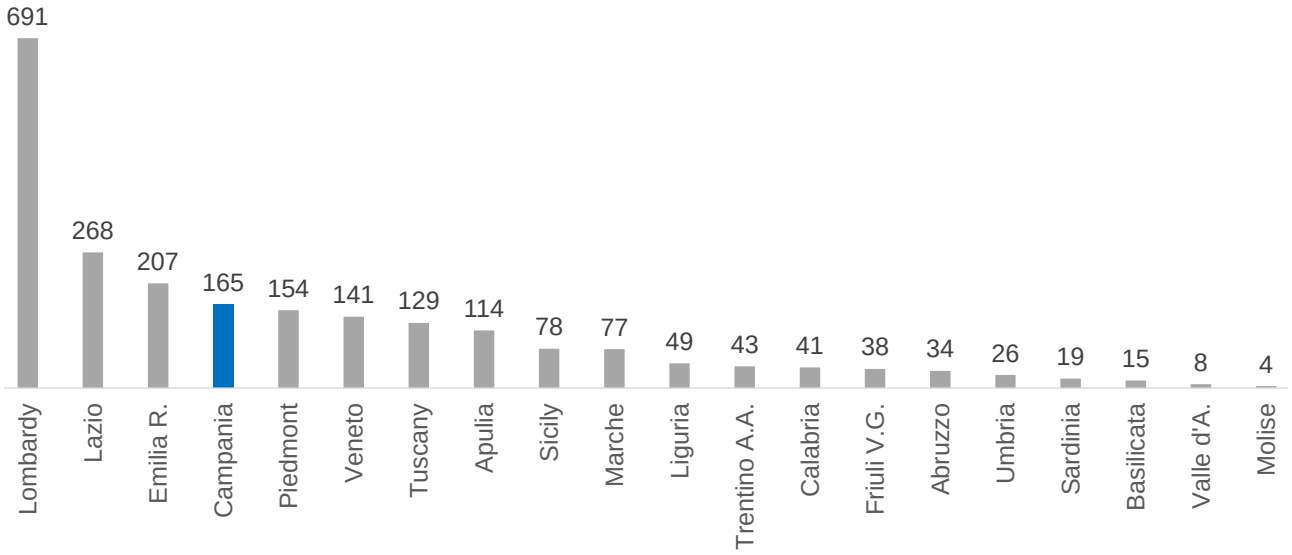
Source: SRM services on UCER

This entrepreneurial fabric has become increasingly attentive to the issue of innovation: not only, as highlighted above, due to the significant growth of innovative companies in the South (+52% on 2014 and +71% in Campania, compared to 34.3% in Italy), but also for the increasing spread of innovative SMEs and start-ups.

In the Mezzogiorno, there are 470 innovative SMEs and 3,711 start-ups accounting for 20% and 25.5% of the national figure respectively.

In particular, Campania is the first region in the Mezzogiorno (and the fourth in Italy) in terms of innovative SMEs with 165 SMEs, equal to over 35% of the macro-area total. Over the last three years, the number of SMEs in the region has grown by 135.7%, compared with +114% in the Mezzogiorno and +116.1% at national level.

Number of innovative SMEs by region (May 2022)

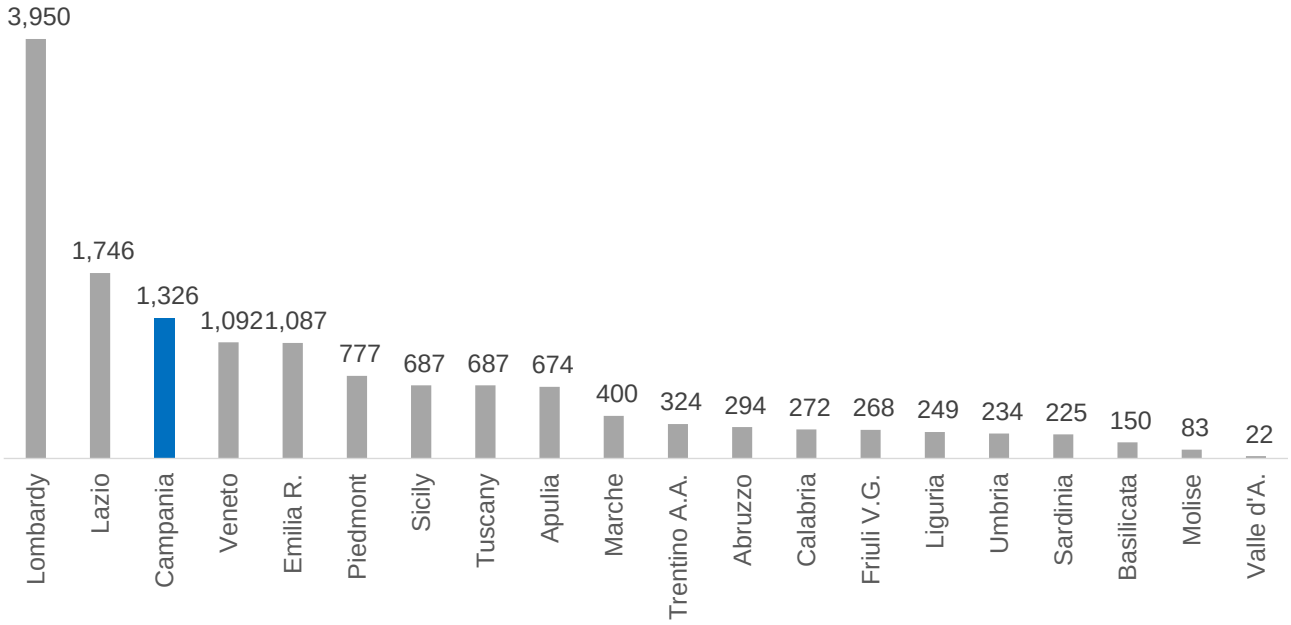


Source: SRM services on InfoCamere data

Furthermore, Campania is the first region in the Mezzogiorno and the third in Italy by number of innovative start-ups, with 1,326 start-ups or 35.7% of the southern total. Moreover, Naples is the third province in Italy by number of innovative start-ups (642 at the end of 2021), after Milan (2,629) and Rome (1,535).

Once again, performance over time is remarkable and if we look at growth rates over the last three years, the region is second in Italy with +65.3% (Puglia is first with +68.5%), compared to +49.3% for the South and +42.1% at national level.

Innovative start-ups by region (May 2022)



Source: SRM services on InfoCamere data

Moreover, Campania has always been home to research centres in various strategic sectors for the country's development. For example, among the non-university public research institutions, Portici is home to two CNR institutes: ISAFoM-Mediterranean agricultural and forestry systems and ISPAAM-Mediterranean animal production systems, as well as an ENEA research centre specialising in photovoltaic devices. The CNR also has two research areas in the region (Naples and Pozzuoli), with institutes based in the city of Naples (IBBC-Biochemistry and cell biology; IBB-Biostructures and bioimaging; IGB-Genetics and biophysics; IREA-Electromagnetic environment monitoring; IEOS-Endocrinology and Oncology; STEMS-Sciences and Technologies for Sustainable Energy and Mobility; ISPC- Heritage Science), in Pozzuoli (ICB-Biomolecular Chemistry; IPCB-Polymers, Composites and Biomaterials) and in Avellino (ISA-Food Sciences)[15]. Naples is also home to a section of the INFN-National Institute of Nuclear Physics; the Capodimonte Observatory of the INAF-National Institute of Astrophysics; the Dohrn Zoological Station; and a branch of the CREA-Policy and Bioeconomy.

While it is true that the tendency to innovate is a key variable for the resilience and competitiveness of economic systems, it is also true that there are certain elements that can

[15] In addition, Naples hosts certain institutes of the CNR which, despite not belonging to CUN areas 1-9, perform research activities useful to understand the economic, legal and cultural conditions that enhance the dissemination of innovation, including in the Mediterranean basin. An example of this is IRISS-Research on Innovation and Services for Development.

transform innovation into growth, particularly in this period of profound technological and process transition.

Indeed, what prevents the great potential of the national and territorial economic system from fully producing the desirable results is a problem of fluidity in the transition between producers and users of knowledge. The criticality thus lies in the intersection between demand and supply of innovation.

As regards this aspect, it should be highlighted that in Campania, and above all in the city of Naples, there is a considerable offer of technological services:

- **7 High-Tech districts**, IMAST (Materials), DAC (Aeronautics), STRESS (Sustainable constructions), Dattilo (transport and logistics), Campania Bioscience (Biotechnologies), Smart Power System (Energy), Databenc (Cultural Heritage).
- **21 private public laboratories** operating in the regional strategic sectors of Aerospace, Biotechnologies, New Materials, Energy and Agrifood, Sustainable Constructions, Culture, Transport and Logistics.
- **40 public and private institutions for advanced research** operating in the services of technological transfer and innovation.
- **30 organisations aimed at supporting entrepreneurship** (incubators, scientific and technological parks, Fab Lab, accelerators and centres for services to businesses).

In particular, it is worth mentioning that there are a few initiatives and projects linking the academic world and the economy.

For instance, an important role is played by **the centre based in San Giovanni a Teduccio**, a technological pole for the implementation of agreements between University Federico II and local or international companies. Here, educational pathways are offered to students so as to help them contribute to the productive fabric through the development of soft skills and the participation in higher-education programmes.

In particular, this centre hosts 9 academies, which can be described as follows:

- Apple Developer Academy. It is the first among the Federico II's higher education courses, born from the collaboration between Federico II of Naples and the Californian

company Apple. It is the first in Europe, inaugurated in 2016, welcoming the first one hundred students from all over the world, on the campus of San Giovanni a Teduccio.

- Aerotech Academy. A collaboration agreement between Federico II university and Leonardo, hosted at the Aerotech Campus.
- The Cisco Academy - DTLab Networking Bootcamp. A cooperation project between the Centro Servizi Metrologici e Tecnologici Avanzati (CeSMA) of Federico II University and Cisco Systems, Inc.
- The Cybersecurity Hackademy is the result of a collaboration between Federico II and Accenture.
- DIGITA is the 'Digital Transformation & Industry Innovation Academy' of Federico II in partnership with Deloitte Digital.
- The SI Academy - Smart Infrastructures was created following the agreement between Federico II and Tecne of the Autostrade per l'Italia Group.
- Make Napoli - Medtronic Master Advanced knowledge Experience is the result of collaboration between Federico II University and Medtronic Italia.
- The CoreAcademy. Conversion and Resilience is the newly established higher education structure set up by Federico II in collaboration with KPMG, DXC Technology and Exprivia.
- The 5G Academy brings together Federico II University, Capgemini, Nokia and TIM.

Among the companies operating in San Giovanni a Teduccio are Axa Matrix, Intesa Sanpaolo, Fondazione Ricerca&Imprenditorialità, Oracle Data Lab, Medtronic, Eni Energizer, Terna, Merck.

Contamination Labs (CLAB), as envisaged by the National Research Programme, are active in all universities in Campania, where interdisciplinary ideas are promoted for the definition of innovative entrepreneurial projects capable of impacting on the territory, involving university students and PhD students.

A competitive and productive territory would result in the rebirth and economic revival of the entire country, and with reference to the Naples area, there are numerous examples that can be given to highlight the projects and lines of action put in place. Examples include: **Agritech**; for the development of technologies in the agri-food sector, **Terra Next**; the acceleration programme for start-ups and innovative small and medium-sized enterprises operating in the bio-economy sector, **MediTech**; the Competence Centre in Southern Italy

on Industry 4.0, and **Centro Asterix**; programme for the redevelopment and rebirth of uninhabited urban spaces.

Taken together, these initiatives represent a clear expression of the desire to relaunch an area potentially rich in opportunities.

Additionally, Naples is home to **AGCOM**, the Communications Guarantee Agency, which is entrusted with the task of ensuring competition in a number of sectors related to the IT revolution, such as telecommunications, publishing, mass media and postal services. Universities in Campania (Unina, Uniparthenope, Unisob) have entered into agreements with AGCOM for collaborative studies and research. Activities include the research programme ISBUL (*Infrastrutture e Servizi a Banda Larga e Ultra Larga*), which brings together an international network of universities, including Federico II; and the SCREEN programme (*Servizi e Contenuti per le Reti di Nuova Generazione*), on the economic, technical and socio-legal aspects of next-generation networks.

With reference to the close link between innovation and the entrepreneurial system, and especially with reference to the connection between innovative capacity and company size, it should be noted that the area is home to **large high-technology production companies** that make a significant innovative contribution throughout the territory. It is sufficient to consider, for example, Hitachi Rail STS operating in the railway industry, Adler Plastic and Stellantis in the engineering sector, Leonardo in the aerospace sector, Fincantieri in shipbuilding and Novartis in pharmaceuticals to understand the relevance of the presence of large industries for the innovative growth of an area.

Another example of territorial development in the Campania region aimed at supporting innovation is the **'Borgo 4.0' project** for the creation of a technological platform for sustainable and safe mobility. Promoted by ANFIA, it focuses - in a real environment and to scale - on the experimentation of new technologies for autonomous and connected driving. The project is worth more than €73 million, with the knock-on effect being a major impact on the territory particularly in terms of infrastructure.

Another important factor is the presence of **DAC**, the Aerospace Technology District of Campania, established in 2012 with the aim of stimulating collaboration between Research Centres, Universities and Companies in Campania in order to create real business opportunities and continuous opportunities for growth and innovation.

Another point worth mentioning is the Protocol signed by the Region with Confindustria Campania regarding the establishment of foreign businesses. The agreement aims to outline a new relationship between multinationals and the territory in which they operate so that they are no longer considered foreign companies but 'Italian companies with foreign capital'.

The objective is, therefore, to retain and support international companies in order to increase their investments in the area whilst simultaneously fostering socio-economic development.

The Campania area, therefore, has been experiencing a remarkably intense innovative growth for some years now, and the above-mentioned data prove this, but the area's strength goes beyond what can be expressed in numerical terms. The many realities that distinguish Campania for the quality of its initiatives and its ever-growing potential can, in turn, generate further development, leading the area towards new standards of excellence.

6. Conclusions: policies and projects

Investing in innovation and research is worthwhile not only because they improve the performance of companies but also because they foster economic growth in the area as a whole.

SRM studies estimate that €100 invested in the South in innovative rather than traditional sectors will generate a higher endogenous impact of €50.6, or +20%. Innovation, technology, ecological and digital transition are objectives that cannot be postponed and never before have there been such significant financial resources available. The point of reference - and not only - is the NRRP.

In particular, considering the Plan, an initial reference to innovation is in the first mission 'Digitalisation, innovation, competitiveness, culture, and tourism', which supports the country's digital transition, in terms of the modernisation of public administration, communication infrastructure, and the production system. Approximately €49 billion is allocated to Mission 1, to be distributed among three sectors. The share for the South is estimated at around 30 per cent, or almost €15 billion.

Mission 1: Resources for Italy and share of the Mezzogiorno

	Italy (Billion €)	Mezzogiorno	
		Billion €	Share of Italy's total
M1C1. Digitalisation, innovation and security in the public administration	11.12	2.5	22.8%
M1C2. Digitalisation, innovation and competitiveness in the production system	29.77	10.9	36.5%
M1C3. Tourism and culture 4.0	8.14	1.4	17.6%
TOTAL	49.03	14.8	30.5%

Source: SRM services on www.italiadomani.gov.it

NRRP Mission 1: main projects funded in the south

	resources (billion €)
Transition 4.0	6.09
Ultra-fast broadband	2.50
Space centre	1.70
Human capital per trial office and overcoming disparities between courts	0.91
Industrial and supply chain policies	0.59

Source: SRM services on NRRP figures

In particular, with regards to the actions addressed to stimulating the production system, the reference is to Component 2, 'Digitalisation, innovation and competitiveness in the production system', which aims to strengthen the competitiveness of the production system by consolidating the rate of digitalisation, technological innovation and internationalisation through a series of complementary interventions: tax incentive policy, support to high-tech sectors, development of a very high-capacity network infrastructure, support to SMEs: internationalisation for the dissemination of 'Made in Italy'. In addition, the reform of the industrial property system further aims to give value to innovation, encouraging investment in the future.

One of the richest chapters of this component is the one dedicated to increasing ultra-broadband coverage: three calls for tenders have already been launched for €4.2 billion, of which more than half (€2.2 billion) is earmarked for southern regions to connect not only private addresses, but also schools and health facilities.

Another reference within the NRRP is Component 2 of Mission 4 'From research to business', which aims to support investment in R&D, promote innovation and the dissemination of technologies, strengthen skills, and encourage the transition to a

knowledge-based economy. The three planned lines of intervention cover the entire chain of the research and innovation process, from basic research to technology transfer. Resources amounting to €11.44 billion, plus an additional €1 billion from the Supplementary Plan, are envisaged; for the South, a total of approximately €4.3 billion is estimated, equal to 35% of the national total.

In this field, a great deal of attention is devoted to 'Ecosystems for Innovation', and it should be noted that the first call for proposals has already been launched for the creation of 12 ecosystems, 5 of which are in the South. The aim is to support applied research, training, and the exploitation of research results, as well as the creation of start-ups and spin-offs, by promoting incubation and venture-capital activities and services. All this with a total investment of €1.3 billion, with 40% reserved for the South (over €0.5 billion). For each Ecosystem, the endowment is therefore between €90 and €120 million.

The NRRP therefore represents an exceptional opportunity not only to relaunch the country's economy, but also to initiate those profound structural changes that Italy - and especially the South of Italy - has been calling for over the past twenty years (greater business structuring, as well as the strengthening of those strategic factors that are part of the new competitive paradigm, namely innovation, training, internationalisation).

The presence of other instruments dedicated to research should not, however, be overlooked. This is, for example, the case of programmes under the Structural Funds, such as the 'Research and Innovation' NOP and the 2014-2020 ROPs, or the policies that will be implemented with reference to the new 2021-2027 Agenda.

In this scenario, the role of the Campania Region is especially important, as it has been working for some time now to create the best contextual conditions for all players in the value chain (starting with the academic and research system) to make their contribution. All this within a Southern framework that, in addition to implementing greater investment in research and the creation of favourable conditions for investing in technological innovation, as drivers of greater productivity, can help consolidate a long-term recovery of the competitiveness of the industrial system as a whole[16].

The Region is focusing on the various aspects linked to the research and innovation ecosystem to boost the region's competitiveness, through a strategy based on the

[16] The European House Ambrosetti, *La Campania verso il futuro: opportunità e sfide dell'ecosistema dell'innovazione e della ricerca.*

interconnection of certain levers considered strategic. The main objective pursued is to make the region an "open innovation platform of international standing, stimulating the competitiveness of the entrepreneurial fabric and the ability to attract talent, businesses and capital to the regional territory"[17]. Thus, there have been numerous instruments deployed and integrated interventions to support innovators, talents, researchers and entrepreneurs for the development of new realities, and for the growth and consolidation of innovative ideas. In this scenario, 'Campania Competitiva' is the regional action strategy to foster the growth and competitiveness of the territory based on a number of specific drivers: Research, Innovation, Start Up and Internationalisation.

One of the objectives is to promote the innovation potential of start-ups and SMEs, in order to generate development and competitiveness: this is the Open Innovation strategy launched by the Region, which envisages each actor making its own contribution. Open Innovation is an innovation paradigm that allows companies to improve their competitive positioning, not only by using internal resources but also by resorting to tools and skills generated by other players.

Campania's enterprises will therefore play a decisive role in the national and southern context, especially if they continue to gear their creative energy towards sustainable and innovative growth, while also being able to count on an effective policy of interventions to be activated in the short term and completed with commitment and responsibility in the medium and long term.

The innovative potential of the area must be propagated and exploited. There is potential in the area to grow and develop its own future. In fact, there is an "innovative ferment" fuelled by a growing ecosystem of research and innovation and a greater share of innovative, youthful enterprises, devoted to the logic of smart manufacturing, as highlighted above.

Territorial development projects, as we have seen, are varied and present throughout the territory; they not only represent the practical implementation of the new growth paradigms but are the representation of a new common awareness of the path to be followed and a method of not missing out on the opportunities that present themselves today.

[17] Regione Campania (2020), *Innovazione made in Campania. Le storie, le esperienze e i risultati dei progetti finanziati dalla Regione Campania in ambito R&I.*

Annex

Technical economic feasibility study of the EMSA regional centre in Naples

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APPLICABLE DOCUMENTS		
Ref.	**File Name**	**Contents**
AD 1	Regulation (EC) 1406/2002 et al.	https://eur-lex.europa.eu/legal-content/IT/TXT/HTML/?uri=CELEX:02002R1406-20161006&from=EN
AD 2	EMSA 5-year strategy 2020-2024	https://emsa.europa.eu/strategy.html

REFERENCE DOCUMENTS		
Ref.	**File name**	**Contents**
RD 1	EMSA description	https://transport.ec.europa.eu/other-pages/transport-basic-page/european-maritime-safety-agency-emsa_en
RD 2	EMSA website	https://www.emsa.europa.eu/
RD 3	EMSAs financial information, EMSA website	https://www.emsa.europa.eu/financial-management/financial-documents.html
RD 4	Awarded contracts. EMSA website	https://www.emsa.europa.eu/tender-archives/awarded-contracts.html

1. EMSA functions and duties of the Regional Centre

The main functions of the EMSA and potential duties for the Regional Centre can be listed as follows:

- Ship monitoring
- Earth observations
- Integrated maritime information
- Anti-pollution monitoring and interventions
- Checks and interventions to counter illegal fishing
- Checks carried out by the state of call

The centre's operational tasks will be perfectly framed in the regional and Italian context thanks to the availability of competences and assets related to state-of-the-art control systems at European level, such as: **VTMIS** (Vessel Traffic Management Information System), various aerial platforms equipped with sophisticated sensors (including drones), as well as space systems and remote sensing and earth observation (EO) applications. At a regional Mediterranean level, there are centres and expertise that can facilitate the achievement of remarkable results in the fields of safety of navigation and protection of the marine environment for the entire area.

The Centre's development roadmap can count on an active industrial ecosystem and the support of leading research institutes of the relevant technological sectors. In addition to the presence of numerous universities including engineering, natural sciences and IT departments, Campania is home to one of the most important Aerospace Clusters at national and European level. Current national (e.g. PNRR, etc.) and regional development plans (POR/PON...) allow for the increasing presence of important assets and technologies in the area, which can in some way contribute to the presence of an 'ecosystem' favourable to the Agency's operations. In particular, space technologies are recognised as a 'strategic activity for economic development' and considerable resources (over €2.3 billion) have been allocated by the NRRP to satellite technologies, Earth observation and environmental monitoring.

It should be recalled that the National Recovery and Resilience Plan allocates a significant share of resources to the regions of southern Italy, amounting to approximately €82 billion: 40% of all resources with a specific allocation to the territories. This represents **a unique opportunity for development** and can also favour the establishment of an entity

such as the regional centre of EMSA: it should be noted that among the incentives envisaged there are financial interventions for advantageous taxation for work in the South (€4 billion), hiring young people (€340 million), hiring women (€126 million), etc.

1.1 Monitoring and anti-pollution measures

Maritime transport is an essential component of world trade and transport, but despite its considerable economic and social benefits, it exerts a heavy impact on the environment and health of affected areas for reasons related to:

- *greenhouse gas emissions* (sulphur oxides and carbon dioxide) released into the atmosphere during the combustion phase required for propulsion;
- accidental and dangerous *oil spills* into marine waters;
- water pollution due to antifouling paints: these are used as a coating to prevent the accumulation of algae or the invasion of microorganisms; they can lead to detrimental consequences for the marine habitat and are a further cause of water pollution. They contain biocides and chemicals that are dangerous to marine fauna;
- loud *underwater noise* generated by ships as they pass by: the range of noise frequencies produced by commercial ships reaches critical values for various marine species, covering the sounds emitted and leading to detrimental consequences: this is particularly worrying for cetaceans, which use sounds for a number of functions such as communication, hunting for food, reproduction, and defence from predators
- *ballast waters*: these are used to ensure the stability and safety of operations and play an important role in mixing different species from one marine environment to another, altering their habitat and natural properties. These are pumped in at the port of departure; the tanks are then emptied at the port of arrival. This operation generates a displacement of micro-organisms which 'invade' the waters of a different area to their original one.

EMSA makes use of the valuable contribution of **RPAS** (Remotely Piloted Aircraft Systems) as aerial platforms for the detection of harmful gas emissions, in order to determine whether or not the quantity of gases released (sulphur oxides and anhydrides) complies with legislative specifications. The combination of real-time information made available by the RPAS platforms, with the data provided by EMSA and the contribution of the participating Member States, represents a successful solution for monitoring harmful gas emissions from ships. The Campania Aerospace Cluster is very active and full of companies

and research centres operating in the field of drones (RPAS and UAS) from which the Centre could benefit for issues related not only to harmful gas detection, but also for many other operational activities such as monitoring illegal fishing activities or coastal surveillance.

In the context of maritime pollution, accidental oil spills in waters are one of the main causes of environmental disasters.

CleanSeaNet is a monitoring service that manages near real-time detection of oil spills and identification of the ships responsible; it is a satellite-based EMSA service available to all participating EU Member States via a dedicated web-based interface platform.

This service uses the analysis of satellite images generated by Synthetic Aperture Radar (SAR) to detect oil spills, identify their potential cause and monitor the spread of the discharge during an emergency. Images are also collected following an accident or collision to see if there has been a subsequent spill and assess the discharge. With SAR images, which are acquired regardless of weather conditions or time of day, the spills are shown as dark bands, similarly to what would be seen in reality.

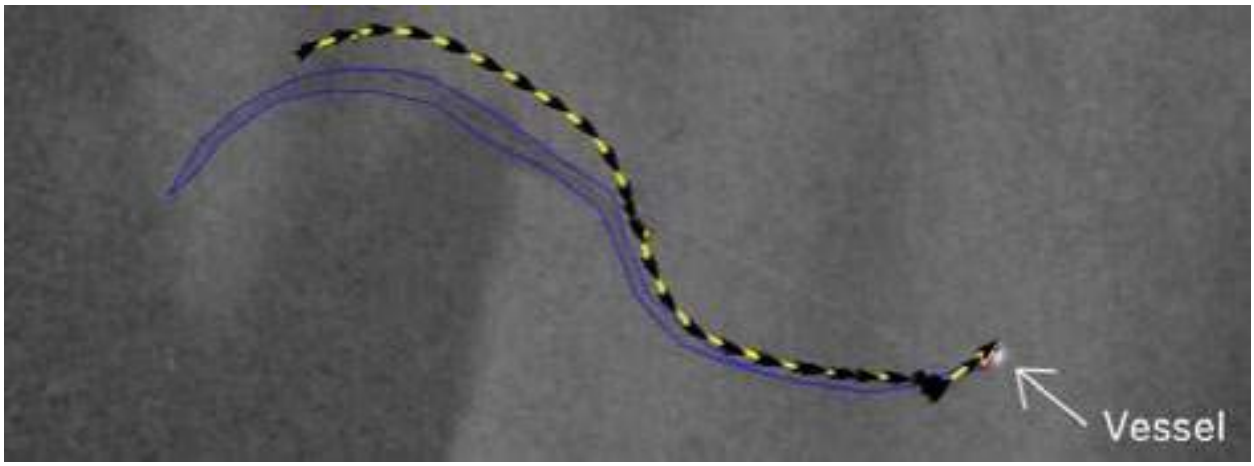

Figure 1: SAR image of an oil discharge

RPAS devices, in combination with EO satellite technologies, provide valuable support for the provision of more detailed and higher resolution information about the shape and size of the located oil slick; this data is then integrated by the CleanSeaNet platform.

The combination of near-real-time satellite imagery and subsequent RPAS platform overflight of the affected area can provide relevant information such as actual confirmation of the oil spill, an analysis of the type of spill, its shape and size, identification of the potential responsible vessels, and suggestions on the type of action to be taken for collecting and

containing the oil discharged at sea. Subsequently, an alert report is sent to Member States, which will validate the information through their own on-site verification means.

The piloting of RPAS platforms is entrusted to experienced and qualified pilots, and special areas are made available (including on board ships) for safe take-off and landing manoeuvres.

EMSA, in fact, has promoted and procured through several tenders, some surveillance and inspection services using light RPAS to support operations from on board ships, to use aerial vision for improving the operation of a vessel during anti-pollution interventions at sea or for maritime safety/surveillance.

Among the main technologies and services used to deal with environmental emergencies and monitor anti-pollution activities, the **MARice network** is comprised of chemical experts and was set up by EMSA, in collaboration with other partners, to provide information and technical support on chemicals involved in maritime environmental pollution conditions. This network is made up of experts operating in chemical-pharmaceutical companies who are familiar with the chemicals involved.

SafeSeaNet is a maritime traffic monitoring service that aims to ensure safety at sea and in ports, and to make ship traffic and transport management efficient.

It is a platform that enables the exchange of maritime information on a network between maritime authorities throughout Europe. The main data collected by the system and available to all interested users are: **Automatical Identification System** (AIS) for near real time position detection; a history of the positions of the vessel in question; additional information such as identification number, flag, size, destination, speed and type of vessel; estimated arrival/departure times; information on any accidents the vessel has been involved in; vessels with a high-risk profile.

One of the main users of SafeSeaNet is the THESIS system which provides support for port area status control. It indicates which ships have inspection priority and collects and shares inspection results. Information on arrivals and departures collected by SafeSeaNet allows inspections to be scheduled more efficiently.

1.2 Earth Observations

Surveillance of coastal areas is carried out through **Earth Observation** services that provide valuable support in the detection of ships in distress, the tracking of missing objects, and the location of lost vehicles. All this is assisted by Copernicus Maritime Surveillance that provides more accurate monitoring of maritime activities. Those of greatest interest concern the detection of any vessels involved in illicit trafficking and smuggling.

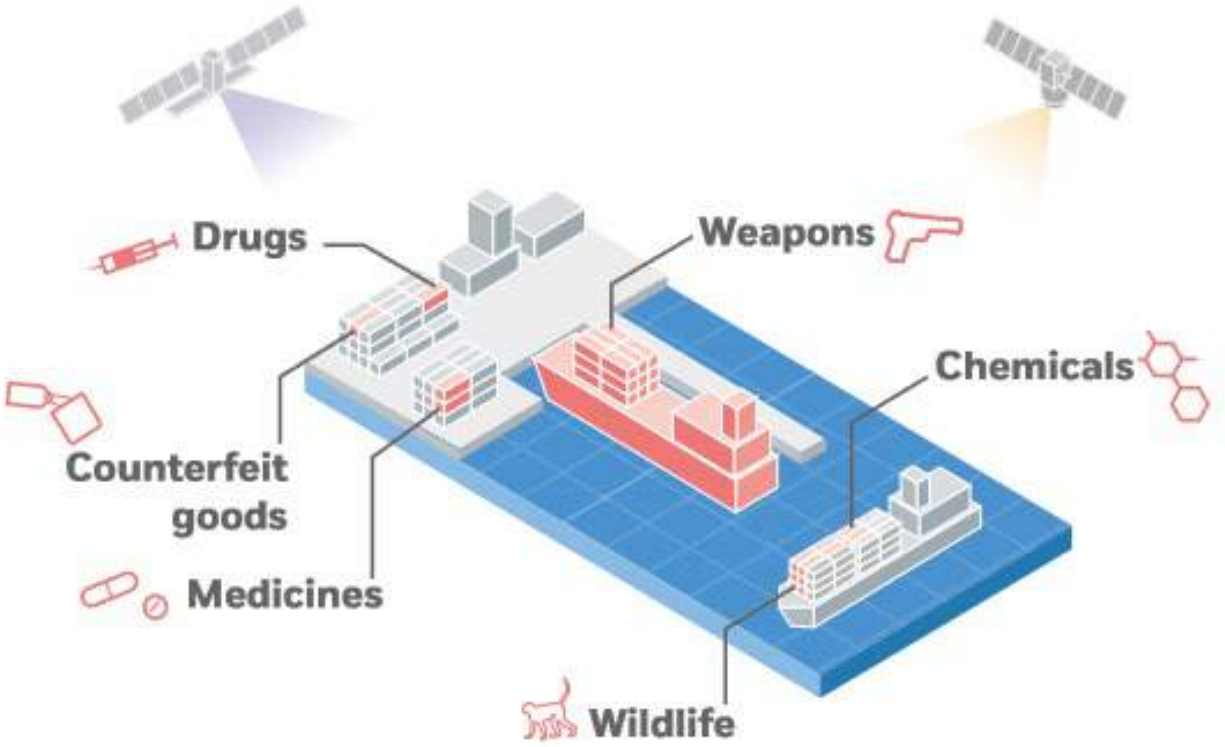

Figure 2: Types of illegal traffic monitored by EMSA through EO

Although this type of monitoring is an extremely valuable solution, it is not available all the time, as it depends on the orbit used by the satellite, and the authorities must be able to promptly respond to dangerous or emergency situations at all times.

In addition to satellite monitoring, the contribution of **RPAS** platforms provides valuable support to the surveillance service as these can scan the areas concerned for any suspicious operations. They are also equipped with AIS sensors, which enable the device to identify and categorise the vessel in question, to receive messages from vessels far away from the coastal area, and to locate vessels in distress.

The data produced by the satellites are sent to a network of ground stations, where they are processed and analysed. The results are in turn sent to the Earth Observation data centre, where this information is integrated with additional maritime data and then redistributed to users.

1.3 Ship monitoring and control of illegal traffic

The **Long-Range Identification and Tracking system**, introduced for safety reasons by the International Maritime Organisation, aims to provide the identity of the vessel and position information (at least 4 positions per day) in sufficient time to assess safety risks and promptly respond to hazardous conditions if necessary.

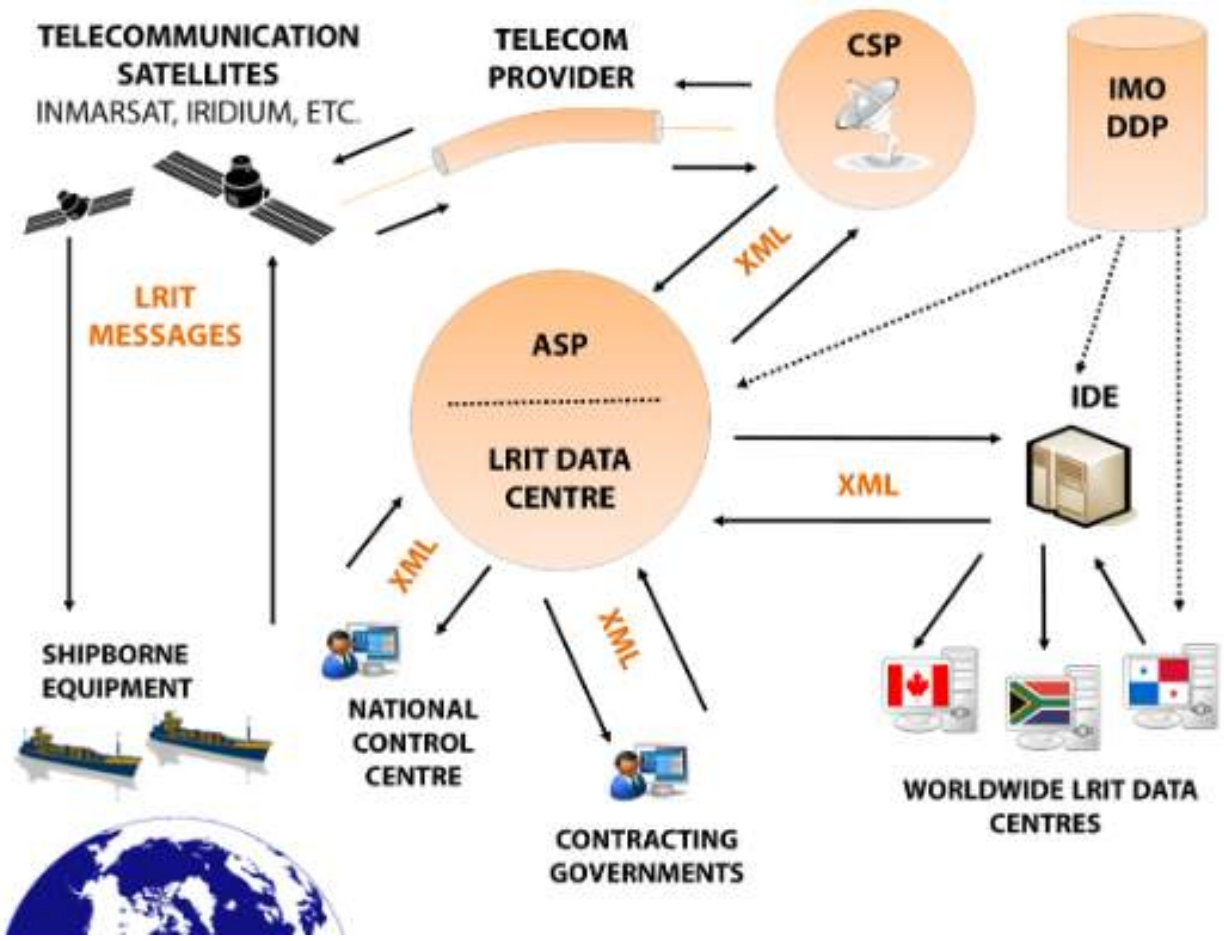

Figure 3: Overview of the LRIT service

The LRIT system sends position information to the Communication Service Providers who supply the communication infrastructure and services to ensure the secure transfer of information to the vessels. The Application Service Providers then supply an interface

protocol to ensure communication between the Communication Service Providers and the LRIT Data Centre.

The LRIT Data Centre collects and redistributes information to users according to the Data Distribution Plan that defines regulations and access requirements.

1.4 Integrated maritime information

EMSA coordinates a large number of systems that receive, process and distribute traffic information (SafeSeaNet, LRIT), satellite monitoring (CleanSeaNet) and port state control (Thetis).

The services offered by these systems are shared with the Member States that are members of the Commission, and for this purpose a dedicated Integrated Maritime Services platform has been developed to ensure the availability and reliability of the information it handles, including that provided by end users. This helps to promote and intensify cooperation at regional and national level, to make additional information and data available for the management of the maritime domain, to respond to regulations and user requirements, and to offer services that are easy to use, swiftly processed and affordable.

On the basis of the proposed services and activities, the proposed regional centre in Naples should:

- be located near the port area
- require a building with dedicated areas for the organisation of meetings, events and training courses
- provide ground stations needed to receive satellite data
- involve RPAS devices with appropriate on-board sensors
- involve the contribution of qualified RPAS pilots
- involve IT and systems engineers who know how to manage the functionalities and potential of the network services offered by EMSA for the exchange and transmission of information among partner members
- involve experienced trainers and include staff training courses and activities

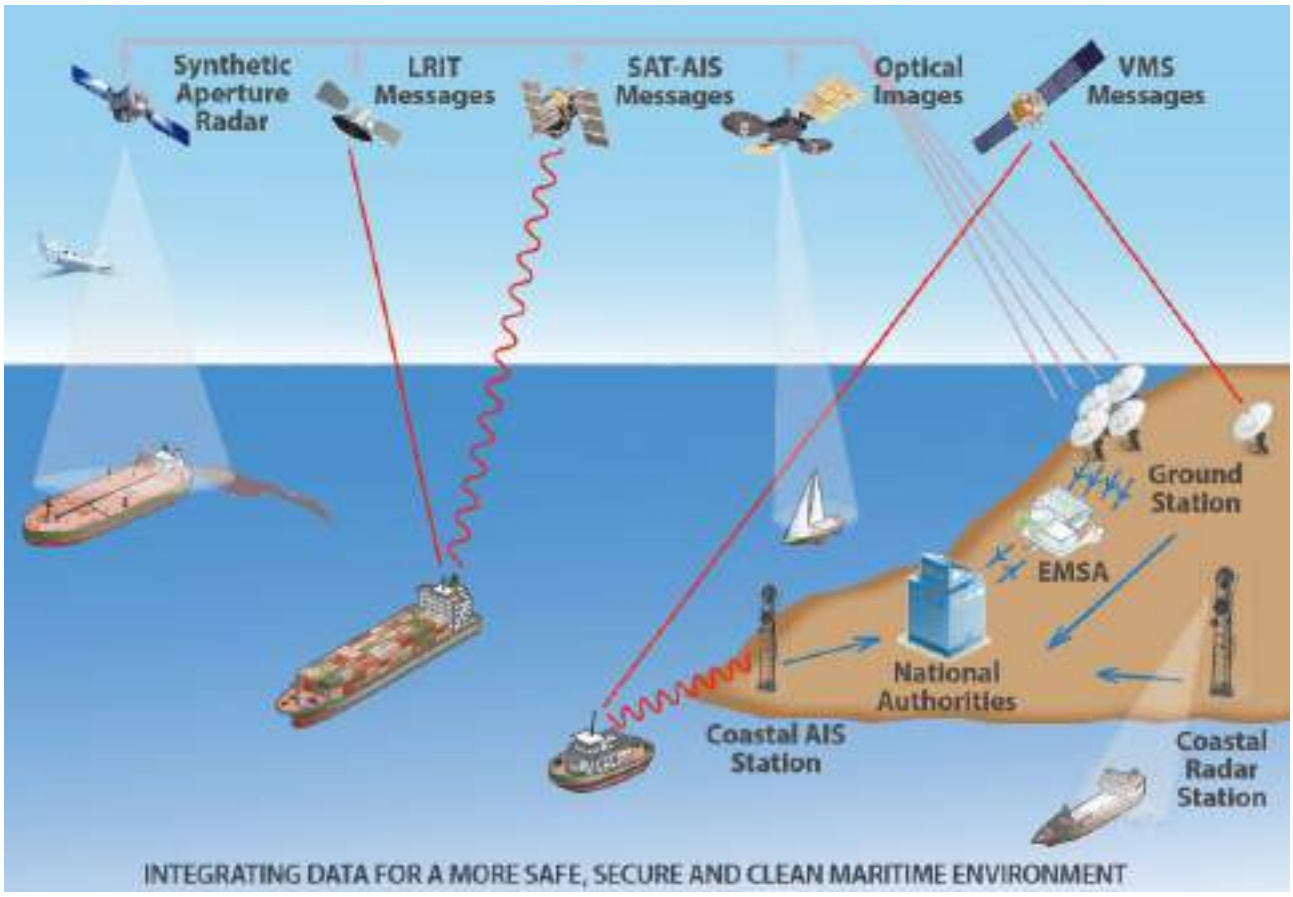

Figure 4: Integrating data provided by different services

- Organise activities for certifications and validation
- Envisage the recruitment of specific professional figures such as the following:
  - Chemical experts
  - Flagship state inspectors
  - Agents for checks on the state of the port
  - SAR Personnel
  - Auditors
  - Accident investigators
- Include chemical analysis labs
- Include staff recreational areas
- Possess a car park
- Possess appropriate IT and software material
- Envisage inspection activities and involve ad hoc inspectors to verify compliance with current legislative criteria
- Envisage adequate access to the downstream resources of the main European technologies that enable EMSA services (Copernicus EO data) via a dedicated

Internet/Intranet node or guaranteed broadband Internet/intranet access, scaled to the size of the site.

2. Features of the Regional Centre in Naples

The EMSA regulation foresees the establishment of 2 sub-offices (one in the North Sea and one in the Mediterranean). Pursuant to Article 5, par. 3 of the regulation *'At the request of the Commission, the Administrative Board may decide, with the agreement of the Member States concerned, to establish the regional centres necessary in order to carry out tasks related to the monitoring of navigation and maritime traffic, as provided for in Directive 2002/59/EC'*.

It is therefore possible to establish regional EMSA centres subject to the following conditions:

- the Commission must make a specific request;
- the Administrative Board of EMSA has to take a specific decision;
- the Member State where the proposed Regional Centre is to be established must give its agreement;
- the regional centre must be dedicated to carrying out tasks related to the monitoring of navigation and maritime traffic.

The role played by the Regional Offices is also based on the specifics of the reference area; these specifics, in which geopolitical aspects are not secondary considerations, represent qualifying elements for submitting an application to the commission.

The Agency's mission, as anticipated, is to provide governments with real-time information on what is happening at sea in order to implement the necessary maritime policies. Some typical activities include:

- Ship monitoring
- Earth observation
- Integrated maritime information
- Monitoring and anti-pollution interventions
- Monitoring and interventions to prevent illegal fishing
- Checks carried out by the state where ships call.

In EMSA’s 5-year strategy 2020-2024 there are indications of a strengthening of the agency’s mandate in order to increase monitoring and protection activities related to the environment, safety, surveillance and administrative simplification of maritime traffic. All of these aspects, due to their specific features and complexity, need to be primarily considered on a regional basis.

To pursue the strategic objectives, the approach followed is to develop innovative and integrated knowledge-based services. This opens up wide margins for development for companies and research institutions that want to propose innovative solutions and services, specialised for regional needs and in collaboration with the institutions in charge of the management and control of maritime traffic in the member states. In addition to this, the increasing integration with the Copernicus and Galileo services should be considered, for which EMSA's Mediterranean centre would represent a driver and facilitator in the space economy context.

The development of applications and services for the Mediterranean region concerns the need to be equipped with appropriate facilities and means for surveillance and security activities (understood as both security and safety) through the undertaking of inspection, training and certification activities to ensure the safety of maritime traffic and the security of transport, as well as law enforcement actions (e.g. control and deterrence of pollution and illegal fishing) in the Mediterranean. Close regional cooperation with the coast guards and harbour master's offices of the member states is a further key element to adequately guarantee border security as well.

On this premise, the EMSA centre in Naples will have to be equipped with technologies and material resources in line with the main activities and the specific mission that will be given to the centre, in accordance with EMSA's mandate, its strategy and the macro-programmatic objectives set out for the headquarters in Lisbon.

By way of example, success stories that have already been implemented by other European agencies may be considered here. Take the EUSPA agency, for instance, which with the European Commission's mandate for the Galileo, COPERNICUS and GOVSATCOM programmes, despite having its headquarters in Prague, delegates the Madrid Experimental Centre to monitor satellite signals from the Galileo constellation.

Following the same pattern, the EMSA Centre in Naples will have to be equipped with all those technologies necessary to implement the specific mission hypothesised for the centre (e.g. EMSA Experimental Centre for the Mediterranean).

The plan for the acquisition of technologies, durable goods and operational supports will have to assess the possibility of reusing technologies and results already available in the area characterised by the presence of a very active ecosystem of SMEs, universities and institutions.

3. Operational structure of the Regional Centre

The operational organisation of the Regional Centre should have the necessary facilities and means to carry out both security and safety activities, alongside inspection, training, certification and law enforcement activities in the Mediterranean. The main element of the infrastructure of the official Lisbon office is the Maritime Support Services Centre (MSS), a 24/7 operational facility. Similarly, the Naples office is to include an operations room with a number of workstations, a large video wall and a support room with computers.

The entire infrastructure will have to be set up in accordance with the Lisbon centre, ensuring that operators have access to the latest information from each of the systems at all times. This is particularly important as these subjects must be able to react quickly to any urgent information related to IT systems or maritime emergencies, and at the same time carry out their routine daily work.

Figure 5: MSS Operations Room

The MSS Centre Operations Room will be able to assist headquarters in the provision of support to various maritime systems, including

- the EU vessel traffic monitoring and information system SafeSeaNet;
- the Long-Range Identification and Tracking system for global ship tracking developed for the International Maritime Organisation (IMO)
- the CleanSeaNet oil spill detection and surveillance system and the vessel tracking system.

Regardless of the specific mission and infrastructural details, the site must guarantee adequate access to the downstream resources of the main European technologies enabling the main EMSA services (e.g. Copernicus EO data, Galileo EDAS EO, ...) via a dedicated Internet/Intranet node or guaranteed broadband Internet/intranet access, scaled to the size of the site.

From the point of view of employment effects, EMSA's presence in Naples can guarantee a direct employment fallout linked to the staffing of the headquarters which, for its basic functions, can envisage **the employment of between 50 and 100 people**, both for the functioning of the headquarters and for the staff dedicated to its operations.

The greatest spillover in terms of employment will be related to the involvement of qualified resources, to be selected in the various countries of the European Union (see example in figure 6 related to the staff of the EMSA headquarters).

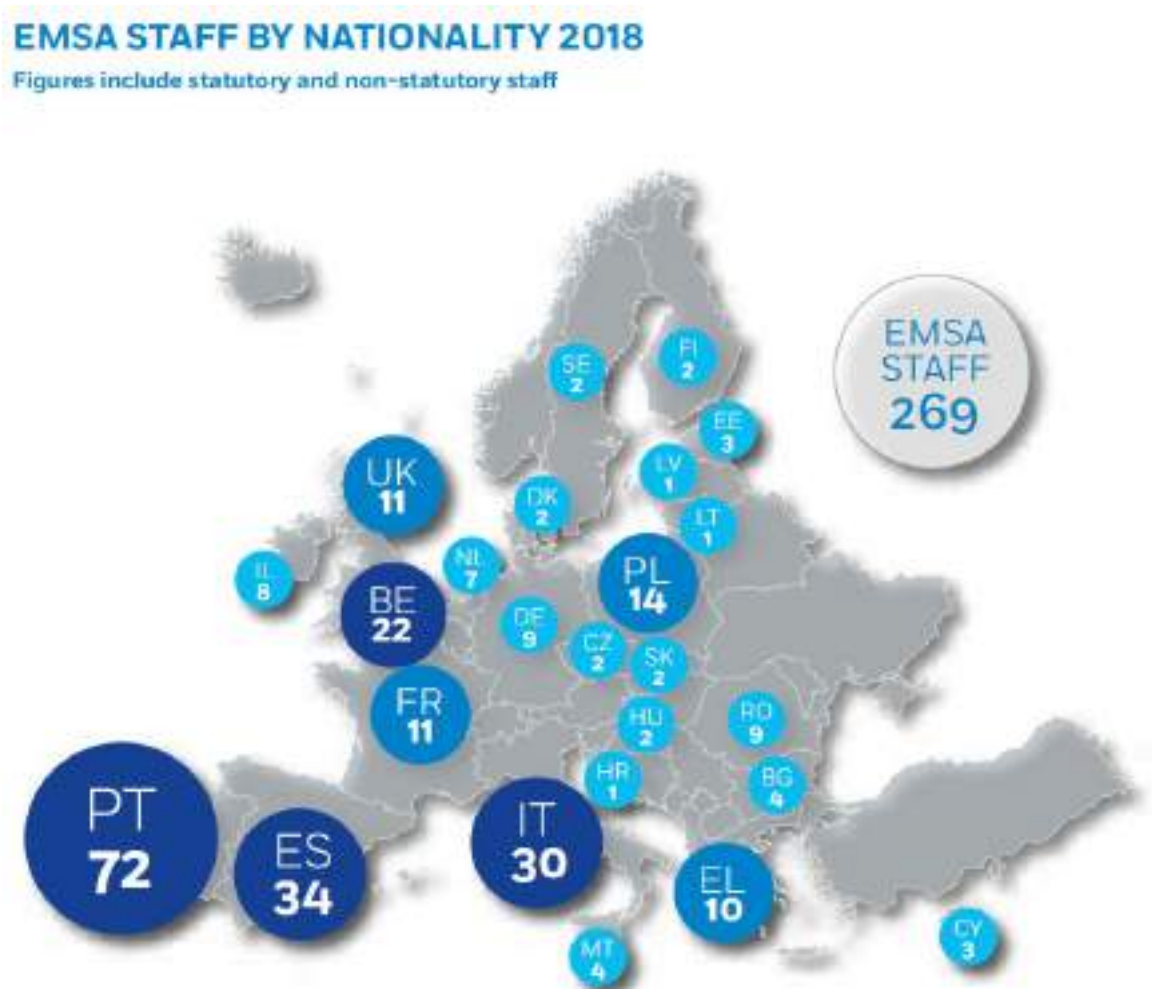

Figure 6: EMSA staff by nationality, 2018

The following graph illustrates the evolution of EMSA's staff headcount which has been taken as a reference for the definition of the 10-year draft budget plan.

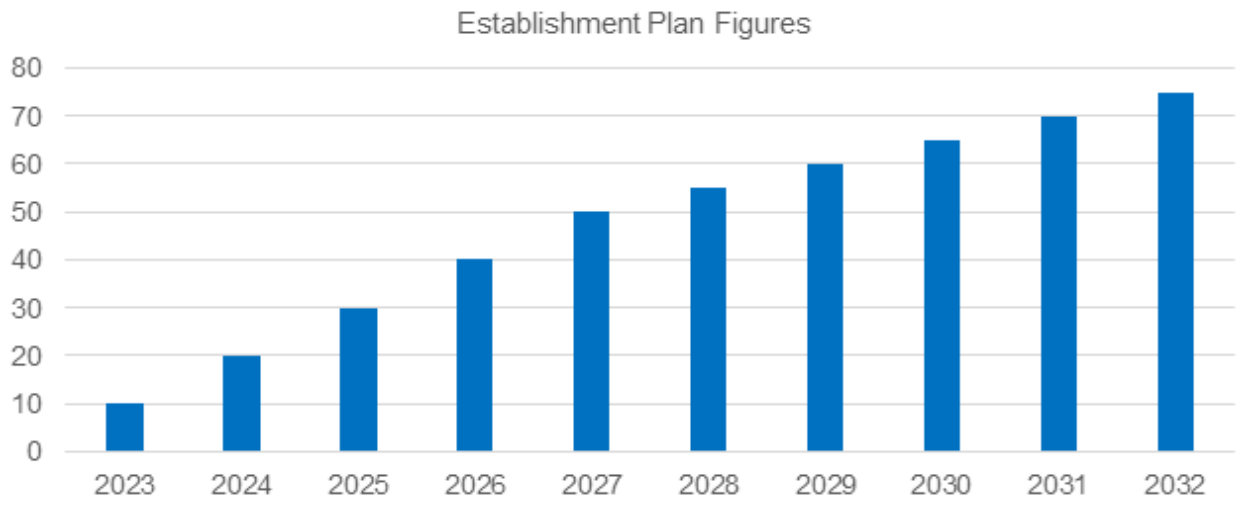

Figure 7: Evolution of EMSA's staff headcount in Naples

4. Urban context

The city of Naples covers an area of 117.3 square kilometres and is home to 913,600 inhabitants.

Naples, as the capital of the metropolitan city and the region of Campania, is home to the municipal offices as well as the governing bodies of the metropolitan city and the region. Furthermore, it is home to 87 consulates and national bodies such as the Authority for Guarantees in Communications, and hosts Villa Rosebery, the official summer residence of the president of the Italian republic.

Naples is home, among other things, to eight universities, four of which have technology departments, the Campania Aerospace District (which brings together over 200 companies and research bodies), the integrated command of NATO forces for southern Europe, the Atlantic Alliance, and the International Observatory for the Sea Economy.

4.1 Weather

Naples enjoys a Mediterranean climate, with mild, rainy winters and hot, dry summers, but still cooled by the sea breeze that often blows across its gulf. The sun shines on average 250 days a year.[18].

Weather information Naples					
Variables	**Seasons**				**Yearly**
	Winter	**Spring**	**Summer**	**Autumn**	
Average maximum temperature (°C)	12.3	20.7	32	22.7	21.9
Average minimum temperature (°C)	4.7	10	19.7	14.7	12.3
Rainfall (mm)	323	212	100	372	1007
Average relative humidity (%)	74.3	70.3	70	74.3	72.3

Table 1: Weather information Naples

[18] https://it.wikipedia.org/wiki/Napoli - cite_note-34

4.2 Services

The city is home to numerous hospitals, both public and private, to name but a few: the Antonio Cardarelli Hospital, the Ospedale del Mare, the Federico II University Hospital, the Monaldi Hospital, the Pascale Hospital, the Santobono Children's Hospital and the Domenico Cotugno Hospital.

As far as places of worship are concerned, the city has about 500 Catholic churches, as well as three mosques (Piazza Garibaldi, Piazza Municipio and Piazza Mercato), an Evangelical church, an Anglican Basilica and a Jewish centre of worship.

4.3 Education

The city is home to 964 public and private schools of all levels, including 167 high schools (classical, scientific, technical and vocational high schools). Among these, the 'Nunziatella' military school is the oldest military school in the world that has operated continually and the oldest Italian military training institute.

Higher education institutes include the ‘Conservatorio musicale di San Pietro a Majella’, founded in 1826, and the ‘Accademia di belle arti’ (Academy of fine arts), founded in 1752. The Pozzuoli Aeronautical Academy, which trains pilots and military engineers, is also located in the metropolitan area of Naples.

Naples is home to the University of Naples 'Federico II', the first university in the world to be founded by the state, and the University of Naples 'L'Orientale', the first university for sinology and oriental studies on the continent. The city has eight universities.

The public universities in Naples are:

- the University of Naples 'Federico II';
- the 'Luigi Vanvitelli' University of Campania
- the 'Parthenope' University of Naples (formerly 'IUN - Istituto Universitario Navale')
- 'Pegaso' Telematic University
- 'L'Orientale' University of Naples;
- Scuola Superiore Meridionale.
- Pontifical Theological Faculty of Southern Italy (PFTIM);
- Suor Orsola Benincasa University.

The first four universities host engineering departments, including Aerospace, Naval, Environmental, Electronics and Telecommunications, with around 5,000 students graduating a year.

4.4 Infrastructure and transport system

Naples is an important road and motorway junction in the country. The Autostrada del Sole (A1) motorway to the north, the A3 motorway to the south and the A16 motorway to the Adriatic branch off from the city. The Naples ring road (officially motorway A56) runs along the inner part of the city, through its hills.

Naples-Capodichino airport, located about 4.5 km from the city centre, is the fifth largest airport in Italy in terms of number of passengers (about 11 million) and the first in terms of growth among medium-sized European airports.

Naples is the main railway junction in the Mezzogiorno, with connections to some of the main Italian lines: the Rome-Naples railway (high speed), the Rome-Cassino-Naples railway, the Rome-Formia-Naples railway, the Naples-Salerno railway and the Naples-Foggia railway.

Figure 8: Naples Underground, Line 1

The Napoli Centrale railway station is the main railway station in the south of Italy and also houses the bus terminal, the Circumvesuviana railway and Line 2 of the underground.

Naples has an extensive public transport network, which serves not only the entire urban area but also a large part of the metropolitan area.

The network is based mainly on a metro network with two urban and one inter-municipal line and four funicular railways. In addition to these there is Line 2 and the urban railway lines Circumvesuviana, Circumflegrea and Cumana.

As well as the rail network, there are four public lifts (Chiaia, Sanità, Acton, Ventaglieri), a tram network (connecting the port, the Central Station and the eastern suburbs), a Metrò del Mare (ships connecting the municipality with the main seaside resorts in the metropolitan area and the region) and an extensive bus network.

Figure 9: Underground and railways map

The port of Naples, located in the centre of the Mediterranean and active since classical times, performs commercial and connection functions. Management and coordination of activities are carried out by the port authority.

With over 7,000,000 passenger traffic and 1,400,000 cruise passengers, it is one of the most important ports in both Europe and the Mediterranean. In 2015, it ranked 12th among

the busiest European ports in terms of passenger traffic. In 2019, the port of call is confirmed as third in Italy (after Civitavecchia and Venice) for cruise traffic, which, in recent years has recorded a 230% increase in Naples for a total of 1,200,000 passengers.

The overall area covers over 200,000 m2 (20 km in length), and also extends its jurisdiction to the port of Castellammare di Stabia (with Marina di Stabia for pleasure boats), the Bagnoli area, the port of Mergellina and the bathing lidos in Posillipo, Marechiaro and Bagnoli/Coroglio.

The port area is used for multifunctional purposes (passenger, cabotage, shipbuilding, commercial activity in its components of freight traffic, oil, containers, cruise traffic, ship repair industry, commercial traffic and yachting) for a total of 14 docks (La Pietra, Molo Angioino, Molo Beverello, Molosiglio, Calata di Porta di Massa, Mergellina, Darsena Acton, Duca degli Abruzzi, Calata Marinella, Molo San Vincenzo, Darsena di Levante, Molo Vittorio Emanuele and Pietrarsa).

Congress activity is also considerable thanks to the five halls in the Maritime Station. Apart from the 110 people employed by the port authority, the port's related industries employ around 160 companies with a total of over 1,500 jobs.

The port is located in front of the city centre, and many places of historical and artistic interest are within walking distance: the Maschio Angioino castle, the Royal Palace, Piazza del Plebiscito with the Basilica, the Umberto I Gallery, the shopping streets such as Via Toledo, Via Chiaia, Via Morelli, Via Filangieri reaching as far as Piazza dei Martiri and Via Calabritto, the Town Hall (Palazzo San Giacomo), the business centre with most of the town’s offices and many city hotels, the University, etc. The Funicular railway stop in Piazzetta Augusteo is also very close by, allowing you to reach Vomero in a few minutes.

Within the port area there are thirty docks and quays, varying in length from 110 to 400 metres. The area also hosts the following facilities:

- Museum of emigration, created in 2005 and partly owned by the Region, awaiting reopening
- a Cruise terminal
- a Passenger and car terminal
- a Commercial area
- a Container terminal
- a Dry bulk terminal

- a Liquid bulk terminal

With regards to accessibility, the recent logistical reorganisation has made it possible to connect with the main motorway (A1 and A3) and railway (Circumvesuviana, Naples-Salerno, Line 2) hubs.

A metro link is currently under construction which, together with the pedestrianisation of the entire area, and the creation of subways for cars, will allow faster access than at present. There is also the Municipio station of the Naples metro in the area in front of Molo Beverello. The Porto exit of the Municipio station of line 1 will soon be completed.

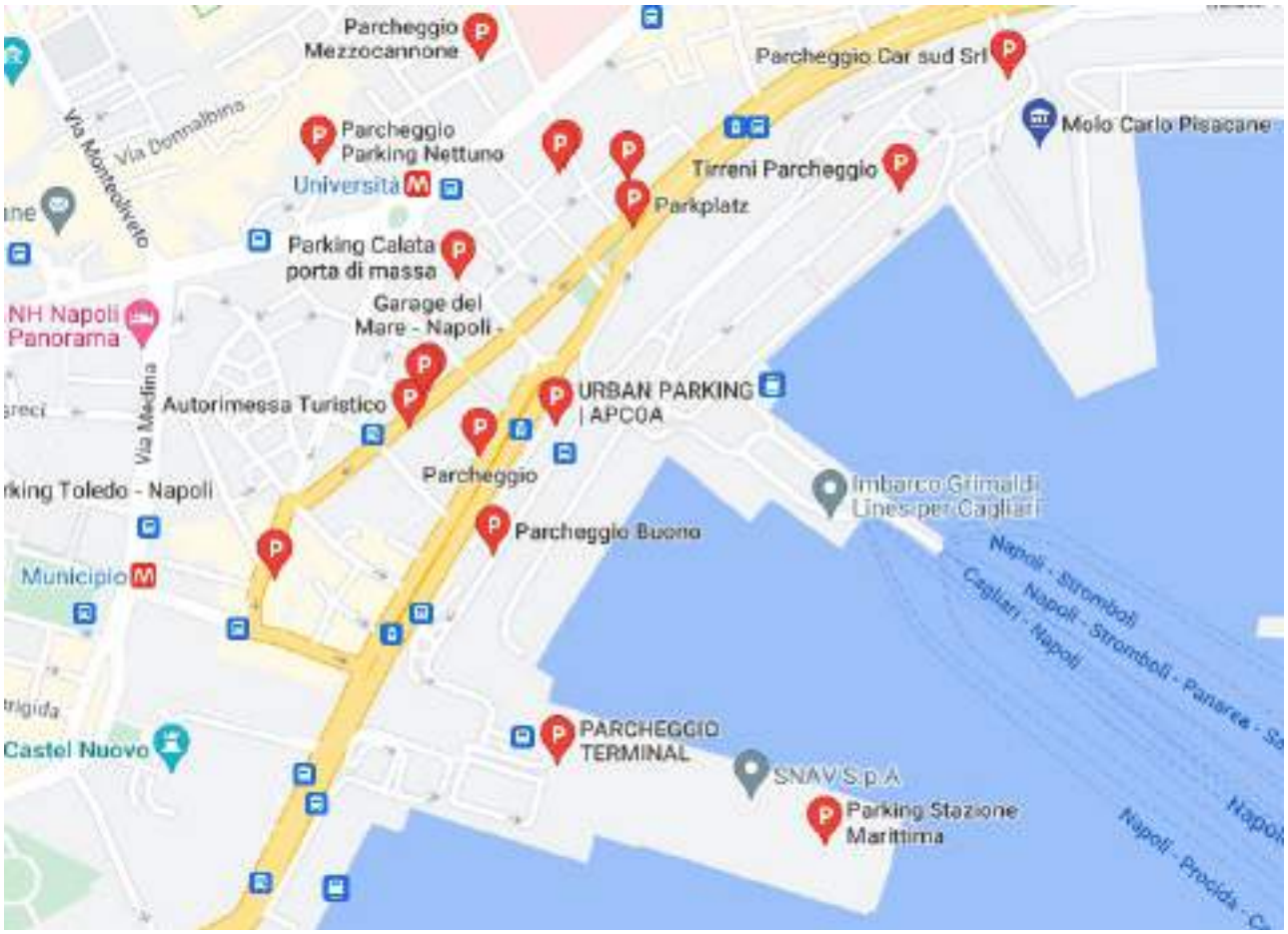

Figure 10: Accessibility and car parks in the port area

As far as parking spaces are concerned, numerous spots are available within the port area, particularly in the maritime station and terminal area, near the 'Immacolatella' building which is hereby offered to EMSA to establish the Regional Centre.

Figure 11: Detail of the blueprint of the port area

5. Features of the building

The Port Network Authority has launched an investment programme aimed at upgrading the Naples port area, especially certain buildings including the Immacolatella building and the Magazzini Generali. In accordance with the operational scale of the Regional Centre and the evolutionary forecast up to the full operating date, the Regional Centre will be housed in the Immacolatella building, which was recently renovated and offers sufficient areas and infrastructural facilities with respect to the employment forecasts illustrated below in this report. Nonetheless, the availability of space in the Naples port area is considerable, and additional areas, even larger ones, could possibly be identified, such as the palazzo of the Magazzini Generali, which will soon be the object of a similar recovery and renovation project.

The Immacolatella Palace (officially named as the *Deputazione della Salute*) is one of the buildings of historical and artistic interest in Naples; it is located in the port area.

Figure 12: Magazzini Generali building

Figure 13: Immacolatella building

The monumental structure is located between the Piliero quay and the Porta di Massa quay. The building was commissioned by Charles of Bourbon in the 1840s, when the waterfront between the large pier and the Carmine Castle was redeveloped to house the headquarters of the 'Deputazione della Salute'. Originally located in front of the small port (the *mandracchio*) on a pier and connected by two bridges that enclosed the small basin, after the Unification of Italy (1861) an extension was added in front of the entrance and due to the expansion of the port area, it found itself incorporated in the new reclaimed area of the Porta di Massa quay.

The architect entrusted with the project was Domenico Antonio Vaccaro, who created a Baroque octagonal plan.

The building is characterised by the statue of the Virgin Mary, which stands at the top of the building and gives it its name. Traditionally attributed to Vaccaro himself, the statue is instead the work of the sculptor Francesco Pagano, who also sculpted some of the symbolism on the summit. For a brief period in the 19th century, it was flanked by the Fountain of the Giant, also known as the Fountain of the *Immaculatella* precisely because of its location.

The building has now been completely renovated. From a layout point of view, the building consists of a central body, the oldest part of the building conceived by Vaccaro, plus a front annex building facing the mainland, built after the filling of the *Mandracchio* reservoir, and a rear one facing the sea. The two annexes resulted in the creation of two courtyards, with the front one being longer and the rear one smaller.

The building consists of three elevated levels, although the existence of an ancient underground level below the historical body of the Vaccaro building can be presumed, at what used to be the water level in the port basin which was later filled in.

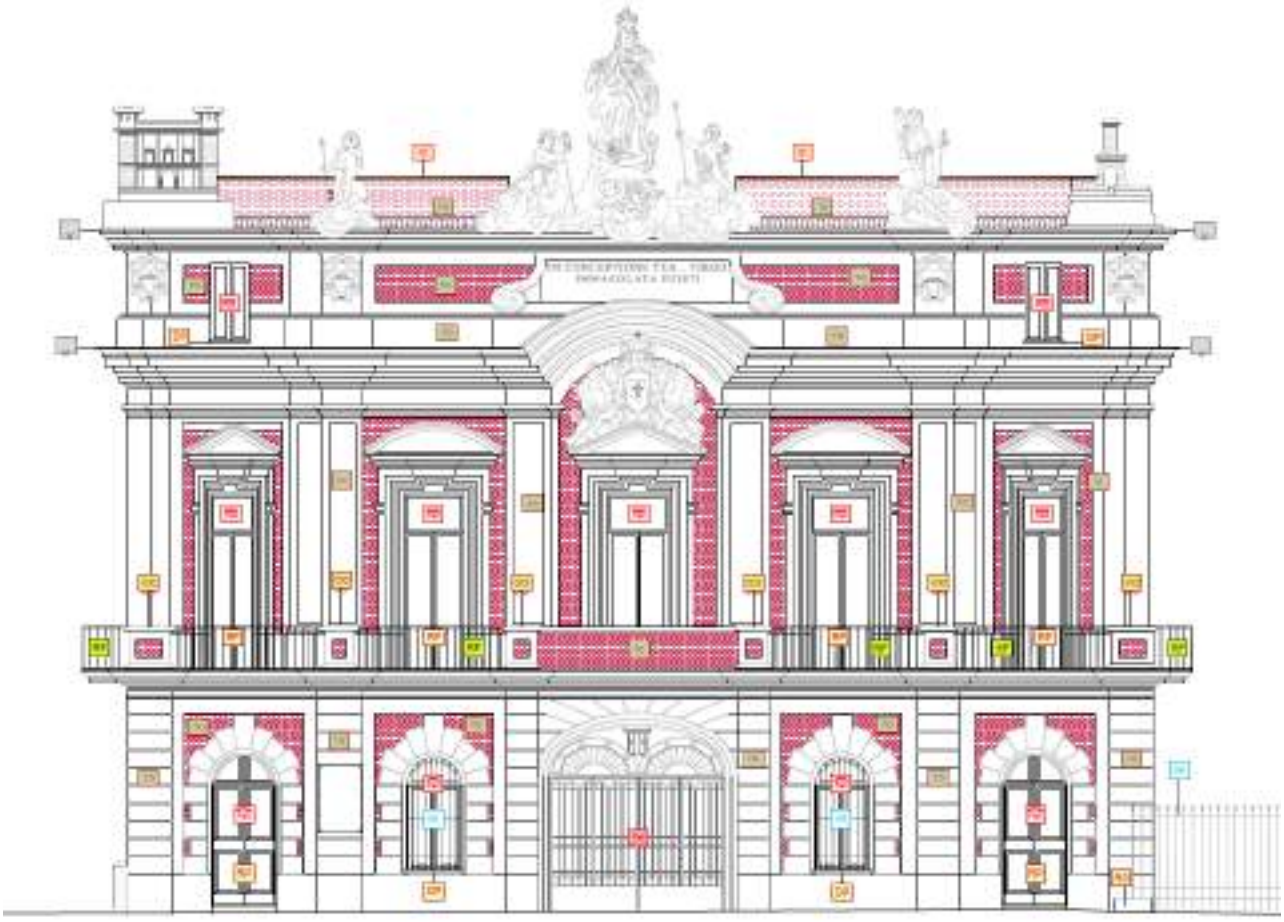

Figure 14: Immacolatella building, front view

Figure 15: Immacolatella building, side view

The three levels - ground floor, first floor, second floor, and roof - present a different planimetric development, as a result of the stratifications that the building structure has undergone. Vertical connections are provided by two *piperno* stairwells covered with stone slabs that connect the ground floor to the second floor. A third staircase (second courtyard) leads from the ground floor to the first floor and the second floor. From here, a final iron staircase on the outside terrace connects the second floor with the roof. The building

features several decorative elements, including the figure of the victorious Virgin crushing the serpent, raised by a blanket of clouds and surrounded by angels and cupids.

In terms of **available space**, the building occupies a total area of 3,230 square metres, spread over three floors. The usable indoor areas, for offices, laboratories and services, total 1,364 square metres, plus 2,325 square metres of outdoor spaces such as courtyard terraces and hallways. The following table shows the list and breakdown of the areas.

Breakdown of the floor area of the Immacolatella building	
Areas	Surface (sq. m.)
Ground floor (including internal courtyard and hall)	1,180.00
First floor (excluding the terrace)	760.00
Second floor (including the Vesuvio terrace)	760.00
Roof (including an area of photovoltaic panels)	530.00
TOTAL	**3,230.00**

Table 2: Total surface of the Immacolatella building

The floorplans of the building's three floors are illustrated below:

Figure 16: Immacolatella building floorplan, ground floor

Figure 17: Immacolatella building floorplan, first floor

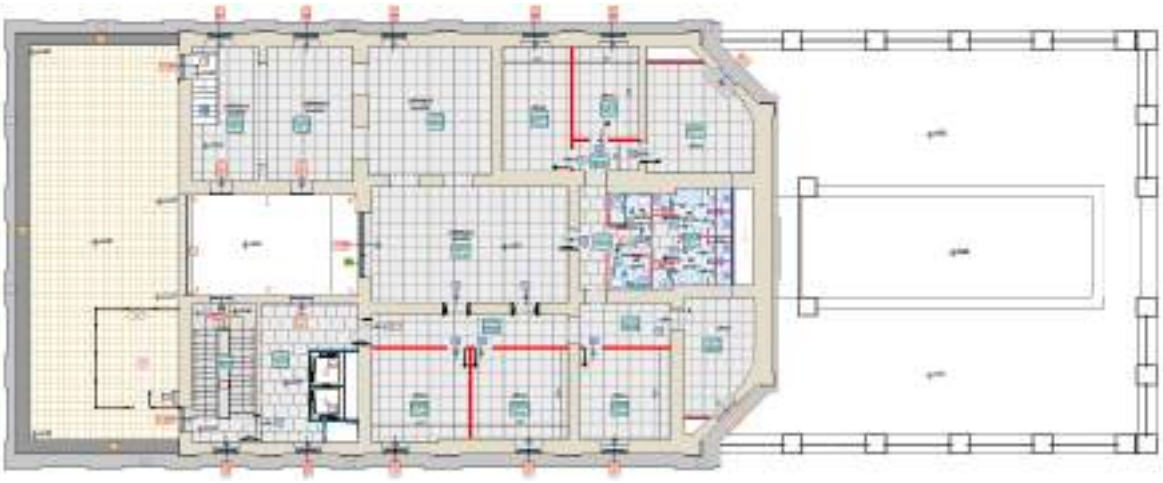

Figure 18: Immacolatella building floorplan, second floor

5.1 Overview of systems and installations

The recent "Conservative Restoration" project involved the adoption of techniques and technologies aimed at preserving the authenticity of the monument and preserving the morphological-constructive characteristics of the building, preserving as much as possible the historical material and safeguarding the original structural features of the building, while guaranteeing its safety. The building's equipment and systems have been designed with modern and efficient criteria including for future maintenance and possible expansion work.

The building is therefore ready to host a centre like EMSA needing appropriate technological equipment, as it offers optimised spaces compared to the previous situation and is currently endowed with the following new system **installations**:

- Normal, emergency and safety lighting electrical system
- F.M. electrical system
- General earthing system with relative equipotential and atmospheric discharge connections
- Integrated telephone-data transmission system (structured wiring)
- Electrical power supply system for air-conditioning systems
- Photovoltaic panels
- Fire and smoke detection system
- anti-intrusion system
- CCTV system
- EVAC sound system
- Electrical installation supervision system
- Special installations supervision system
- Summer/winter air-conditioning system
- Water/sanitary system
- Fire alarm system
- Sub-counter electrical panel arrival b.t. line
- Zone distribution electrical panels.

Figure 19: Systems

With regards to the interior fittings of the building, the main elements were as follows:

- False ceilings and drywall partitions
- External window frames
- Roof insulation and waterproofing
- Hardwood REI doors
- External copper drainpipes
- Floating flooring in all interior rooms.






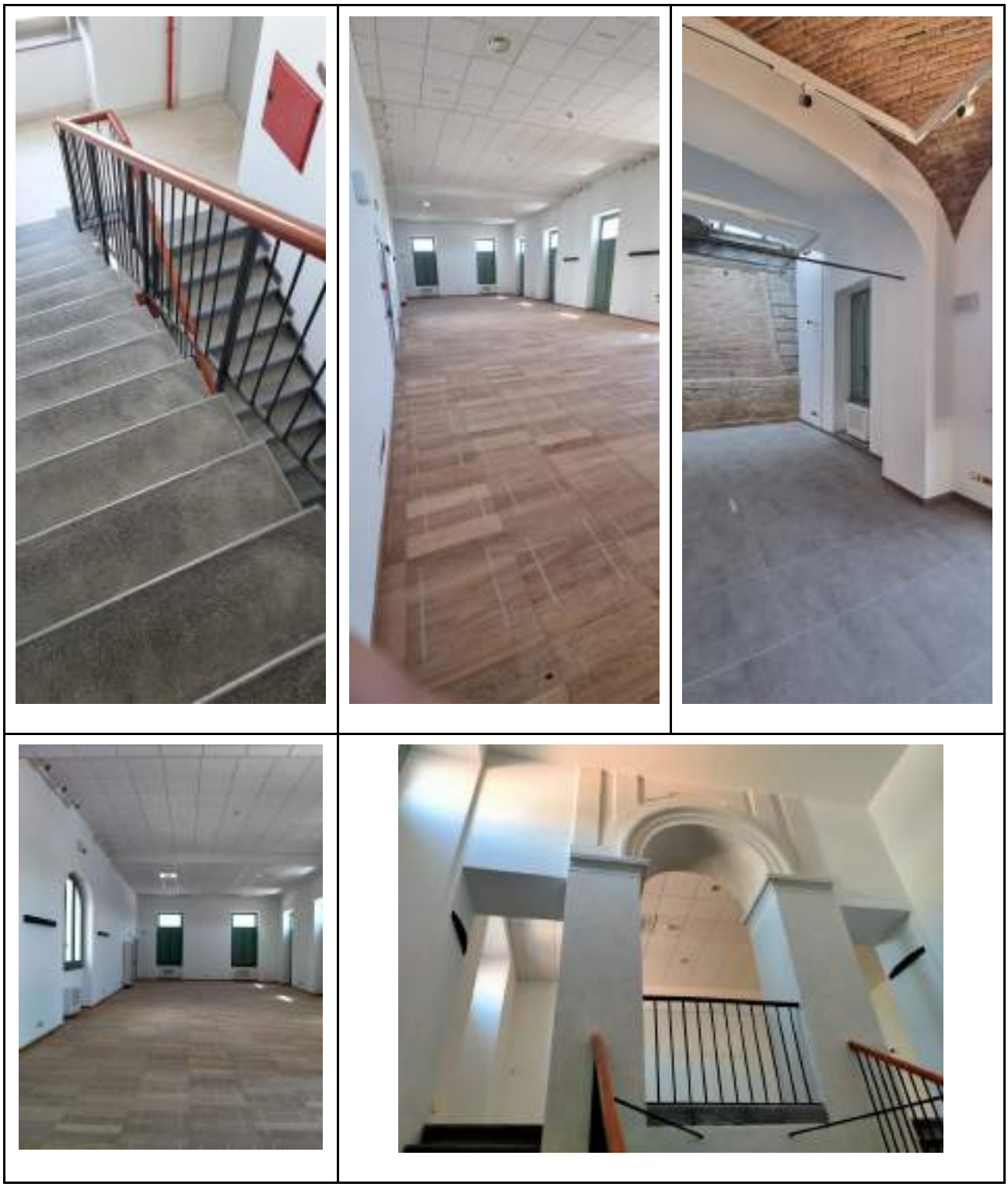

Figure 20: Interior areas

On the roof terrace of the third floor, an area with a photovoltaic sheathing system with high integration with the historical building has been created, allowing the production of more than 1KWp of **electricity** ('General SOLAR PV' system).






Figure 21: Outer areas

As far as **architectural barriers** are concerned, the Immacolatella building has been completely renovated, not simply in compliance with current sector regulations, but going further, so as to upgrade the spaces and make them 'universally accessible'.

All measures have been taken to resolve the physical obstacles present between the various parts of the monument, including the use of removable devices, so as not to permanently alter the building's original historical layout (ramps, elevators, etc.). Toilets, lifts and accessibility in general were upgraded, and the corresponding alarm systems were introduced.

6. Draft Governance plan of the regional centre

The regional centre will be dedicated to carrying out tasks related to the **monitoring of navigation and maritime traffic**.

Therefore, an organisational structure can be hypothesised as follows:

- **a Director of the regional office,** reporting directly to the Executive Director of EMSA;
- a Department that monitors navigation and maritime traffic;
- a General Management Department at the regional headquarters, dealing with matters relating to Human Resources; Legal and Facilities;
- a Department that deals with Technological and Scientific Innovation, acting as an interface to the research and innovation system at Italian and European level.

7. Draft Budget

Based on the analyses carried out on staffing, infrastructure, external services and building and facility operations, a draft budget is defined for the initial investment and operating costs covering a full year. Having a second EMSA operating site results in a considerable reduction in certain costs, while maintaining operational advantages in terms of logistics and proximity to potential points of interest. The budget is presented in the form of a table.

7.1 Methodology

The main methodological notes for budget planning are:

- Analogy with EMSA HQ budget and procurement
- Size of the Regional Centre
- Main proposed activities for the Regional Centre.

The hereby enclosed budget assumption is based on the budgets available on the EMSA website both for the structure of the categories of expenditure and for the value projections and their averages.

Previous EMSA budgets have been taken as a reference, and in particular the values of 'commitments' and not 'payments' have been used, i.e. taking into account the expenditure on goods and services acquired in the year in question and not the payments made in that period. It should be noted, however, that the deviations between these two items are not significant on average.

To further support the estimates, we used a sample of EMSA procurement contracts for the purchase of IT equipment, servers, software, hardware and ancillary expenses made between 2006, the year of establishment in Lisbon, and 2008.

Information on budgets and tenders was collected from the "Financial documents" section [RD 3] of EMSA's official website.

Another initial assumption is that the range of each expenditure section can be estimated by assuming that the EMSA regional centre is approximately one third the size of the main Lisbon office.

It can therefore be assumed that, with the total staff of the EMSA Lisbon office amounting to about 270 people, the EMSA Naples Centre could count between 50 and 100 staff, as indicated in the previous paragraphs.

Finally, the Regional Centre will be able to interact with the Lisbon Headquarters to access information generated by the **navigation and maritime traffic control** services, as well as **anti-pollution monitoring activities**. This is in line with the strategic approaches and budgets of the last few years, whose main operational costs include:

- Operational costs:
  - Information services and databases
  - Cooperation on Coast Guard Functions
- Measures for the prevention of pollution:
  - Pollution Response Services
  - CLEANSEANET
- Project-financed actions:
  - Assistance to Candidate and ENP countries
  - Surveillance Service Level Agreements
  - Copernicus.

The cost items listed above are estimated to be almost nil in the budget of the Regional Office, as it is reasonably assumed that, net of expenses necessary for interlinking and porting of services and databases, these operational domains will not generate a higher net expenditure than the agency's budget, but on the contrary they will benefit from efficiencies generated by a better geographical location.

7.2 Envisaged investment

As described in the section, the building proposed as the location for the EMSA regional centre is already fitted with the necessary equipment and therefore does not require any further investment.

However, additional initial investments will have to be made: priority will be given to the MSS operations room, on a similar layout to the Lisbon site, which will be interconnected with:

- EU vessel traffic monitoring and information SafeSeaNet;

- global vessel tracking through Long Range Identification and Tracking (LRIT) performed for the International Maritime Organisation (IMO);
- CleanSeaNet oil spill detection and surveillance and vessel detection.

For these services to work efficiently, the operations room should have the following features:

- 6 workstations fitted with accessories and software
- 1 video wall made up of six monitors, a dedicated workstation and software
- 20 PC workstations, each consisting of a desk, a seat, a monitor, peripherals, internet connection via LAN, software licences (operating systems and specific software suites);
- 50 PC workstations for the other staff members, fitted with the necessary furniture and software
- Broadband internet/intranet hub for connection with other services
- Additional servers

Hardware purchase costs are one-off, as is the case for software, for which one-off licence purchases are considered rather than annual renewals.

Expenditure entries for investment in IT and Furniture	Quantity 2023	Cost per unit	Total cost 2023
Sub-total for the Operations Room			
Workstation with accessories and peripherals	6	€2,500	€15,000
Lifetime Software licenses (OS, basic software)	6	€800	€4,800
Other lifetime software licenses	6	€3,000	€18,000
Video wall (6 monitors + dedicated workstation)	1	€10,000	€10,000
Furniture (desks, chairs, other items)	6	€1,000	€ 6,000
Sub-total for the IT Room			
IT Equipment (Computers, Monitors, peripherals)	20	€1,500	€30,000
Generic lifetime software licenses (OS, basic software)	20	€800	€16,000
Other lifetime software licenses	20	€2,000	€40,000
Furniture (desks, chairs, other items)	20	€1,000	€20,000
Workstations			
IT Equipment (Computers, Monitors, peripherals)	50	€1,200	€60,000
Software (OS and other lifetime licenses)	50	€800	€40,000
Furniture (desks, chairs, other items)	50	€1,000	€50,000
Other equipment			
Other servers and IT infrastructure	1	€50,000	€50,000
Broadband Internet/Intranet hub	1	€50,000	€50,000
Other furniture (Cupboards etc.)	1	€ -	€ -
IT Sub-total			*€333,800*
Furniture Sub-total			*€ 76,000*
Total			**€409,800**

Table 3: investment budget for IT – Operations Room

7.3 Draft operational budget

Following the description of the IT budget, an overall budget will be presented below which will take into account the following criteria:

- For all categories of expenditure (in green), figures have been calculated as an average of the last 5 years (2017-2021). These have been re-computed by applying different coefficients determined on the assumptions listed in fig. 23 below which can be described as follows:
  A. Building size coefficient: the Naples Regional Centre will be smaller than the Lisbon Headquarters
  B. Staff size coefficient, as a ratio of D to C, namely
  C. Reference number Lisbon staff (270)
  D. Number of staff in Naples, forecast to increase over time as reported in figure 7
  E. Average gross cost per staff member (Gross Annual Salary), amounting to €70,000

- As for the category of expenditure named 'BUILDINGS, EQUIPMENT AND MISCELLANEOUS OPERATING EXPENDITURE':
  - The entry **rentals of buildings** is nil as the facility will be granted free of charge by the local state and port authorities
  - The **entries IT Purchases and Movable property and associated costs** for the first operational year (2023) comprise, in addition to the value recalculated on the EMSA average, the forecast purchases for the MSS Operations Room - as outlined in the previous section – and all IT equipment, software and furniture for future staff members.

Expenditures are described in more detail in par. 7.4 below, where the methodology for estimating each of these is also explained.

Initial recruitment		**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
(A) Building size coefficient	Proportion of EMSA	0.3	0.3	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
(B) Staff size coefficient	(B)=(D)/(C)	0.04	0.07	0.11	0.15	0.19	0.2	0.22	0.24	0.26	0.28
(C) Reference number of Lisbon staff	FIXED	270									
(D) Number of staff in Naples	Increasing over time	10	20	30	40	50	55	60	65	70	75
(E) Average gross cost per staff member	Gross Annual Salary	€70,000	€70,000	€70,000	€70,000	€70,000	€70,000	€70,000	€70,000	€70,000	€70,000

Table 4 – Initial recruitment assumptions for EMSA Naples budget drafting

Categories of expenditure	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
EC AND CAMPANIA REGION FUNDS	**2,466,827.91 €**	**3,264,602.36 €**	**4,291,598.13 €**	**5,491,568.09 €**	**6,691,538.04 €**	**7,254,030.53 €**	**7,854,015.51 €**	**8,454,000.48 €**	**9,053,985.46 €**	**9,653,970.44 €**
OPERATIONAL INCOME	**675,819.18 €**	**1,182,683.57 €**	**1,858,502.75 €**	**2,534,321.93 €**	**3,210,141.12 €**	**3,379,095.91 €**	**3,717,005.50 €**	**4,054,915.09 €**	**4,392,824.68 €**	**4,730,734.28 €**
STAFF	**1,174,544.07 €**	**2,335,452.13 €**	**3,299,996.20 €**	**4,404,540.28 €**	**5,509,084.35 €**	**6,047,720.37 €**	**6,599,992.41 €**	**7,152,264.44 €**	**7,704,536.48 €**	**8,256,808.52 €**
STAFF IN ACTIVE EMPLOYMENT	700,000.00 €	1,400,000.00 €	2,100,000.00 €	2,800,000.00 €	3,500,000.00 €	3,850,000.00 €	4,200,000.00 €	4,550,000.00 €	4,900,000.00 €	5,250,000.00 €
MISCELLANEOUS EXPENDITURE ON STAFF RECRUITMENT AND TRANSFER	14,482.70 €	25,344.72 €	39,827.41 €	54,310.11 €	68,792.81 €	72,413.48 €	79,654.83 €	86,896.18 €	94,137.52 €	101,378.87 €
MISSIONS AND DUTY TRAVEL	3,429.38 €	6,001.41 €	9,430.79 €	12,860.17 €	16,289.55 €	17,146.89 €	18,861.58 €	20,576.27 €	22,290.96 €	24,005.65 €
SOCIOMEDICAL STRUCTURE	1,176.00 €	2,058.00 €	3,234.00 €	4,410.00 €	5,586.00 €	5,880.00 €	6,468.00 €	7,056.00 €	7,644.00 €	8,232.00 €
TRAINING	9,760.00 €	17,080.00 €	26,840.00 €	36,600.00 €	46,360.00 €	48,800.00 €	53,680.00 €	58,560.00 €	63,440.00 €	68,320.00 €
SOCIAL MEASURES	444,640.00 €	883,120.00 €	1,117,760.00 €	1,492,400.00 €	1,867,040.00 €	2,048,200.00 €	2,235,520.00 €	2,422,840.00 €	2,610,160.00 €	2,797,480.00 €
ENTERTAINMENT AND REPRESENTATION	1,056.00 €	1,848.00 €	2,904.00 €	3,960.00 €	5,016.00 €	5,280.00 €	5,808.00 €	6,336.00 €	6,864.00 €	7,392.00 €
BUILDINGS, EQUIPMENT AND MISCELLANEOUS OPERATING EXPENDITURE	**643,315 €**	**253,769 €**	**315,192 €**	**342,197 €**	**369,202 €**	**375,953 €**	**389,456 €**	**402,958 €**	**416,461 €**	**429,963 €**
RENTAL OF BUILDINGS	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**
BUILDINGS ASSOCIATED COSTS	103,777.13 €	103,777.13 €	121,073.32 €	121,073.32 €	121,073.32 €	121,073.32 €	121,073.32 €	121,073.32 €	121,073.32 €	121,073.32 €
INFORMATION TECHNOLOGY PURCHASES	358,128.98 €	42,575.71 €	66,904.69 €	91,233.67 €	115,562.65 €	121,644.89 €	133,809.38 €	145,973.87 €	158,138.36 €	170,302.85 €
MOVABLE PROPERTY AND ASSOCIATED COSTS	78,676.00 €	4,683.00 €	7,359.00 €	10,035.00 €	12,711.00 €	13,380.00 €	14,718.00 €	16,056.00 €	17,394.00 €	18,732.00 €
CURRENT ADMINISTRATIVE EXPENDITURE	33,940.02 €	33,940.02 €	39,596.69 €	39,596.69 €	39,596.69 €	39,596.69 €	39,596.69 €	39,596.69 €	39,596.69 €	39,596.69 €
POSTAGE AND TELECOMMUNICATIONS	33,032.96 €	33,032.96 €	38,538.45 €	38,538.45 €	38,538.45 €	38,538.45 €	38,538.45 €	38,538.45 €	38,538.45 €	38,538.45 €
EXPENDITURE ON MEETINGS	35,760.00 €	35,760.00 €	41,720.00 €	41,720.00 €	41,720.00 €	41,720.00 €	41,720.00 €	41,720.00 €	41,720.00 €	41,720.00 €
OPERATIONAL EXPENDITURE	**598,968.74 €**	**650,284.42 €**	**647,129.96 €**	**715,550.86 €**	**783,971.76 €**	**801,076.98 €**	**835,287.43 €**	**869,497.88 €**	**903,708.33 €**	**937,918.79 €**
DEVELOPMENT OF DATABASES	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €	80,000.00 €
INFORMATION AND PUBLISHING	50,547.84 €	50,547.84 €	58,972.48 €	58,972.48 €	58,972.48 €	58,972.48 €	58,972.48 €	58,972.48 €	58,972.48 €	58,972.48 €
STUDIES	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €
MISSION EXPENSES LINKED TO MARITIME AFFAIRS	104,368.00 €	122,644.00 €	147,012.00 €	171,380.00 €	195,748.00 €	201,840.00 €	214,024.00 €	226,208.00 €	238,392.00 €	250,576.00 €
TRAINING LINKED TO MARITIME AFFAIRS	124,052.90 €	157,092.58 €	121,145.48 €	165,198.38 €	209,251.28 €	220,264.50 €	242,290.95 €	264,317.40 €	286,343.85 €	308,370.31 €
L.R.I.T.	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €	120,000.00 €
COOPERATION ON COAST GUARD FUNCTIONS	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
ANTI POLLUTION MEASURES	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**	**- €**
POLLUTION RESPONSE SERVICES	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
CLEANSEANET	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
COOPERATION AND COORDINATION AND INFORMATION	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
PROJECT FINANCED ACTIONS	**50,000.00 €**	**25,096.99 €**	**29,279.82 €**	**29,279.82 €**	**29,279.82 €**	**29,279.82 €**	**29,279.82 €**	**29,279.82 €**	**29,279.82 €**	**29,279.82 €**
MARITIME INFORMATION SERVICES	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
ASSISTANCE TO CANDIDATE AND ENP COUNTRIES	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
SURVEILLANCE SERVICE LEVEL AGREEMENTS	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
CLEANSEANET SERVICES TO THIRD PARTIES	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
COPERNICUS	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
EQUASIS	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
THETIS MODULES	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
MISCELLANEOUS	50,000.00 €	25,096.99 €	29,279.82 €	29,279.82 €	29,279.82 €	29,279.82 €	29,279.82 €	29,279.82 €	29,279.82 €	29,279.82 €

Table 5: Overall Budget of the EMSA regional centre in Naples

7.4 Description of budget categories and entries

Assets are represented by:

- **EC and Campania Region funds.** This indicates the assets made available by authorities, with €1 million from the Campania Region, to cover the liabilities
- **Operational Income** indicates the revenue generated by the provision of services. This is estimated in the table above as a proportion of the staff numbers in Naples compared to the number of employees in Lisbon (B in assumptions above).

Liabilities are organised in the following macro-categories and entries:

STAFF

- **Staff in active employment**. This is the most significant entry of the category calculated by adding up the gross income of the agency's staff, estimated on average at €70,000 per unit, increasing over time as outlined in figure 7 and table 4.
- **Miscellaneous expenditure on staff recruitment and transfer**: includes expenditure on staff recruitment, selection and transfer (item proportional to parameter (B))
- **Missions and duty travel**: this includes staff mission and duty travel expenses (item proportional to parameter (B))
- **Sociomedical structure**, medical expenses and related services (proportional to parameter (B))
- **Training**, internal training and education expenses (proportional to parameter (B))
- **Social measures**, social charges including measures such as, for example, expenses for language and school integration of employees' children (proportional to parameter (B), increased in proportion to expenses for "Staff in active employment")
- **Entertainment and representation**, expenses for entertainment and small representation activities.

BUILDING, EQUIPMENT, AND MISCELLANEOUS OPERATING EXPENDITURE

- **Rental of Buildings are zero**, as explained in Chapter 6 and section 6.3;
- **Buildings associated costs**, expenses related to the management and ordinary maintenance of the buildings, utilities and cleaning and surveillance services; this item is estimated taking into account parameter (A), with a considerable adjustment with respect to the average of the EMSA 2017-2021 budgets due to the fact that the corresponding

budget item incorporates the "rental of Buildings" expenses, which, as mentioned in the case of Naples, would be zero;

- **Information Technology Purchases**, i.e. purchases of computers, software (including development), and other expenses related to IT infrastructure (e.g. servers). These are calculated on the basis of staff sizing as they depend on the number of workstations and employees, and adjusted for the first year only with the initial investment in IT equipment described in paragraph 6.2;
- **Movable property and associated costs**, all movable property such as furniture, books, vehicles. As with the previous item, the estimate is made in proportion to the staff, increased for the first year by the initial investment described in paragraph 6.2;
- **Current administrative expenditure**, which includes banking, legal, accounting and administrative expenses and charges in general; this and the following sub-items, as general costs, are estimated with respect to the size of the structure (parameter (A)).
- **Postage and telecommunications**, for expenditure on telephone charges, postage and shipping.
- **Expenditure on meetings**, including expenditure on events and conferences

OPERATIONAL EXPENDITURE

- **Development of databases**, expenses for the construction and expansion of maritime databases, including expenses for the acquisition of databases from third parties. This item is valued at a flat rate of €80k for the porting of the same database development activities from the Lisbon office,
- **Information and publishing**, expenses for the publication of information material; this item is estimated as proportional to the scaling coefficient (parameter (A)).
- **Studies**, expenses for thematic studies in support of the Agency's Operations, including the acquisition of external studies. This item is valued at a flat rate of €120k as consultancy and data acquisition costs for studies.
- **Mission expenses linked to maritime affairs**, linked to operational activities of the Agency. This item is estimated in proportion to Staff size (Parameter (B)).
- **Training linked to maritime affairs**, expenditure on training activities such as seminars and workshops linked to the services provided. This item is also estimated in proportion to the size of Staff (Parameter (B)), though applying a surcharge (equal to €80k) for the first two years justified by the increased training needs for new staff to become operational.

- **L.R.I.T.** which naturally includes the expenditure for the provision of the vessel tracking service described in paragraph 1.3. The expenditure described is estimated only in terms of the expenses for interfacing (porting) with the service provided by the Lisbon office.
- **Cooperation on Coast Guard functions**, which includes the budget for the Agency's activities and functions to support national authorities responsible for coast guard functions in terms of safety, security, environmental protection, law enforcement and maritime border and fisheries control. The cost is zero as it is entirely attributable to costs already incurred by the Lisbon office.

ANTI-POLLUTION MEASURES

All the following expenditures are nil because no other needs arise additionally to those of the Lisbon Headquarters.

- **Pollution response services**, the set of services offered by EMSA for pollution response, including in particular Oil Spill, Chemical spill. These services include the deployment of ships, drones and other equipment to support interventions, as well as monitoring and training activities.
- **CleanSeaNet**, also linked to pollution response services, is a service offered to Member States for satellite-based detection of pollution events such as oil spills and other accidental pollution events;
- **Cooperation and Coordination and Information**, which includes support to pollution response services.

PROJECT FINANCED ACTIONS

All the following expenditures are nil because no other needs arise additionally to those of the Lisbon Headquarters.

The only exception is the last item **"Miscellaneous"** in which a lump-sum expense of €50k is added for the first year for porting of the corresponding services in Lisbon. For subsequent years, this item is estimated in proportion to the scaling coefficient (parameter (A)) to take account of maintenance and updating costs.

- **Maritime Information Services**, including the Single Window Environment Project and CISE.
- **Assistance to Candidate and ENP Countries**, including EC funds for EMSA actions in support of candidate and potential candidate countries.

- **Surveillance Service Level Agreements**, mainly concerning FRONTEX operational expenditure.
- **Clean SeaNet services to third parties**, concerning funding for operations dedicated to anti-pollution initiatives (Greenland).
- **COPERNICUS**, for the Copernicus Maritime Surveillance service, which provides Earth Observation products to support the safety and security of marine activities.
- **EQUASIS**, for the safety and security focused service, which provides information on the safety and quality of the shipping fleet through a free tool, based on a database that aims to cover the entire global merchant fleet.
- **THETIS modules**, design of Data Collection System to support the MRV regulation in the fight against climate change.
- **Miscellaneous**, other miscellaneous and remaining expenses within project financing actions