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Table of Contents

| | |
|---|-----------|
| 1. Introduction | 5 |
| 1.1. Purpose of this document | 5 |
| 2. The region in a nutshell | 7 |
| 2.1. Italy - socio-economic description | 11 |
| 2.1.1. Regional transport and mobility overview and main features | 14 |
| 2.1.2. Road transport | 15 |
| 2.1.3. Maritime transport | 17 |
| 2.1.4. Railroad transport | 18 |
| 2.1.5. Air transport | 20 |
| 2.1.6. Overall governance and transport planning references | 20 |
| 2.2. Croatia – socio-economic description | 21 |
| 2.2.1. Regional transport and mobility overview and main features | 25 |
| 2.2.2. Land transport | 26 |
| 2.2.3. Maritime transport | 27 |
| 2.2.4. Railroad transport | 29 |
| 2.2.5. Air transport | 31 |
| 2.2.6. Overall governance and transport planning references | 31 |
| 3. Analysis of the regional small ports' phenomenon (resulting from the analysis of questionnaire gathered data) | 32 |
| 3.1. Italy | 34 |
| 3.1.1. Overall description of available infrastructures (position, visualisation, berth details and capacities, hinterland connections) | 37 |
| 3.1.2. Overall description of available services for users (technical services, nautical services, waste collection, touristic services) | 43 |
| 3.2. Croatia | 47 |
| 3.2.1. Overall description of available infrastructures (position, visualisation, berth details and capacities, hinterland connections) | 50 |

3.2.2. Overall description of available services for users (technical services, nautical services, waste collection, touristic services).....52

4. SWOT analysis on small port's phenomenon 61

5. Conclusion..... 63

6. Sources..... 64

List of figures 65

List of tables:..... 65

1. Introduction

The FRAMESPORT project aims to create a coordinated initiative to support the long-term development of small ports in the Adriatic basin from a strategic standpoint. As a result, the goal is to transform small ports into proactive drivers of this coastal area's socio-economic development and sustainability.

FRAMESPORT will build on existing knowledge and capitalize on the outcomes of pilot initiatives by incorporating them into a new strategic framework to improve the performance of small-scale maritime nodes along the Adriatic coasts.

This strategic goal necessitates a multifaceted and interdisciplinary approach that includes implementing concrete pilot projects and identifying priority themes to be promoted as part of the overall strategy. These actions will be implemented from the ground up, with local and national stakeholders involved from the very beginning of the project. Furthermore, the project partners have been chosen to ensure broad geographic coverage. Its mission is to address issues such as planning and management, business model implementation, training and competency enhancement, and the development of Information and Communication Technologies (ICT) tools and services. The project also intends to develop an ICT platform that collects and organizes critical data on small ports and use this information to drive their sustainable development. The portal will connect the Italian and Croatian sides of the Adriatic basin. This allows for creating a more consistent and cohesive network of small ports, businesses, and institutions and promoting their long-term performance, infrastructure, and policies to promote their development and growth.

1.1. Purpose of this document

Based on data collected through the questionnaire provided under WP3, this document aims to depict an overall picture of the current state of the small ports and harbours in the Programme Area by presenting relevant information on existing facilities and single port characteristics and services. Thanks to the data collected from the questionnaires, the key is to deliver baseline information on existing facilities and individual port characteristics and services.

Regional reports are the result of interviews and meetings partners conducted with stakeholders at the local level (D.4.1.2. Regional report on small ports phenomenon): Reports regard the regions of Friuli Venezia Giulia, Veneto, Marche, Emilia Romagna, Abruzzo, Molise, and Puglia from Italian side and counties of Istria, Primorje Gorski Kotar, Lika-Senj, Zadar, Sibenik-Knin County, Split-Dalmatia,

and Dubrovnik-Neretva counties on the Croatian one of the Adriatic, spatial data and normative references were also collected during desk analysis.

The report opens with a description of the programme area and the two countries' connections and relationships. The current traffic and mobility situation for land, air, sea, and rail transport of each country is described in Chapter 2. The subchapters discuss the connection between the two countries, particularly in the marine area. Chapter 3 describes the current situation regarding general governance and transportation planning.

2. The region in a nutshell

The Adriatic Sea is a body of water that connects the Italian Peninsula to the Balkans peninsula. The Adriatic is the Mediterranean Sea's northernmost arm, stretching from the Strait of Otranto (where it relates to the Ionian Sea) to the northwest and the Po Valley. Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro, and Slovenia have Adriatic coasts.

The Adriatic Sea and the 5.835,3 km long sea border between Croatia and Italy connect two countries on the Adriatic coast participants in the Interreg Italy Croatia CBC Programme. Two countries, and Adriatic countries in general, collaborate on various initiatives and programs promoting transregional and transnational cooperation to resolve issues of regional and national importance and bring countries closer together.

Figure 1: Italy-Croatia Interreg Programme Area



<https://www.italy-croatia.eu/documents/20126/0/map.png/6bbf3ed0-d036-ba3b-9901-15c5b1c23004?t=1547468257397&imagePreview=1> (accessed 30/11/2021)

Interreg Italy - Croatia Programme aims to promote sustainable regional and local mobility, developing and improving environmentally-friendly (including low-noise) and low-carbon transportation systems, such as inland waterways and maritime transport, ports, multimodal links, and airport infrastructure.

Connectivity between the two sides of the sea was insufficient. As a result, it couldn't contribute to greater cooperation in economic activities, labour mobility, and educational opportunities in the Programme area. Consequently, better data sharing and coordination are necessary to improve the area's accessibility.

The Programme assisted in strengthening the ICT application to make open and more accessible provision of transportation information and implement all intermodal opportunities for passenger mobility while investing in ICT management for all freight transport activities.

The Programme also addressed the pressing need to reduce the environmental impact of transportation by increasing multimodality and shifting to the most environmentally friendly transport modes.

The Adriatic Sea is home to over 1.300 islands, most of which are located along Croatia's eastern coast. With a maximum depth of 1.233 meters, it is divided into three basins, the northern being the shallowest and the southern being the deepest. The Otranto Sill, an underwater ridge that separates the Adriatic and Ionian Seas, is located on the Adriatic-Ionian sea's border. The prevailing currents flow counterclockwise from the Strait of Otranto along the eastern coast to the strait along the western (Italian) coast, then back to the strait.

Figure 2: The Adriatic Sea and countries on its shores



<https://www.worldatlas.com/seas/adriatic-sea.html> (30/11/2021)

Today, more than 3,5 million people live on the Adriatic coasts, with Bari, Trieste, Venice and Split being the most populated coastal cities. The area has been of exceptional history and significance from the earliest recorded information history. Etruscan, Illyrian, and Greek settlements were the first on the Adriatic coast. The coasts were under Rome's control by the 2nd century BC. The Byzantine Empire, the Croatian Kingdom, the Republic of Venice, the Habsburg Monarchy, and the Ottoman Empire had varying degrees of control over the Adriatic shores and the sea itself during

the Middle Ages. The First French Empire gained coastal control due to the Napoleonic Wars. The British effort to counter the French in the area resulted in Austria gaining control of most of the eastern Adriatic shore and the Po Valley.

The Adriatic Sea is also a unique water body in overall biological and biochemical countenance. It is home to over 7000 animal and plant species, some of which are endemic and unique to the area in which they live. Several rare and endangered species are present along the Adriatic's eastern coast, which is clearer and less polluted than the western Adriatic coast. The Adriatic's counterclockwise sea currents bring clear waters up the east coast while returning increasingly contaminated water down the west. The countries' biodiversity along the eastern Adriatic coast has significantly benefited from this circulation.

The Adriatic has relatively high biodiversity, and countries have established several marine protected areas along its coasts. In Italy, we find Miramare in the Gulf of Trieste (in the Northern Adriatic), Torre del Cerrano and Isole Tremiti in the Middle Adriatic basin, and Torre Guaceto in southern Apulia, while Croatia has seven marine protected areas: Brijuni and the Lim Canal off the coast of Istria, near Pula and Rovinj; Kornati and Telascica in the Middle Adriatic basin, near Zadar; and Lastovo, Bay of Mali Ston, and Mljet in southern Dalmatia.

The Adriatic Sea ecosystem is threatened by excessive nutrient input from agricultural land and wastewater flowing from cities along its coast, and rivers draining into the sea, particularly the Po River. Venice is often an example of polluted coastal waters, where shipping, transportation, farming, manufacturing, and wastewater disposal contribute to sea pollution. Ballast water discharge by ships, particularly tankers, poses an additional risk. Because the majority of cargo handled by the Adriatic ports, and virtually all liquid (tanker) cargo handled by the ports, is coming to—rather than leaving—the Adriatic Basin, the risk from ballast water (from tankers expelling ballast water and then loading in the Adriatic) is minimal. Oil spills are a major source of concern due to the potential environmental impact and harm to tourism and fisheries. Researchers have claimed that a million people would be affected in Croatia alone if a major oil spill occurred.

The Adriatic has a modified Mediterranean climate. The Adriatic climate is distinguished by warm and dry summers and mild and wet winters. The transition period between autumn and spring has characteristics of both summer and winter but is less pronounced; the second part of spring and the first part of autumn are similar to summer, while the first part of spring and the second part of autumn are similar to winter. As a result, the warm season lasts longer, while the cold season is shorter, making the Adriatic more suitable for dealing with the sea for a more extended period.

The subtropical high-pressure area, which moves to the north in summer while westerly winds prevail over the Adriatic in winter, has a significant impact on the Adriatic's climate and weather. The annual course of precipitation is also determined by the winter and summer relocation of the high-pressure position, with summer being a dry period and winter being a wet period.

There are nineteen Adriatic seaports (located in four countries), each handling over a million tonnes of cargo per year. The Port of Trieste (the largest Adriatic cargo port in Italy), the Port of Venice, the Port of Ravenna, the Port of Koper (the largest Slovenian port), the Port of Rijeka (the largest Croatian cargo port), and the Port of Brindisi are the largest cargo ports.

The Adriatic's largest passenger ports are the Port of Split (the largest Croatian passenger port) and the Port of Ancona (the most significant Italian passenger seaport). The Northern Adriatic seaports of Trieste, Venice, Ravenna, Koper, and Rijeka formed the NAPA Association - North Adriatic Ports Association in 2010 to improve their position in the EU's transportation systems.

Many tourists choose Adriatic as their vacation destination because of its pleasant climate, natural beauty, and rich history. The countries bordering the Adriatic Sea are, indeed, popular tourist destinations. Italy, particularly the Veneto region, has the highest number of tourist overnight stays and the most tourist accommodation facilities (around Venice). The Emilia-Romagna region and the Adriatic Croatian counties follow Veneto. Twenty-one thousand nautical ports and moorings have been added to Croatia's tourist infrastructure, and tourists are drawn to various marine protected areas.

The Adriatic Sea is fascinating to sail because of its diversity and frequent weather changes. The sea is one of the most important climate modifiers, as the northern Dinaric mountain range's highly developed orography significantly influences Adriatic's Mediterranean climate and cyclo-genetic activity.

The European Commission defines the blue economy as "all economic activities related to oceans, seas, and coasts." It encompasses a diverse set of interconnected established and emerging industries. Seabed mining, offshore oil and gas extraction, offshore wind, ocean energy conversion, desalination, biotechnology, fishing and aquaculture, maritime transport, shipbuilding, ship repair, marine and coastal tourism are examples of blue economy activities.

Coastal and marine tourism is an important source of revenue for the maritime industry. Nautical tourism is a subsector of coastal and marine tourism that involves people and businesses and has significant national and regional economic implications.

Coastal and marine tourism is a subsector of tourism that accounts for one of the most significant maritime economic activities in Europe, accounting for over 33% of the Blue Economy. The "European Strategy for More Growth and Jobs in Coastal and Maritime Areas" included this subsector. It outlines priority actions that include: island connectivity, tourism diversification strategies, and innovative nautical tourism strategies.

2.1. Italy - socio-economic description

Italy (Italian Republic) is located in south-central Europe with a peninsula bordered by the Mediterranean Sea and the Adriatic Sea. Italy has some of the most diverse and scenic landscapes on the planet. It is often referred to as a boot-shaped country — Italy's territory extending far into the Mediterranean Sea and Sicily, Sardinia, and several smaller islands.

Table 1: Italy - Statistical data

| | |
|--------------------|---|
| Flag |  |
| Area | 301.304 km ² |
| Capital | Rome |
| Settlements | 20 regions, 107 provinces and 7960 municipalities |
| Population | 59.433.744 (C2011) |
| Population density | 201,3/km ² |

More than three-fourths of Italy is mountainous or highland country. The Alps, which are among the World's most rugged mountains, stand at its broad crest. The Alps separate Italy from France, Switzerland, Austria, and Slovenia to the north and stretch from east to the west along with Italy's border. As a peninsula, Italy is surrounded by the sea. The Adriatic Sea to the northeast, the Ionian Sea to the southeast, the Tyrrhenian Sea to the southwest, and the Ligurian Sea to the northwest; the Mediterranean Sea surrounds Italy. Plain areas, which are practically limited to the great northern triangle of the Po valley, cover only about one-fifth of the country's total area; the

remainder is roughly evenly divided between hilly and mountainous land, providing variations to the generally temperate climate.

Italy's coast is over 8.000 km long and surrounded by four seas – the Mediterranean, the Adriatic in the east, the Ionian Sea in the south, the Ligurian Sea, and the Tyrrhenian Sea in the west. Peninsula seacoast alternates in rapid succession between high, rocky zones and level gravel along the two Ligurian rivieras on either side of Genoa. Long, sandy crescent beaches and great dunes are separated by rocky eminences from Tuscany to Campania. Calabria's coast is high and rocky, with occasional short beaches. The coast of Puglia is level, as is the majority of Italy's Adriatic coast, but terraced gradients dominate it. Most of the country's lowlands lie in the valley of its primary river, the Po. The majestic Po River delta, which stretches from Rimini to Monfalcone, is riddled with the lagoons that visitors to Venice are familiar with.

Figure 3: Map of Italy



Source: <https://www.britannica.com/place/Italy> (accessed 29/11/2021)

Italy's GDP in 2020 was 1.866 trillion USD. Compared to 2019, that resulted in a 6% decrease, and as in other countries around the world, it was the COVID-19 pandemic that significantly impacted the economy. Thanks to the immunization effort and considerable budgetary support for people

and businesses, Italy's economy is steadily recovering from the COVID issue. There are other forecasted threats, including viral variations and the direction of global interest rates. The balance of public spending and taxes must improve to raise growth and employment above pre-pandemic levels. Together with the National Recovery and Resilience Plan, which includes essential structural reforms and investments, these efforts can transition faster to a greener, more digitized economy. Moreover, a series of complex legislative and administrative reforms are required to increase income growth, civil justice, tax administration, and public investment must all be improved.

At the moment, Italy is the 3rd largest Eurozone economy and the 8th largest economy in the world. Italy is also a founding member of the G7, the Eurozone, and the OECD. Italy's classified as one of the world's most industrialized nations and a leading country in trade and exports. The economy is mainly based on services and manufacturing; exports include machinery and transport equipment, chemicals, textiles, clothing and shoes, and food products (olive oil, wine, fruit, and tomatoes). Following World War II, the Italian economy went from being one of the weakest in Europe to becoming one of the most powerful. Its metallurgical and engineering industries are its strengths, while its weaknesses are a lack of raw materials and energy sources, as imports meet over four-fifths of Italy's energy needs.

Nonetheless, the chemical industry thrives, and textiles are one of Italy's most important industries. Manufacturing exports grew phenomenally due to strong entrepreneurial bias and liberal trade policies following the war. Still, a cumbersome bureaucracy and insufficient planning hampered an even economic development throughout the country.

Italy is a part of Europe's single market of 500 million consumers.

Italy has a long history of trade. The country, which juts out deep into the Mediterranean Sea, occupies a strategic position, enhancing its trading potential with Europe and North Africa, the Middle East, and Americas or Far East countries. Textiles, food, and manufactured goods have traditionally been the backbone of Italy's trading strength. Metal and engineering products, primarily from Germany, France, the United States, and the United Kingdom, are Italy's main imports.

Italy is a popular tourist destination, with more than 40 million foreign visitors per year in the early twenty-first century. Italians, on the other hand prefer to vacation in Italy, and only about a fifth of Italians vacation abroad. Under both national and international patronage, the tourist industry has flourished. Apart from the great cultural centers of Rome, Florence, Venice, and Naples, the most popular destinations are the northern coastal resorts and islands, or the Alpine hills and lakes;

the Ligurian and Amalfi rivieras; the north Adriatic coast; the small Tyrrhenian Sea islands (Elba, Capri, and Ischia); Sicily; Gran Paradiso National Park and the Dolomites; and Abruzzo National Park.

2.1.1. Regional transport and mobility overview and main features

The transport network in Italy includes the following infrastructures: 156 ports, a railway network of 24.299 km, a road network (state, regional, provincial, municipal roads) of 837.493 km, a motorway network of 6.757 km, and 98 airports.

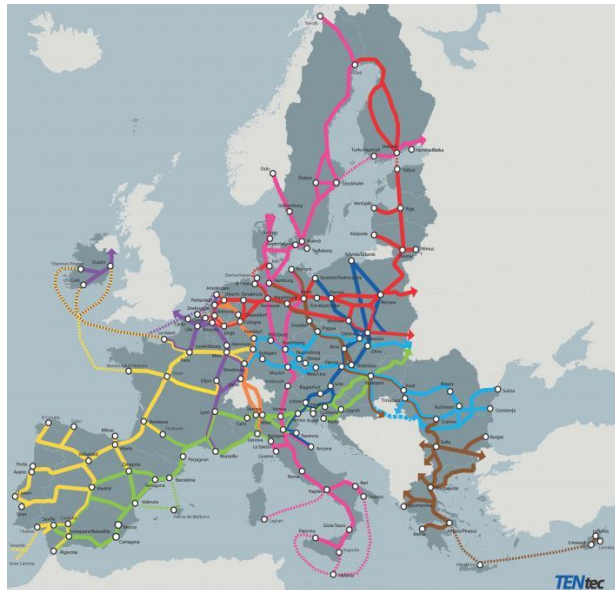
Transportation and logistics have always been an essential part of Italy's economy, with much of the infrastructure built by the Romans still visible beneath the country's modern highways. The advantageous location of Italy concerning the Middle East and Africa has aided the development of the Italian transport industry, positioning it as a Euro-Mediterranean logistic platform for container handling, particularly for trade with the northern and southern regions.

The road infrastructure, including highways and freight hubs, is currently the most widely used infrastructure for imports and exports. The rail-roads terminals of Orbassano and Verona, also known as "Quadrante Europa," are among the many freight hubs within the Italian transportation industry. According to official data, road freight transport accounted for over 86 percent of inland freight transport in 2017.

Italy's road network is also extensive, with a total length of about 837.493 km. It has a wide motorway network (6.757 km), including toll roads and national and local roads.

Due to its long seacoast, Italy has many harbours transporting goods and passengers. Italy's transportation networks are part of the Trans-European Transport (TEN-T) Networks.

Figure 4: European TEN-T network



Source: https://transport.ec.europa.eu/sites/default/files/styles/embed_large/public/2021-10/updated_map.jpg?itok=wnt6BX3S

As a country is a top tourist destination and a large export economy, the transportation sector is critical for good connectivity and a robust logistics sector. Italy offers excellent mobility solutions thanks to its well-developed transportation infrastructure. The Italian rail network is extensive, particularly in the north. It includes a high-speed rail network connecting Italy's major cities, from Naples to northern cities like Milan and Torino. Italy has 2.507 people and 12,46 km² of rail track per kilometre, making it the world's 13th largest rail network.

Travel and tourism made up 13% of Italy's GDP and generated more than 3.5 million jobs in 2019. More than 96 million foreigners visited Italy. Italians also love to travel, both within the country and abroad.

2.1.2. Road transport

The Italian road network consists of four categories: express highways (autostrade), national, provincial, and municipal roads, and local roads (strade statali, strade provinciali, and strade comunali, respectively). Between 1955 and 1975, Italy experienced a boom in road construction. Surfaced roads, excluding highways and urban streets, increased by 72% between 1951 and 1980, totalling more than 183.000 miles (295.000 km). Automobile sales grew faster than in any other

Western European economy. Fiat's mass production of low-cost models contributed significantly, while funds released by the Southern Development Fund aided road construction in the south.

Figure 5: Italy's TEN-T road network



Source: https://www.stradeanas.it/sites/default/files/body-advanced/images/Mappa-Rete-Ten-T-Anas_0.jpg (accessed 1/12/2021)

The development of the highway system was contracted out to concessionary companies and funded through tolls, freeing it from the slow state bureaucracy and allowing it to move quickly. By the 1980s, the network had grown to 6,000 kilometres, making it Europe's second-largest (only West Germany's was more extensive). The central axis runs north-south from Chiasso on the Swiss border to Reggio di Calabria at the peninsula's tip, passing through Milan, Bologna, Florence, and Rome. Another major route runs south along the Adriatic coast from the Brenner Pass to Bari and Taranto. The north has a dense highway network that connects Torino to Milan, Venice, and Trieste on an east-west axis and Bologna and Genoa. Other east-west routes connect Rome to Pescara and Naples to Bari across the Apennines.

2.1.3. Maritime transport

According to the subject of transport, one of the most fundamental divisions in transportation, including maritime transport, is goods and passengers.

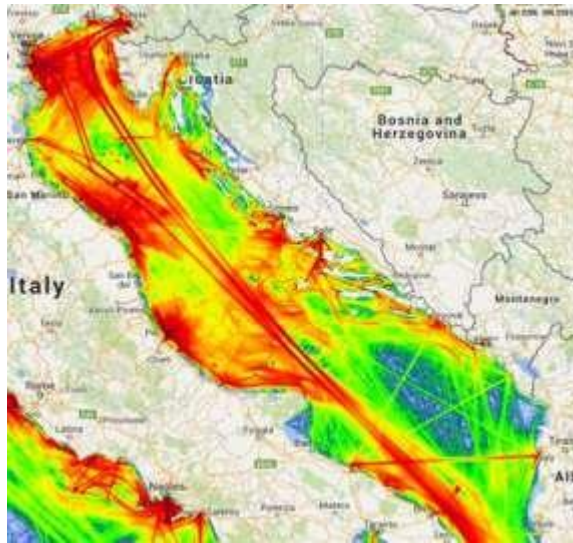
Maritime mobility is divided into two market segments: freight and people. Shipping on deep-sea routes and short-sea shipping are examples of maritime freight mobility. People's maritime mobility includes business, leisure, and tourism travel.

Water transportation was the first necessary means of connecting the country to its Mediterranean trading partners. The Po River is Italy's only navigable internal waterway. The ports of Venice, Palermo, and Naples were significant at the time of unification in the 19th century, and the Italian merchant fleet was the most powerful in the Mediterranean Sea. Many ports dot the 7,400-kilometer Italian coastline, and sea transport accounts for most imports and exports.

The Adriatic's most important ports are located on its northwestern coasts. As a result, the most traffic is found on sailing routes connecting these ports and the Strait of Otranto, which serves as the Adriatic's exit. The main sailing path, which primarily travels through the open sea, has the highest concentration of these sailing routes.

Venice, Cagliari, Civitavecchia, Gioia Tauro, and Piombino are the main dry-cargo ports, while Genoa, Augusta, Trieste, Bari, and Savona handle mostly petroleum products. Ports of Livorno and Naples handle both dry cargo and petroleum products. Only a tenth of the coastline receives half of the commercial port traffic. The industries of Piedmont and Lombardy place a high demand on the maritime outlets, particularly Genoa, which is the largest and most important Italian port but faces significant expansion challenges due to the mountains that surround it.

Figure 6: Ais Traffic-2014



Source: Ais Traffic-2014, Marinetraffic

The Adriatic traffic intensity is depicted in Figure 6. As can be seen, Italy and Croatia are exceptionally well connected throughout the year, with numerous seasonal lines and additional routes added during the summer. Ferry connections between the two Adriatic coasts, cruising vessel calls from Venice, Split, or even Zadar, and numerous yachts and sailing boats are among the maritime connections.

2.1.4. Railroad transport

The main period of railway construction in Italy was during unification, from 1860 to 1873. The government sold its stake in 1865 due to the high costs of constructing the infrastructure. The north's networks serving Milan, Genoa, and Torino had matured. Links followed these through the Po valley to Venice. Followed along the Adriatic coast to Bari; down the Tyrrhenian coast to Reggio di Calabria via Naples, and from Rome to the Adriatic cities of Ancona and Pescara via the Sicilian and Sardinian networks were also constructed. After the renationalization in 1905, modernization began. The twentieth century was a period of the rapid upgrade of the railway system and the instalment of new segments of railways. The early electrification of the lines, many of which ran through long tunnels and were unsuitable for steam power, was unique.

Today, the Italian railway system has a length of 24.227 km, of which 18.071 km are standard gauge and 11.322 km electrified. The active lines are 16.723 km. The network is constantly growing with the construction of the new high-speed rail network.

Although the peninsula's rail network is well-connected, significant qualitative disparities exist between its northern and southern components. The north has more regular service, faster trains, and more double-track routes than the south. The Italian trains transported little freight but a lot of passengers compared to other European networks, partially because the railways failed to keep up with the high rate of industrialization after WWII. In contrast, the passenger lines were made cheap through government subsidies before the privatization in 1992, the state-controlled 80% of the rail network under *Ferrovie dello Stato* ("State Railways").

Figure 7: Rail network in Italy



Source: <https://maps-italy.com/img/1200/italy-rail-map.jpg> (accessed 1/12/2021)

Several mountain routes connect Italy's railways to the rest of Europe, connecting Torino with Fréjus in France, Milan with Switzerland via the Simplon Tunnel, Verona with Austria and Germany via the Brenner Pass, and Venice with eastern Europe via Tarvisio. Routes were expanded, extended, and upgraded in the late twentieth century, including the addition of high-speed lines and computerized booking and freight control systems. The railway network is more than 16.000 kilometres long.

Between 2012 and 2019, passengers travelling by train in Italy grew from over 855 million to over 898 million. The busiest stations in the country were Rome's Termini station and Milan's Central Station. Around 150 million people travelled through Roma Termini in 2019 alone.

There is no direct rail connection between Italy and Croatia, but there is a connection via Ljubljana (Slovenia), with two daily departures from Ljubljana to Trieste. Depending on the arrival time of the first train, this could mean hours of waiting. The issue is the length of the ride, which is extended by the usual waiting time in Ljubljana, which can last up to several hours. As a result, many travellers prefer to use car, bus, or boat connections.

2.1.5. Air transport

Most freight passing through Italian airports is processed at Malpensa Airport near Milan or Leonardo da Vinci Airport (in Fiumicino) near Rome, accounting for a small percentage of total handled freight. These airports handle most passenger traffic, though Linate airport in Milan and Marco Polo airport in Venice also handles many passengers. Except during the peak tourist season, when they may absorb some of the vacation traffic from other European destinations. Many other regional airports (including Torino, Genoa, Verona, Bologna, Rimini, Pisa, Naples, Brindisi, Palermo, Catania, and Cagliari) are the most commonly used for domestic flights.

The 1960s saw the most rapid growth in air transport, with a tenfold increase in freight traffic and a sevenfold increase in passenger traffic. Alitalia, Italy's national airline, grew to become one of Europe's most prominent at the time. It survived the 1970s oil crisis, diversified due to airline deregulation in the 1980s, and formed partnerships with foreign airlines in the 1990s and early twenty-first century to stay afloat. In 2008, Alitalia declared bankruptcy and was bought out by an Italian investment group. Years of restructuring resulted in a more competitive airline after Italy's flagship carrier was merged with Air One, a domestic competitor. Unfortunately, Alitalia ceased its operation in October 2021 due to its years of unprofitability and the covid crisis. Its operation and continued coverage of 44 airports. Alitalia was 'replaced' by ITA Airways.

2.1.6. Overall governance and transport planning references

Italy is divided into 20 regions (regioni), five of which have special autonomy that allows them to adopt additional legislation, 107 provinces (province) or metropolitan cities (città metropolitane), and 7.960 municipalities (comuni).

Italy is the world's fifth most visited country, with 52,3 million international visitors in 2016. In 2014, the total contribution of travel and tourism to GDP (including broader effects from investment, the

supply chain, and induced income impacts) was €162,7 billion (10,1 percent of GDP), and it directly employed 1.082.000 people (4,8 percent of total employment).

Italy has 58 UNESCO World Heritage Sites and is well-known for its cultural and natural tourist itineraries. With 9.4 million visitors in 2017, Rome was the third most visited city in Europe and the 12th most visited city in the World, while Milan was the 27th most visited city with 6,8 million visitors. Venice and Florence are also among the top 100 destinations in the world.

The framework law no. 482/1999, and the specific Statute of Trentino Alto-Adige, which is adopted with constitutional law, declares Italian to be the official language of Italy. Not to be confused with Italy's regional and minority languages, Italian is frequently spoken natively in a regional form.

Small ports in Italy are not subject to government control in Croatia. Touristic ports or marinas are the terms used to describe them.

2.2. Croatia – socio-economic description

Croatia (Republic of Croatia) is a country on the Adriatic Sea at the crossroads of Central and Southeast Europe. Croatia shares a maritime border with Italy to the west and southwest. Land borders Slovenia to the northwest, Hungary to the northeast, Serbia to the east, Bosnia and Herzegovina, and Montenegro to the southeast. With twenty counties, its capital and largest city, Zagreb, forms one of the country's primary subdivisions. Croatia covers 56.594 square kilometres and has an estimated population of 4.07 million people (estimate 2021).

Table 2: Croatia - statistics

| | |
|-------------|--|
| Flag |  |
| Area | 59.594 km ² |
| Capital | Zagreb |
| Settlements | 20 counties, 127 cities, 429 municipalities |
| Population | 4.284.889 (C2011) |

| | |
|--------------------|--------------------|
| Population density | 73/km ² |
|--------------------|--------------------|

Croatia is often referred to as a crescent-shaped country. With a wide range of geographical features, Zagreb, the country's capital, is north. Croatia-Slavonia (placed in the higher arm of the country), Istria (centred on the Istrian Peninsula on the northern Adriatic coast), and Dalmatia (located in the lower arm of the country) make up the current republic (corresponding to the coastal strip).

The area is 56.594 square kilometres, with 56.414 square kilometres of land and 128 square kilometres of water. It is the world's 127th largest country. Elevation ranges from the Dinaric Alps, with the highest point of the Dinara peak at 1.831 meters near the border with Bosnia and Herzegovina in the south, to the Adriatic Sea, which forms the entire southwest border. Insular Croatia comprises over a thousand islands and islets of varying sizes, with 48 of them permanently inhabited. Cres and Krk are the largest islands, covering approximately 405 square kilometres.

Croatia is divided into three geographical regions. The Pannonian and para-Pannonian plains run the length of the upper arm of the Croatian crescent to the north and northeast. The Zagorje Hills remains of the Julian Alps, now covered in vines and orchards, separate the Sava and Drava river valleys to the north of Zagreb.

Figure 8: Map of Croatia



Source: [Croatia.jpg \(1600x1327\) \(britannica.com\)](#) (accessed 2/12/2021)

The middle mountain belt, part of the Dinaric Alps, runs west and south of the Pannonian region, connecting it to the Adriatic coast. The region's karst plateaus, largely made of limestone, are barren at the highest elevations and richly forested further down. Croatia's highest mountain, Dinara (1.831 meters), is found in the middle mountain range.

The third geographic region, the Croatian littoral, comprises the Istrian Peninsula in the north and the Dalmatian coast stretching south to the Gulf of Kotor. Its 1.800 km of coastline, sandwiched between the Dinaric Alps to the east and the Adriatic Sea to the west, is encircled by more than 1.100 islands and islets. That is the reason why Croatia is often called a country of 1.000 islands.

The Sava and Drava rivers, which run through the Pannonian and para-Pannonian plains, are particularly significant among Croatia's 26 rivers that run for more than 50 kilometres, both because of their length and the Kupa River, they are navigable in large part. The Sava flows from Slovenia to Croatia's capital city of Zagreb, forming the majority of the border between Croatia and Bosnia and Herzegovina inside the Croatian crescent. The Drava flows into Croatia from Slovenia and forms all but a small section of the border with Hungary before joining the Danube, which forms the majority of the border between Croatia and Serbia's Vojvodina province. The Kupa River runs along the border between Slovenia and Croatia, while the Una river runs between Croatia and Bosnia and Herzegovina, both flowing into the Sava.

The east coast is generally rugged and rocky, with many islands. The island fringe of the east coast extends as far south as Dubrovnik, south of the Istrian Peninsula.

Except for a few larger islands such as Brač (Vidova Gora, 778 m) and the peninsula Pelješac, the islands are long and narrow (the long axis running parallel to the coast of the mainland) and rise abruptly to elevations of a few hundred feet (St. Ilija, 961 m). The Adriatic Sea contains over a thousand islands, 66 of which are inhabited. Both coasts are popular tourist destinations, and many people consider this to be the most beautiful sea in the World.

Krka and Cetina rivers are significant in Dalmatia due to their hydroelectric potential and their flow into the Adriatic Sea.

Croatia became the EU's 28th member state in 2013. Croatia ranks 50th out of 189 countries in the 2019 Human Development Index, and its real GDP per capita ranked 48th out of 149 countries in 2019.

Croatia's GDP was 55.967 billion dollars in 2020. Croatian GDP decreased 7,8% in 2019 compared to the previous year due to the COVID-19 epidemic and its economic impact. Croatia's economy is service-based, with the service sector accounting for about 59 percent of GDP and more than 66% of employees employed in the service sector.

Croatia's economy is a high-income service-based economy in the early stages of development, with the tertiary sector accounting for 60% of total GDP. Croatia became a member of the World Trade Organization in 2000, NATO in 2009, and the European Union on July 1, 2013. The financial crisis hit Croatia hard, resulting in six years of recession and a 12,5 percent drop in GDP due to delayed reform efforts. Croatia officially exited the recession in the fourth quarter of 2014, and its economy has been growing steadily since then.

Manufacturing and other secondary industries now have a smaller but significant economic share. Food processing and winemaking, as well as petroleum production and refining, are essential sectors. Chemicals, building materials, metallurgy (primarily aluminium and iron, steel), the wood and paper industries, machine engineering, electronics, textiles, and shipbuilding are vital sectors. However, because shipbuilding is primarily reliant on government subsidies, its future is uncertain. Most businesses are centered in Zagreb, Rijeka, Split, Osijek, Karlovac, Zadar, Slavonski Brod, Sisak, and Varaždin.

Croatia's economy has been experiencing a profound transformation since 1991 when the country became independent. It went through structural reforms to become a market economy from that time. Croatia's economy is highly receptive to international trade. Nearly two-thirds of Croatia's commerce is with other European Union (EU) countries, with significant trade with Croatia's southeastern European neighbours. Croatian exports are purchased mainly by Italy, Bosnia and Herzegovina, Germany, Slovenia, and Austria, whereas Croatia buys primarily from Italy, Germany, Russia, China, and Slovenia. Fuels, ships, chemical goods, food, machinery, and textiles. Imports of fuels, chemicals, and transportation equipment are also standard.

As a major tourist destination in the Mediterranean, Croatia has a rich tourism history and promising growth possibilities. Croatia is ranked as one of the fastest-growing European vacation destinations. A favourable geographical location allows for the development of transportation infrastructure as one of the critical aspects of the country's economic and social development.

Tourism accounts for 19.6% of Croatia's GDP, making it one of its most important industries. Croatia is working to become an energy powerhouse with its floating LNG regasification terminal on the island of Krk and investments in green energy, particularly wind and solar. Geothermal energy

opened the 17 MW Velika 1 geothermal power plant in Ciglena in late 2019, the largest power plant in continental Europe using binary technology, and plans to start construction on the second one in the summer of 2021. The government plans to spend \$1.4 billion on grid modernization to increase renewable energy source connections by at least 800 MW by 2026 and 2.500 MW by 2030. According to the government, renewable energy resources are expected to account for 36.4 percent of total energy consumption in 2030 and 65,6 percent in 2050.

2.2.1. Regional transport and mobility overview and main features

Because three Pan European lines (V, VII, and X) pass through Croatian territory, traffic or transportation as a whole is not only an internal need of the Republic of Croatia but also one of its possible comparative advantages. The decision of multimodal Pan European routes crossing Croatian territory demonstrates that the Republic of Croatia's territorial location is not only a benefit but also a responsibility to itself and Europe.

Because of its extensive Adriatic coastline, Croatia has excellent access to shipping routes. Rijeka, Zadar, Sibenik, Split, Ploče, and Dubrovnik are key seaports that connect Europe to Asia and Australia via the Suez Canal. Croatia also has several international airports, which are primarily used for tourism.

Over the previous decade, significant investments in highways and trains had been made. Today, the highway connects Zagreb and Split, which can be easily reached by rail, Zagreb, and the Serbian border. Road access to central Europe is excellent and direct eastward roads to Serbia and Romania. Connections to the very south, traditionally 'problematic' due to the 25 km-long Neum strip of land of Bosnia and Herzegovina, are bridged as Croatia will soon be connected with the nearly finished Pelješac bridge.

Transport in Croatia relies on several main modes, including transportation by car, train, boat, and plane. Road transport incorporates a comprehensive network of state, county, and local routes augmented by a network of highways for long-distance travelling. Water transport can be divided into sea, based on the ports of Rijeka, Ploče, Split, and Zadar, and river transport, based on Sava, Danube, and, to a lesser extent, Drava. Croatia has 68 airports, nine of which are international. The country also has several airlines, of which the most notable are Croatia Airlines and Trade Air. Rail transport is relatively developed, with dual track and electrification not very common, although

high-speed tilting trains are used on some routes. However, the bus still tends to be more common than rail as a mode of inter-city transport.

2.2.2. Land transport

The majority of Croatia's conventional transportation infrastructure was inherited from the past state communities in which it lived, namely the Austro-Hungarian monarchy and the two Yugoslav states (1918-41 and 1945-90). These transportation infrastructures were not designed or built with Croatia's transportation needs in mind, particularly those resulting from the country's independence. These new requirements include the need for transportation connections and territorial integration in the Republic of Croatia, the need to connect through modern and secure infrastructures, and the need for Croatian transportation systems to be interoperable with those of our neighbours, mainly EU member states.

Figure 9: Croatia's road network



Source: [zm C-koridori HR 1 18.pdf \(gov.hr\)](http://zm C-koridori HR 1 18.pdf (gov.hr)) (accessed 2/12/2021)

Croatian motorways are considered to be among Europe's most modern and safe. This is because most of Croatia's highway and expressway system (autoceste and brze ceste, respectively) was built lately (after the 2000s), and the building is still ongoing. Croatia's roads connect most of the country's major cities and seaports. The A1 and A3 are the country's two longest highways, and the motorway network connects the majority of significant border crossings.

The motorways help to reduce summer traffic bottlenecks because tourism is so important to the Croatian economy. Most tourists come to vacation in Croatia in their automobiles. They have also been employed to stimulate much-needed economic growth and ensure long-term development. Croatia today boasts a high roadway density for a country of its size, which has aided its development.

As of 2018, Croatia has a total of 26.823 kilometres of roads.

In contrast to the underdeveloped train network, buses are the most well-accepted, cheapest, and widely means of public transportation. The national bus network is well-developed, making it simple to travel by bus to even the most remote corners of Croatia. Almost every bus on national routes is air-conditioned, ensuring a pleasant journey.

Many international bus lines connect Croatia with its neighbours (Slovenia, Bosnia and Herzegovina, Serbia, and others) and Austria, Germany, Slovenia, Switzerland, and other European nations. International buses are compliant with European regulations.

2.2.3. Maritime transport

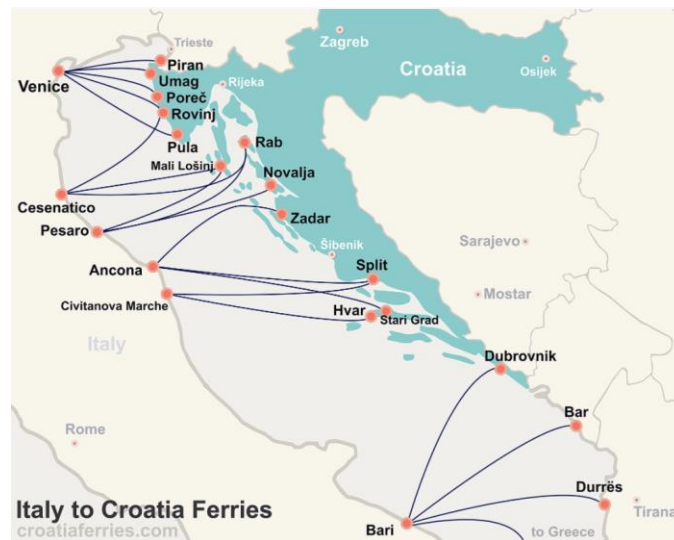
Water transportation is one of the country's most essential activities in the overall economy. Seaports, river transportation, and pipelines are all examples of water transportation.

Along the mainland coast, six important ports (Rijeka, Zadar, Sibenik, Split, Ploce, and Dubrovnik) have been designated as ports of exceptional (international) economic interest for the Republic of Croatia. Croatian seaports are strategically located to assist maritime transportation between Central and Eastern Europe and Southern Asia, as well as Australia and Oceania, and Europe (via the Suez Canal). They allow voyages to be cut by 5 to 8 days, or a minimum of 2.000 kilometres compared to north European ports. Adriatic ports currently handle barely 3% of total freight on the EU market. As a result, all Adriatic ports have a significant potential to increase freight trade.

Port of Rijeka on the northern Croatian coast is the largest cargo seaport with the deepest canal to a port in the Adriatic and the largest cargo port, followed by Ploče in southern Dalmatia. Ploče is a vital port for Bosnia and Herzegovina's industries and is considered Bosnia's entrance to the sea.

Croatian ports now handle almost 21 million tons of cargo and carry over 13 million passengers each year (data for 2015). Croatian ports are connected to a complete network of European transport corridors, allowing for trade flows to intra-European and global markets and transforming port systems into contemporary logistics and distribution of economic centres.

Figure 10: Ferry connections between Italy and Croatia



Source: <https://www.croatiaferries.com/maps/italy-croatia-ferry-map/> (accessed 2/12/2021)

The main Croatian passenger port is the port of Split in Dalmatia, sometimes known as the "Gateway to the Islands." There are various local ferry connections due to the 66 inhabited islands off the coast of southern Croatia. Ports of Zadar and Dubrovnik are also significant for passenger transport. All three ports are open to international trade, allowing for a good island-to-mainland link. When many tourists visit the country during the summer, they are at their busiest. Aside from ferry and high-speed vessel traffic, all three ports see a lot of cruise ships, and Dubrovnik has even become the home port for several enterprises.

Recently, significant proposals for the rehabilitation of river transportation, which has been stagnant and underused, have been considered. Port Vukovar on the Danube is a major international river port.

The national shipping corporation Jadrolinija operates most ferry lines between the mainland and the islands. Rapska plovidba that connects the island, Rab.

Croatia is linked to Italy by water, both through year-round (Split-Ancona) and seasonal (Istria and Friuli-Venezia-Giulia and Veneto with Istria county and Kvarner Islands) connections. Apart from ferries, HSPC vessels, numerous boaters, and sailors sail every year between the two countries, especially during the summer season, and arriving to one of the small ports which are part of this report

2.2.4. Railroad transport

The Croatian railway network is divided into international, regional, and local railways. The Croatian central railway lines run along with the Pan-European corridors V (branch B) and X, which meet in Zagreb. Slovenia's, Hungary's, Bosnia and Herzegovina's, and Serbia's railway networks are connected.

The railways in Croatia are currently in the midst of an upgrade process because there has been little investment in train infrastructure since Croatia became independent. Many major highways are not electrified, allowing only single-track traffic to pass through 'bends.' Major improvements are being made, particularly on routes that may be most cost-effectively for cargo transport. As a result, the maximum speed on the railway line on the Pan-European Corridor X running from the Slovenian border to the Serbian border via Zagreb, Novska, and Vinkovci has been increased, from 80 km/h to 120 km/h in some areas, with proposals to increase it to 160 km/h on some parts.

Figure 11: Rail network in Croatia



Source: [željznička povezanost - Luka Zadar d.d. \(luka-zadar.hr\)](http://zeljeznicka-povezanost-luka-zadar.d.d. (luka-zadar.hr)) (accessed 3/12/2021)

The Croatian railway network spans 2.604 kilometres and has a good ratio of railway kilometres to population, with 1.556 persons per kilometre, comparable to Switzerland and more significant than the Czech Republic and Hungary. However, 90 percent of the lines are single track, and only 36% are electrified. Almost half of the network is devoted to essential lines for international transportation. Only 5,4 percent of the 2.604 km can achieve speeds of 141 to 160 km/h, 17 percent can reach speeds of more than 100 km/h, and 37,5 percent can reach speeds of less than 60 km/h.

Croatian Railways seeks to stimulate rail traffic by further improving, establishing rail as a genuine rival to the cars, especially during the busy summer months.

Croatian Railways' ambition to construct the country's first high-speed train service is moving forward. The journey from Zagreb to Rijeka will be cut in half, from four hours on the current route. The line is designed to handle the growing number of commodities entering Europe through the Croatian Port of Rijeka before being transferred to Central and Eastern Europe destinations. The plans initially predicted 2008-2010 as the completion date. However, due to the global economic crisis, the construction start date has been pushed back to an as-yet-undetermined date. The project blueprints, on the other hand, have been written up.

2.2.5. Air transport

There are eight international airports in Croatia. The main airport in Croatia's capital city is Zagreb. International airports can also be found in Rijeka, Pula, Zadar, Split, Dubrovnik, Brac, and Osijek. In Croatia, there are a total of 69 airports.

Croatia Airlines, Air France, Aeroflot, Lufthansa, Emirates, Finnair, Austrian Airlines, KLM, Qatar Airways, Swiss International Air Lines, British Airways, Turkish Airlines and Aeroflot are among the major established airlines flying to Croatia. Intercontinental flights operate seasonally from and to Croatia. Some 'low cost' airlines fly from Croatia's main airport – Zagreb.

Croatia Airlines flies between Croatian airports in addition to foreign destinations but only within Europe from which it connects to the rest of the World.

2.2.6. Overall governance and transport planning references

Croatia consists of twenty counties and the City of Zagreb, which has county status. Furthermore, it is divided into 21 territorial units of local self-government: 128 towns and 428 municipalities. Municipalities and cities are the lowest level of self-government in Croatia (these are the basic organizational units). Counties are higher levels of local self-government organized by municipalities and cities (local has a more significant connotation here; counties are units of regional self-government in the Croatian Constitution).

The city and the municipality are both legal entities. Their representative body has enacted their Statute (municipal council in the municipality, or city council in the city). Their self-governing scope, characteristics, public recognitions, organization, powers, and manner of work of the body, manner of performing activities, forms of citizen consultation, conducting referendums on issues within their scope, local self-government, organization, and work of public services are all detailed in the Statute. Self-government and other concerns about the exercise of rights and responsibilities.

Croatian is the official language of Croatia, and when it joined the European Union in 2013, it became the 24th official language. Minority languages are officially used in local government units where national minorities account for more than a third of the population, or local legislation mandates it. Czech, Hungarian, Italian, Serbian, and Slovak are the languages involved.

The Port Authority is a non-profit legal entity founded by the government to administer, create, and operate a public port of unique, international, and economic importance to Croatia. Rijeka, Zadar, Šibenik, Split, Ploče, and Dubrovnik are the six ports open to public traffic of great (international) economic importance in the Republic of Croatia's own state port authority.

Counties and cities establish independent institutions to administer their areas at sea and on land, such as the management, maintenance, use, and building of public-access ports. These port administrations govern small ports and harbours.

According to program guidelines based on the Maritime Property and Seaports Act, the Ordinance on the Classification of Ports Open to Public Traffic, cities and counties classify ports open to public traffic and local importance and govern them. Today, In Croatia, there are twenty-two of these port authorities.

3. Analysis of the regional small ports' phenomenon (resulting from the analysis of questionnaire gathered data)

The purpose of the chapter is to present an overall picture of the infrastructural scenario in the Programme Area by introducing a description of the current state of the small ports, harbors, and marinas within this the programme territory and by presenting relevant information on existing facilities and single port characteristics and services, based on data collected through the questionnaire provided as part of the technical WP3 by the LP. After collecting the above-mentioned relevant information from small harbours and ports, this research aims to describe the primary infrastructural features and services available at the port level.

The impact of port activities on local development is also assessed. Improving the quality of port infrastructure and logistical efficiency could be the most beneficial for the country's economy. The report looks at existing infrastructure, traffic links, annual turnover, and future development initiatives to increase competitiveness, leading to small ports as generators of developments of their respective areas and connecting with other regions.

The Croatian shore of the Adriatic Sea is karst, whereas the Italian coast is lower and sandy-muddy. The Croatian coast is distinct from the Italian coast since it was formed from the Adriatic carbonate platform, i.e. limestone. The relief indentation of the Croatian coast is due to carbonate rocks responsible for the number of islands, peninsulas, bays, and canals... Croatia's coastline is among the most indented in Europe and the world, with over 1200 islands, islets, cliffs, and reefs. The Italian side of the coast, on the other hand, is not as indented, resulting in significantly fewer data.

Not only does the coast's indentation differs dramatically. As the ports of the two nations are legally defined differently, they clearly had to be arranged in separate data. Despite being acquired by the same survey, the data collected is different, i.e. suited to the peculiarity of each country.

The ports in Croatia that were visited are classified as ports accessible to public traffic and operated by port administrations created by counties and local self-government units.

The report looks at existing infrastructure, traffic links, annual turnover, and future development initiatives to increase competitiveness, leading to small ports as generators of developments of their respective areas and connecting with other regions.

3.1. Italy

The main regulation on ports at the national level has been Nr. 84 of 1994, which introduced the concept of classification based on their main use which has been further adjusted with the most recent D.Lvo 156/2016, which introduced the concept of Port Authority.

Despite a general definition that sets the competence on some of the main nodes at the national level, further definitions are still possible with reference to the existing variegated panorama of small ports supplying services to nautical tourism and another kind of sea-based activities. For this purpose, the joint efforts of the FRAMESPORT project will allow the identification of a possible unifying definition of small ports, thus indirectly supporting their development. The questionnaire was disseminated to 7 regions, briefly detailed its purpose and goal and forwarded to 81 small ports and marinas.

FRAMESPORT questionnaire was then disseminated to 7 regions, which have been briefly detailed below, and forwarded to 81 small ports and marinas in total. Data was acquired for 29 ports in the Italy's Adriatic regions, and desk research for an additional 38 ports in the Veneto region.

The questionnaires are designed to determine and analyze the dimensional characteristics of the port facilities, the infrastructural connections, the tariffs, and the essential technical, accessory, and environmental services provided to users. These data are divided into the following sub-chapters:

- A general description of the infrastructures that are available (position, visualisation, berth details and capacities, hinterland connection)
- A general description of the services that are available to users (technical services, nautical services, touristic services)

This study included a total of seven Italian Adriatic regions:

1. Friuli Venezia Giulia
2. Veneto
3. Emilia Romagna
4. Marche
5. Abruzzo
6. Molise
7. Puglia

Friuli Venezia Giulia is one of Italy's 20 regions and one of five autonomous regions with its laws. Trieste is the regional capital. Friuli Venezia Giulia covers 7.924 km² and has 1,2 million people. The region is traversed by the major transit routes between the east and west of southern Europe, providing a natural entrance to the sea for several Central European countries. Friuli Venezia Giulia has traditionally been a crossroads for people, commerce, and communication. It is home to Trieste, the Adriatic's largest port, and it has long been a hub for maritime trade and transportation. The presence of numerous national facilities such as highways, airports, and railways reflects regional transportation and mobility. The different sailing centers are mainly divided into Marina Nova and Lido di Panzano (sailing centers and sports clubs) and Canale Est – Ovest in the Lisert area (where the marinas and shipyards develop).

The Veneto region has a diverse natural and landscape system that stems from the numerous distinct areas that make it up: mountains, plateaus, hills, plains, coast, and lagoon. Veneto is divided into six provinces and 581 municipalities, and Venice's Metropolitan City. Veneto has a population of slightly more than 4.900.000 inhabitants (2018), with a trend in the process of stability following a 2.1 percent gain in the decade 2008-2018. Despite being a heavily industrialized region, tourism is one of its main economic resources; one-fifth of Italy's foreign tourism gravitates towards Veneto, which is the first region in Italy in terms of tourist presence, attracting over 60 million visitors every year, and the second in terms of hotel industry structures after Emilia-Romagna; the tourism business volume in Veneto is estimated to be in the vicinity of 12 billion Euros. It is also home to the port of Venice, both one of the biggest Adriatic cargo ports and a cruising vessels home port.

The Emilia- Romagna area is located in the country's northeastern part. Bologna is the capital. It has a population of 4.4 million people and covers an area of 22,446 km²

Emilia-Romagna has the third-largest gross domestic output per capita in Italy, making it one of Europe's wealthiest and most developed regions. Its capital, Bologna, has one of Italy's greatest quality of life indexes and excellent social services. The region is also a cultural, economic, and tourist centre, with the University of Bologna, the world's oldest university; Romanesque and Renaissance cities (such as Modena, Parma, and Ferrara); and Ravenna, the former Roman Empire capital; eleven UNESCO heritage sites; and is a center for food and automobile production (home of Ferrari, Lamborghini, Maserati, Pagani, De Tomaso, Dallara, and Ducati). Cervia, Cesenatico, Rimini, and Riccione are also popular seaside destinations. Emilia-Romagna was awarded the greatest place to visit in Europe by Lonely Planet in 2018.

Marche region is located in the central area of the country, bordered by Emilia-Romagna and the republic of San Marino to the north, Tuscany to the west, Umbria to the southwest, Abruzzo and Lazio to the south and the Adriatic Sea to the east. Except for river valleys and the often very narrow

coastal strip, the land is hilly. A railway from Bologna to Brindisi, built in the 19th century, runs along the coast of the entire territory. Inland, the mountainous nature of the region, even today, allows relatively little travel north and south, except by twisting roads over the passes. Urbino, one of the major cities of the region, was the birthplace of Raphael, as well as a major centre of Renaissance history. Marche extends over an area of 9,694 of the central Adriatic slope. The region's economy has changed dramatically since the 1980s, without abandoning the region's rural roots. Many of the small craft workshops spread throughout villages in the countryside have modernized and grown into small enterprises, some of them becoming global names (Indesit, Tod's, Guzzini, Teuco, etc.). As a result of this evolution, 'specialized' industrial zones have emerged, which are profitable. The port of Ancona is located in Marche and serves as a vital passenger hub for Italy, Croatia, Montenegro, and Greece.

Abruzzo is a region of Italy in the southern part of the country. It has a western border that is 80 kilometres east of Rome. L'Aquila, Teramo, Pescara, and Chieti are the four provinces that make up the region, which covers 10.862 km² and has a population of 1.332.689 people. Abruzzo is "Europe's greenest region" since one-third of its landmass, Europe's largest, is designated as national parks and protected natural reserves. There are three national parks, one regional park, and 38 protected nature reserves.

With about 123 km of development of the coastal strip, the Abruzzo region is described by the presence, starting from the south, of the port systems of Vasto, Ortona, Pescara and Giulianova.

Molise is the newest Italian region (it was part of Abruzzo until 1963) and, by extension, the second-smallest after Valle D'Aosta, with a total size of 4.460,60 km². It is located in Italy's central-southeast region. It spans from the Appennino Mountains to the Adriatic Sea, with the Trigno River in the north and the Fortone River in the south. It is bordered on the north by Abruzzo, east by Apulia, west by Lazio, and south by Campania. Molise also features a 35-kilometre-long sand beach that the Adriatic Sea laps.

Molise is the Italian region with the lowest percentage of tourism and the last in terms of arrivals, according to the Italian National Institute of Statistics (ISTAT). Molise has a peripheral position compared to the enormous flows of cultural tourism that influence several parts of central-northern Italy, just as it is marginal for southern Italian tourism that relies on the temperature and the beauty of the sea and coasts. Tourism in Molise is primarily domestic visitors, particularly from neighbouring areas.

Apulia County is located in the southern peninsular section of Italy, bordering the Adriatic Sea to the east, the Ionian Sea to the southeast and the Strait of Otranto and Gulf of Taranto to the south.

Molise is connected to the north, Campania to the west, and Basilicata to the southwest by other Italian regions. Bari, the country's largest city, is also a metropolis. Bari, Barletta-Andria-Trani, Brindisi, Foggia, Lecce, and Taranto are the six provinces that make up the region. It has a population of 4.063.888 people and covers an area of 19.358 km².

Apulia's coastline is longer than any other region on the Italian mainland.

Coastal locations, notably those around the Adriatic Sea and in the southern Salento peninsula, are frequently subjected to varied strength and direction winds, which significantly impact local temperatures and conditions, sometimes even within the same day.

To make the findings more readable, the multiple criteria that contribute to the total service quality a user may encounter in a specific tiny port have been organized into two primary clusters, each corresponding to the following sub-paragraphs:

- Infrastructure supply on land and at sea, including dimensional qualities, essential equipment and services, local amenities, and access to landside infrastructures that ensure hinterland connectivity;
- Basic port services, repairing and maintenance services, environmental services, and other added-value services are provided to end-users and customers. The remaining subchapters will detail every service that isn't self-explanatory.

3.1.1. Overall description of available infrastructures (position, visualisation, berth details and capacities, hinterland connections)

Coastal and marine tourism is an essential maritime economic activity. As stated in the project documents, nautical tourism is a subsector of coastal and marine tourism that involves people and businesses and significantly impacts national and regional economies. They also have a huge potential to become growth generators, as stated in the project documents.. Nautical tourism is a complex system that includes various modes of transportation (infrastructures, services and demand).

Due to a big resident boating population and a significant boat-building industry, small port facilities in Italy are of very high quality. Many people have found joy in sailing in Italy, and Italians have developed marinas and small ports throughout the riviera to meet guests' needs.

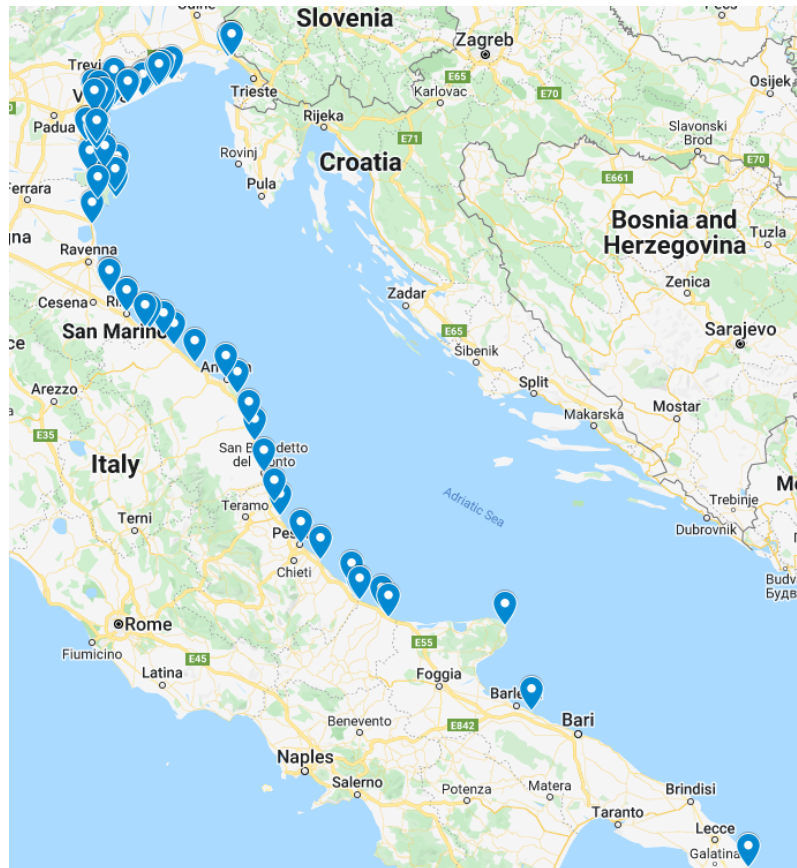
Many people have yet to discover sailing as a unique and appealing way to spend their vacations, opening up opportunities for ports to play a key role in local growth and prosperity.

Italy is a wealthy and contemporary country that has evolved maritime tourism into the most popular and appealing tourist branch, constantly enhancing all services and creating modern and well-equipped ports to ensure that all guests receive flawless treatment.

Small and touristic ports are the primary location for performing nautical tourism activities. The data analyses show differences between Italian touristic regions, particularly between the north and south regions, in terms of infrastructure for marine tourism and essential demand variables such as nautical licenses and boats.

The physical infrastructure supply and equipment are critical components for a properly operational port, especially in small ports.

Figure 12: Small ports in Italy



This study included a total of 80 ports on the Adriatic side, as shown in figure 12, but data was only obtained for 29 of them, and desk research was conducted for an additional 38 ports in the Veneto region.

The physical parameters of the port, such as the number of berths, mooring draught, seabed depth, port entry, and the physical dimensions of vessels that are feasibly allowed to enter the port, are the first part of the analysis' key elements.

Figure 13: Number of berths in Italian Marinas on the Adriatic coast

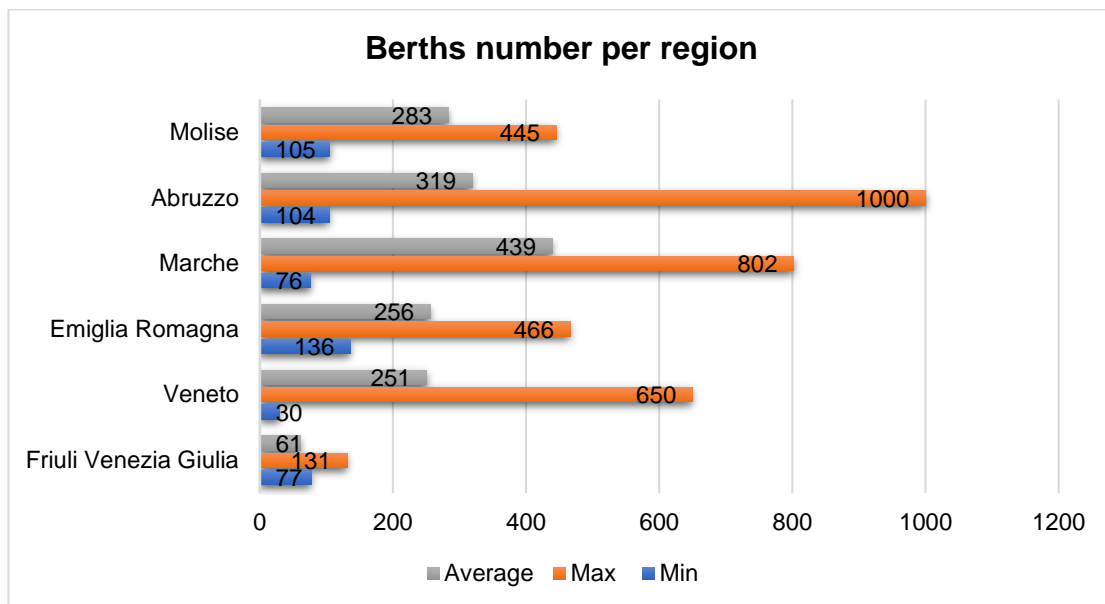
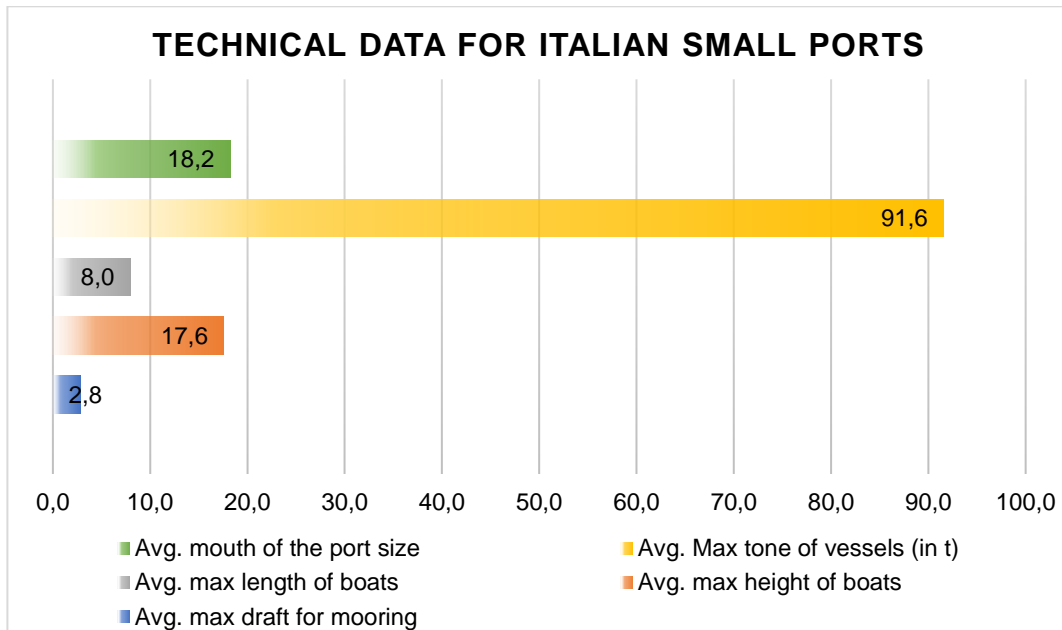


Figure 13 above depicts the overall minimum, maximum, and average number of berths available in small ports across per region. As can be seen, the maximum number of berths in Abruzzo is 1000, while in Friuli Venezia Giulia, it is as low as 131. The same is true for the average and the minimum number of available berths. The region with the highest average number of berths (439) is Marche, while the region with the lowest average number of berths is Friuli Venezia Giulia, with an average of 61 berths.

The graph below portrays the technical data averages for small ports in Italy:

- size of the mouth of the port
- max tonne of the vessel size
- max length of the boat berthing in ports
- max height of the boats
- max safe draft for mooring

Figure 14: Technical data - averages for small ports in Italy



Based on available data, the highest average berthing drafts are found in Friuli Venezia Giulia (6,34m), while the lowest average berthing drafts are found in Emilia Romagna (2,7m), a more than 3 m draft difference. The maximum height varies between regions, ranging from 21m in Friuli Venezia Giulia to 26.87m in Emilia Romagna; however, similar maximum heights can be found in Marche (24,6m) and Veneto (24,8m).

Not on the graph, but worth noting is that on average, ports stretch on 36.537 m² of area, indicating that they are spacious.

The landside section of multimodal journeys, particularly those near larger seaports, is gaining attention due to well-known accessibility issues. Those issues are caused, among other things, by traffic congestion on roads surrounding ports, preventing an efficient hinterland connection, even for small ports.

The connectivity of the small touristic ports and hinterland concept, as boaters who want to visit a certain port may be forced to alter, or worse, scarify, their plans and travel preferences due to a probable lack of infrastructure availability, efficiency, and quality to reach their desired location. Finally, a port cannot be deemed efficient if its road and rail connections are poor and unable to handle the volume of traffic expected to pass through them. As a result, a port with inefficient land

connections cannot compete, risking being left behind and, as a result, losing its appeal to boaters and tourists.

Table shows average distance in kilometers between small ports and public transport and average distance from port to stations or stops.

Table 3: Marinas hinterland connections

| | |
|------------------------|-------------|
| Railway station | 10,0 |
| Airport | 40,4 |
| Bus station | 2,3 |
| Bus Stop | 1,4 |
| Tram station | 3,8 |
| Tram stop | 1,3 |
| Highway | 16,6 |

Indeed, the transportation nodes are located an average of 10 km (railway station) and 2,3 km (bus stations) from small port locations; on the other hand. Bus stops appear to be more accessible, whereas airports and highways are further afield.

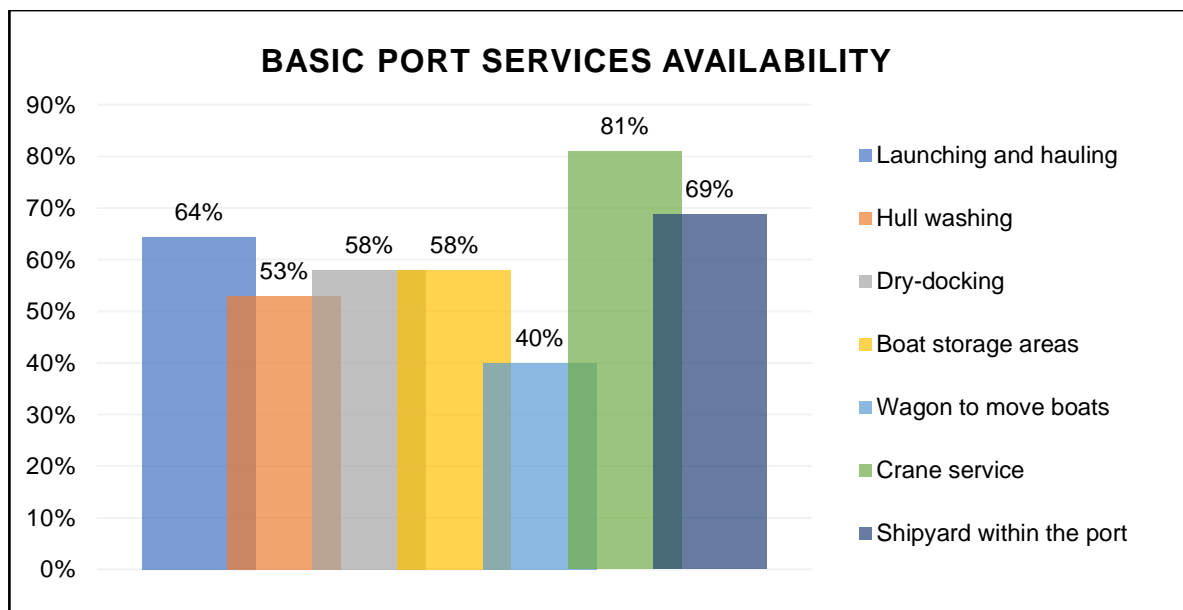
It should be noted that the distance between small ports and the individual transportation facilities mentioned varies greatly across the data sample.

Given the low-to-mid transport accessibility level caused by a considerable distance from key public transportation nodes, the public transportation infrastructure around the small regional ports under evaluation is not very well developed. Railway stations/train stops airports are located further away from the considered small ports, where walking and cycling modes of transportation are no longer viable options for boaters seeking to reach the small port destinations. Not all regions have tram networks located close to small ports; hence distance presented in the above figure is shown for ports in Emilia Romagna and Abruzzo regions

3.1.2. Overall description of available services for users (technical services, nautical services, waste collection, touristic services)

It's worth noting that the ports on the Italian coast are not located in the same way as in Croatia. While canals are a way to reach most small ports in Italy, ports are almost in inland waters (essential in weather conditions and especially in the case of damage). On the other hand, ports in Croatia are strictly on the coast, with only breakwaters 'protecting' against the effects of time.

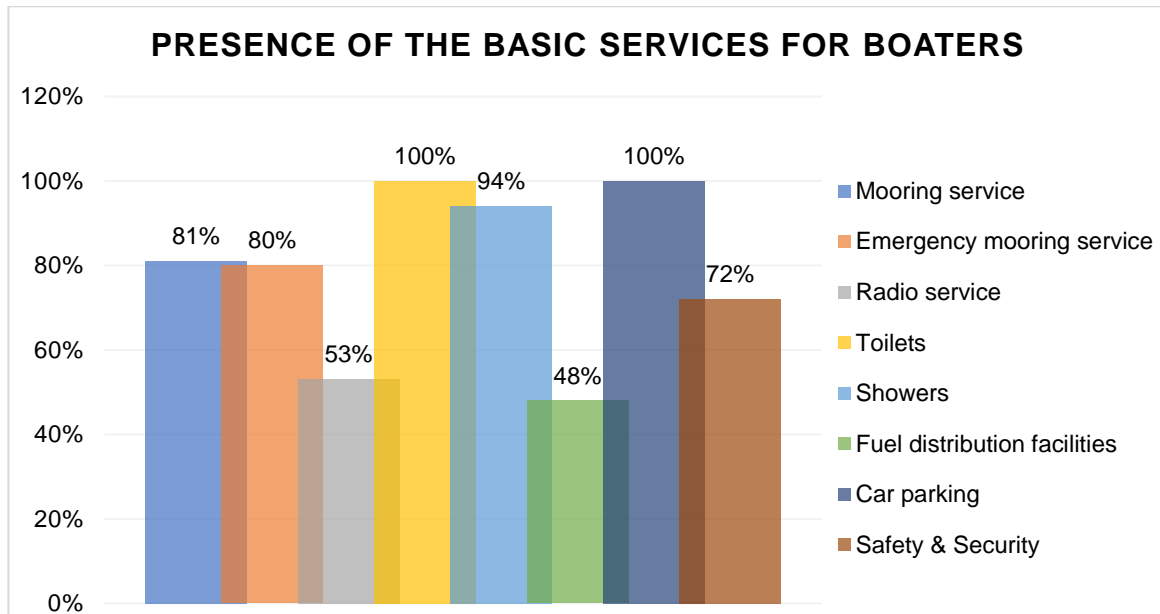
Figure 15: Basic port service availability in small ports and harbours in Italy



The primary goal of the nautical and technical services is to safeguard the community and ensure the correct running of the ports and the arrival and departure of ships inside the port waters. The state of critical services is widely varied.

For ports with crane service on-site, the average crane's safe working load (SWL) is 57t. It varies between 3,5t and 100 t SWL, but most port cranes have an SWL between 65 and 80t of SWL.

Figure 16: Presence of the basic services to the boaters in ports in Italy



Even if all ports have recreational berths, some are more dedicated to visitors, while others are more committed to local ship owners. This indicates the type and quality of services available, even if all ports provide the essential ones such as parking, mooring assistance, and electric and water provision.

The lack of homogeneity and fragmentation of the service offering; poor propensity for improvement, quality, and technological innovation; inadequate managerial training; short-term planning; and, above all, the lack of a centralized information system regarding equipment level and quality of services a consumer may expect to experience at touristic ports and marinas are all critical points impeding the nautical tourism sector's competitiveness at the moment.

Based on information on the quality of technical services, it can be estimated that, regardless of port size, ports specializing in tourism provide a higher level of detail than ports specializing in freight or fishing.

Because highly equipped ports must ensure a significant amount of space devoted to vessel manipulations and equipped with necessary infrastructure and superstructure features, boat repairing and maintenance services fall under the broad service segment characterizing highly equipped ports.

Table 4 represents findings on services offered to the visitors of small ports in Italy.

Table 4: Services provided to users in small ports and harbours in Italy

| | |
|---|--|
| Sale of technical products for the boat in shops and/or warehouses - 63% | Resining activities - 72% |
| Sale of technical products for the boat on a commission basis - 50% | Bodywork activities - 70% |
| Mechanical workshop - 76% | Shipmaster - 25% |
| Nautical carpenter - 65% | Warehouseman - 63% |
| Sail-making and sail repair - 69% | Technical Diving Operator - 88% |
| Rigging activities - 56% | Upholstery activities - 72% |
| Careening activities - 61% | Electrotechnician - 72% |

According to national statistics on touristic ports and marinas, existing ports have considerable environmental consequences and possible concerns, primarily dependent on the scale of the infrastructure. Ports with large capacity, up to 800/1.000 berths, have key management concerns (wastewater, waste collection, access roads, and so on), which could be difficult for small ports if environmental management processes are not properly organized and effective. Furthermore, in recent years, small port managers have voluntarily begun environmental certification processes based on the National ISO 14001 standard, applied to the management of port services.

In contrast, green building and energy conservation and the 'Blue Flag' attribution to tourist ports have increased attention on.

The presence of separate collection, battery disposal, and waste oil collection guarantees compliance with waste disposal regulations (where present). Upgrades are being carried out to increase energy supply based on renewable energy.

Table 5 represents the ecological aspects of small ports in Italy.

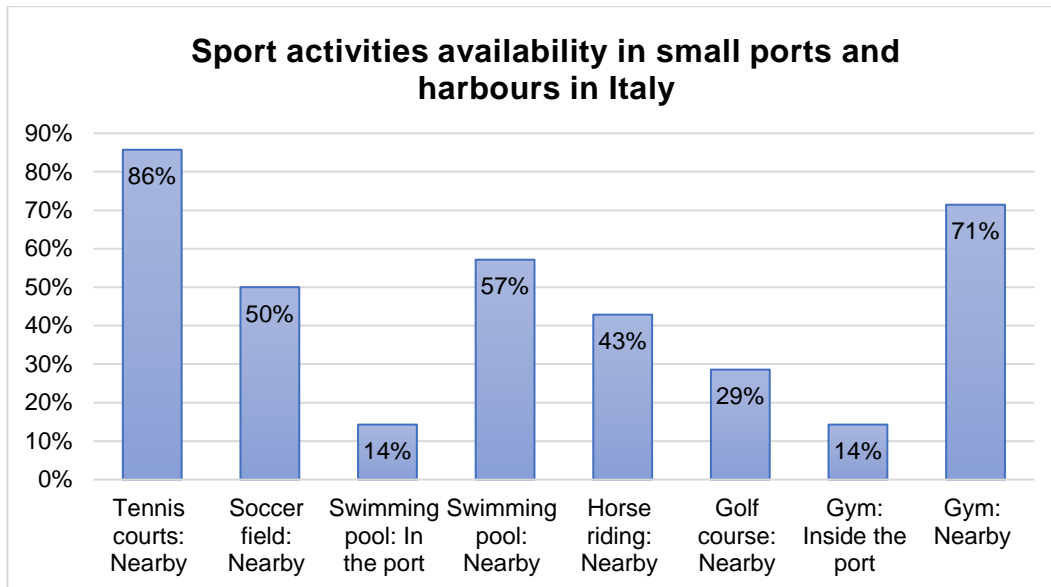
Table 5: Statistical representation of ecological aspects in small ports and harbours in Italy

| | |
|--|--|
| Wastewater monitoring system - 46% | Waste oil collection - 96% |
| Separate waste collection system - 100% | Battery disposal - 96% |
| Sewage treatment plant - 63% | Environmental Management System Certification - 25% |
| Desalination equipment - 4% | Promotion of sustainable modes of transport - 48% |
| Air purification system - 17% | Electric vehicle charging points - 50% |
| Water purification system - 61% | Energy supply based on renewables - 40% |

Small ports offer a variety of facilities for improving nautical skills. Sailing schools, diving schools, and sports associations/clubs; there is also a mid-to-high presence of restaurants and coffee shops, allowing boaters and other customers to occupy themselves on site. Notably, the average number of restaurants and coffee shops per site is 5 and 9 over the entire sample of ports analysed.

The availability of port facilities for people with physical disabilities is a significant benefit, as social inclusion does not impede visiting ports and harbours in the ports under investigation.

Figure 17: Availability of sporting facilities in the small ports in Italy



The existence of sports facilities and related activities on site varies greatly; nonetheless, a major provision for these services may be found within the port's immediate vicinity (i.e., 1km of the port site access). A tennis court, soccer fields, gyms swimming pools, and riding schools are all located within a short distance of the port in up to 46% of the ports surveyed, with swimming pools and gyms available on site in some cases.

3.2. Croatia

According to the Ordinance on the Classification of Ports, the small ports in Croatia that are part of this study are classified as ports open for public traffic and operated by port administrations created by counties and local self-government units. More than 450 small ports and twenty-two port authorities govern harbours in Croatia. Port authorities range from small port authorities with only six ports, like the County port authority of Cres or Novalja, to the Split Port Authority, which manages 80 small ports and harbours in the Split-Dalmatia County.

The questionnaire was distributed to 458 ports in Croatia, located in 7 counties north to south in:

- Istria County
- Primorje - Gorski Kotar County

- Lika - Senj County
- Zadar county
- Šibenik – Knin County
- Split – Dalmatia County
- Dubrovnik – Neretva County

Out of 458 ports, 397 ports and harbours returned data points which created a database for this study. The disparity in numbers derives primarily from the fact that boaters cannot moor in all ports and harbours because some are small and only have utility (local) moorings. All ports that accommodate boaters in the seven Adriatic counties are represented here. All the ports for which data is gathered welcome boaters and provide various berth services, but some provide more. It has to be underlined that Marinas (i.e. Privately owned and operated small ports) are not included within the ports covered by this survey.

The Croatian Counties and Port Authorities for collecting data are listed and described further below.

Istria is the Croatian peninsula that is closest to Italy. It has all of the predispositions for successful thriving in maritime business aspects. According to the Order on the classification of ports open to public traffic, the County of Istria includes seven ports of county importance: Pula, Brijuni, Rovinj, Poreč, Novigrad, Umag, and Plomin.

Ports of public transport of county and local importance (26 in total) are managed by five county port authorities whose founder is the County of Istria (Port Authorities of Pula, Rovinj, Poreč, Umag-Novigrad, and Rabac).

Primorje-Gorski Kotar County is a local self-government unit situated in the western part of Croatia, where the Northern Adriatic meets the mountains of northwest Croatia. This county is home to the Port of Rijeka – a port that holds special economic interest to the Republic of Croatia and one of the deepest ports in the Adriatic, with a sea depth of 18m. It encompasses the Rijeka, Sušak, Bakar, Omišalj and Raša basins. It is also home to 89 ports open to public traffic (Port of Rijeka, 27 ports open to public traffic at the county level and 61 local ports). Ports are located from Mošćenička Draga (County Port Authority of Opatija-Lovran-Mošćenička Draga), County Port Authority of Bakar-Kraljevica-Kostrena, County Port Authority of Crikvenica, all to the Island County port Authorities of Krk, Cres and Rab.

Lika-Senj County is located off Velebit mountain, one of the tallest Croatian mountains and home of bora wind. It is home to two County Port Authorities: County Port Authority Senj, which governs fourteen ports and County port Authority Novalja which covers part of the ports located on the northern part of the island close to the municipality of Novalja on the island of Pag.

The Zadar Port System located in the central Adriatic includes a series of ports and harbours of local and county importance and national strategic importance. The Port of Zadar primarily operates as a passenger port and continues to develop in that direction, focusing on large cruise liners, ferry traffic, and ro-ro traffic. Nautical tourism has a part in the national economy. A very important role in Port system development have ports of public transport of county and ports of local importance (115 in total). County Porth Authority of Zadar manages them.

County Port Authority of Zadar manages 113 ports, none of which are special-purpose ports or marinas. In about 15 ports, there is regular traffic where there are ferry and ship lines. Moreover, in the ports where the nautical activity occurs, there are no services listed in the survey.

Split-Dalmatia County is the largest Croatian county in terms of area, and it is located in the south of the country. On the mainland and the islands, the county comprises 15 cities and 38 municipalities. Split serves as the county seat. There are 55 regional and municipal ports in the county. Apart from Split, the County is home to 54 other ports of regional and local significance. Split is the largest port in the county and is a port of special - international economic interest for the Republic of Croatia. The county is home to the international airports of Split and Brač (on the island of Brač), which handles the majority of passengers and freight during the summer. The island of Hvar also has a tiny airport that caters to tourist traffic and smaller planes.

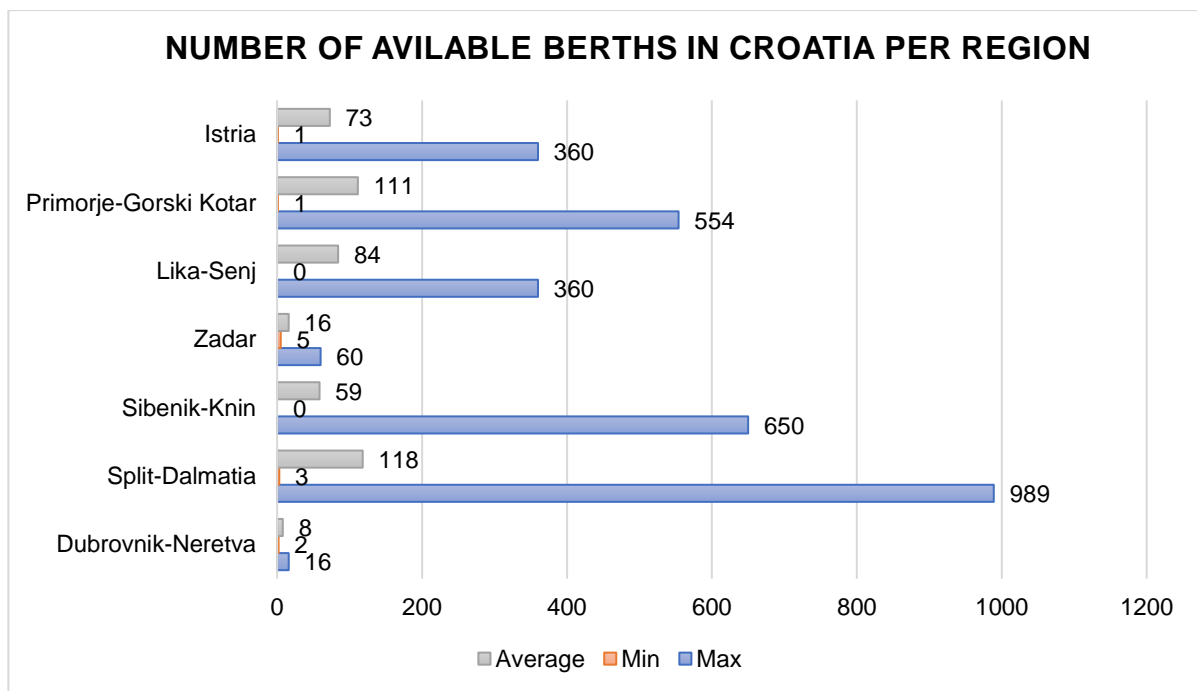
Dubrovnik-Neretva County is the southmost Croatian county. The order on the classification of ports open to public traffic includes two ports of county importance: Ploče and Dubrovnik-Gruž. Ploče is a cargo port of significant importance for neighbouring Bosnia and Herzegovina, and Dubrovnik-Gruž is Croatia's cruising vessel's home port.

Ports of County and local public ports (26 in total) are managed by five county port authorities, the founder of which is the Dubrovnik-Neretva County: County Port Authorities of Dubrovnik-Neretva County, Dubrovnik, Korčula, and Vela Luka

3.2.1. Overall description of available infrastructures (position, visualisation, berth details and capacities, hinterland connections)

The Port services are the provision activities needed to ensure the functioning of the port, aimed at enabling the operations associated with maritime traffic to be carried out in conditions of safety, efficiency, regularity, continuity and non-discrimination.

Figure 18: Average, minimum and Maximum berths available per region in Croatia

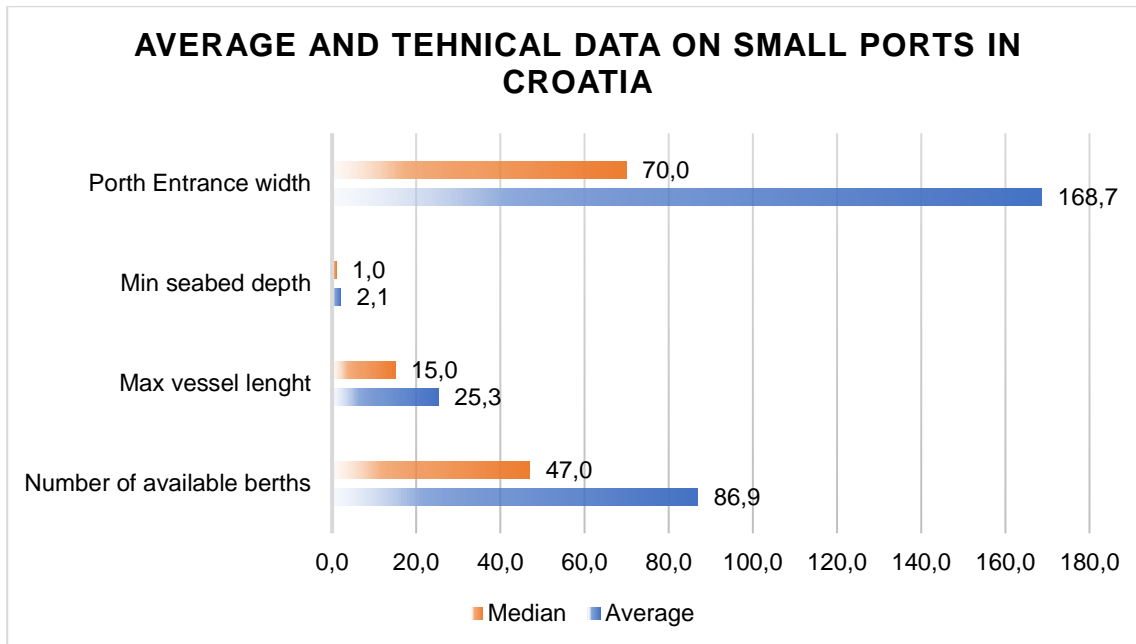


The number of available berths varies by region, but all regions have one thing in common: the minimum number of available berths ranges from 0 to 3. This is due to the nature of small ports in Croatia, as the majority of them are not small ports with berths just for locals (where it is impossible to add extra berths or build new due to restrictions such as size and space limitations). It also reflects the fact that the vast majority of ports only provide communal berths, with only a few offering boater berths.

On the other hand, some regions, such as Split-Dalmatia or Sibenik-Knin, are showing a large number of maximum berths available. A large number of berths appear to be available in Split-Dalmatia and Split-Knin, it is a case of ports which used to be governed by other entities and berths are also meant exclusively for locals, and potential new berth owners must get on the list before

they can receive berth (all of them are yearly berths), which can be obtained by either previous owners releasing them (giving them up).

Figure 19: Tehnical data on small ports in Croatia



Small ports in Croatia are easily accessible, as indicated in the diagram above: the average entry width is 168,7 metres, despite the fact that the median width is 70 metres, which is more than enough to enter the port. The minimum seaberth demonstrates what was previously stated: its low average depth plainly depicts that berths in tiny ports are intended for small boats - the minimum seabed depth I is on average 2,1 m, even if the median value is even lower – 1 m. On average, most ports cannot take vessels longer than 25,3 metres.

As shown in the preceding section, the average number of berths per port is 86,9, with a median value of 47, indicating that Croatian small ports are indeed small.

The proximity of other transportation-related facilities provides an average distance (from all ports -> institution/facility) for end-users who want to investigate additional possibilities for traveling through Croatia while remaining in their chosen port. It is worth considering that distances vary greatly between counties and depend on the port's location, whether is located close to the city or on an island with fewer ER locations compared to a city such as Rijeka or Split.

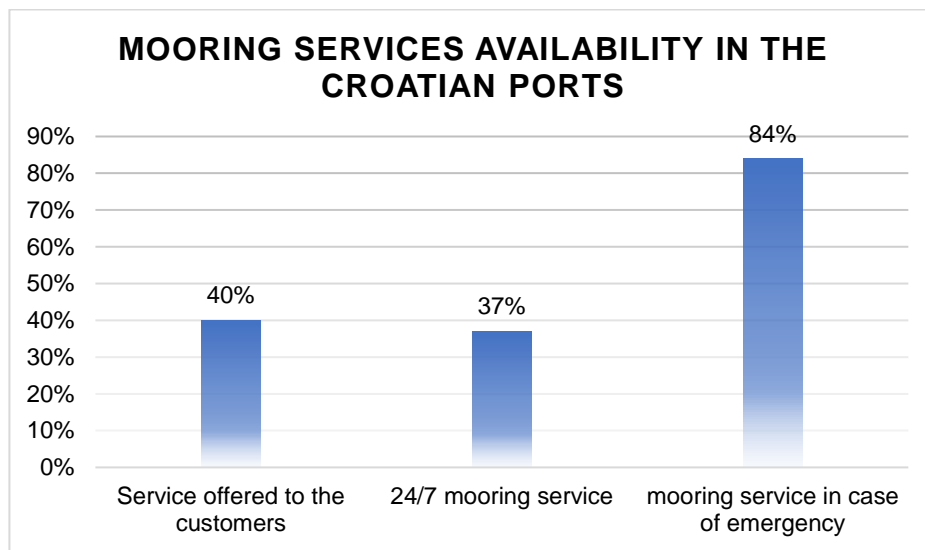
Table 6: Average distance to nearest facilities

| Average distance to nearest facilities | Croatia |
|--|---------|
| Train station | 20,3 km |
| Airport | 41 km |
| Bus station | 8,68 km |
| Freeway | 14,3 km |
| Police station / Fire department | 6,3 km |
| Hospital / Medical service | 9,15 km |

3.2.2. Overall description of available services for users (technical services, nautical services, waste collection, touristic services)

Marine services are port-related activities that assure vessel traffic's safe and efficient flow in port approaches and harbours and secure mooring or anchorage. Safe port conditions ensure the safety of the vessels that use the port, the port environment, and the maritime environment.

Figure 20: Mooring service in the port



The mooring service is defined as the process of securing a vessel by taking its lines and attaching them to fixtures on quays or jetties in the proper order and layout to facilitate docking and unmooring, unberthing operations, following instructions from the captain of the vessel or skipper. From the analysis of the collected data, the authors found out that 159 ports offer mooring services

as a standard service in their port, with 145 offering mooring/unmooring 24 hours a day, 7 days a week, and 331 offering mooring on an emergency basis. As a result, while not all ports provide mooring services, emergency mooring is accessible in at least 331 ports.

The port's location influences the availability of services. Ports closer to cities or with bigger gravitational populations often provide more services to their customers. In contrast, ports on islands or areas with limited access to larger cities may only provide rudimentary facilities.

Seasonality has a significant impact on port services. Some services are only available during specific seasons to better serve guests. During this inquiry and data collection, we discovered that different services groups have different providers. Some port authorities hire workers to perform mooring and unmooring, whereas others have 'outsourced' these tasks by awarding concessions. In some areas, these services are only offered during the summer, whereas they are available all year in others.

Table 7: Statistical representation of essential services in the ports

| | |
|---|--|
| Lifting and lowering the vessel into the sea - 20% | Vessel storage space - 3% |
| Hull washing - 12% | Trailer for moving the vessel – 7% |
| Temporary storage space - 8% | Cranes (self-propelled, land) - 11% |

Because services listed in Table 3 are deemed high-end port level, lifting and lowering into the sea, vessel storage, and/or crane are limited at Croatian county ports. To establish infrastructure and superstructure and conduct such activities, equipment requires a specified amount of area. It also shows that most ports lack this kind of space, resulting in only a few ports offering these services.

Table 8: Statistical representation of services/maintenance services offered in ports

| | |
|--|---------------------------------|
| Sales of technical products for vessels in shops and / or warehouses – 4% | Electrical services – 4% |
| Hull repair – 2% | Supervisor – 8% |
| Manufacture and repair of sails and awnings – 1% | Dry dock/Slipway – 11% |

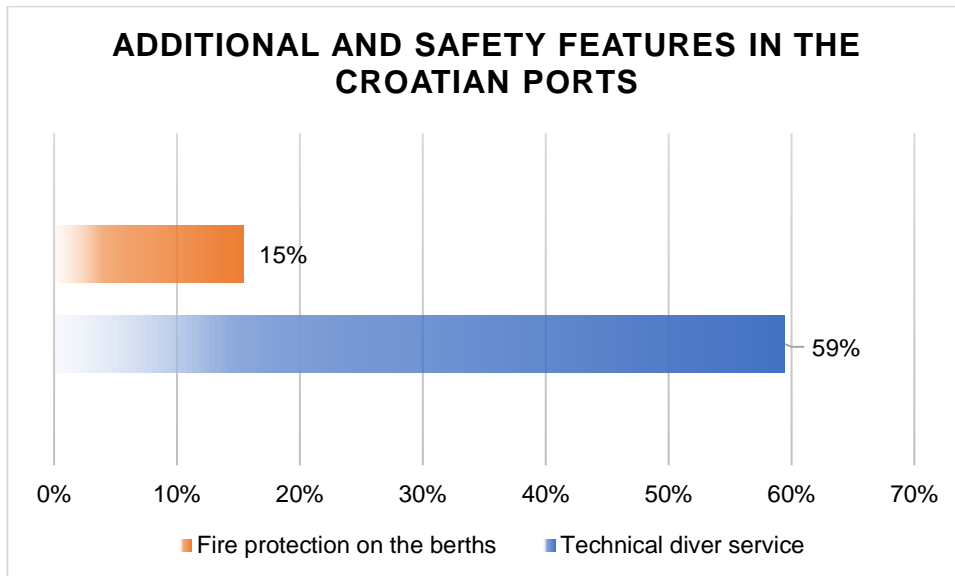
| | |
|---|--|
| Sales of technical products for vessels (custom) – 3% | Electronic services – 2% |
| Upholstery services – 1% | Warehouse – 0% |
| Rope fitting and adjustment services – 3% | Plasticization of vessels/glass plastic – 6% |
| Marine engine service – 13% | Ship joinery – 3% |

Marine engine manufacturers expect rigorous training programs that result in certification to perform engine maintenance and repair services, which must be evaluated and updated regularly to deliver a high level of service. Because the port must provide adequate space for vessel operations with all essential infrastructures and superstructure parts, the availability of a boat repairing service/overhaul shipyard comes within the high-end port level of the services and equipment segment.

The table shows that the total size and relatively small area on which the interviewed Croatian ports are built are restricting concerns, confirming what was previously stated: ports in the county can only offer very limited services due to space constraints.

In an emergency (slashed ropes/buoys, substantial weight at the bottom, etc.), the **technical diver service** delivers a sub-aquatic expert. - **59%** of the ports deliver **technical diver services (i.e. a sub-aquatic expert)**. Small Croatian Ports and harbors offer service to be conducted at call if it is not available on site.

Figure 21: Technical diver service and Fire suppression system availability in Croatian ports



A fire suppression system is available in only 15% of ports on the berths. The lack of this service or the ports' security mechanisms is due to the ports' origins and initial purpose, which was to offer a haven to small boats. However, the trend of investing in security systems in ports has been recognized, and fire protection is expected to follow suit.

As mentioned, the lack of essential services results from the port's location, character, and history. We're talking about ports and harbors that have existed since the dawn of time and whose primary function was to provide shelter. Many of the port ports that are part of this study in Croatia are primarily ones that have been in place for years and are not usually commercial. Furthermore, most are constrained by space owing to their location, making it challenging to develop and add additional services.

The most major environmental effects of small ports, according to sailors, are fuel and waste, such as litter, septic tank emissions, hazardous antifouling coatings, and greywater from boats. If there aren't enough facilities to empty septic tanks or if the tanks are faulty, boaters are more inclined to dump them into the water. Due to the continuous evolution of eco-friendly activities, ports should be ready to follow trends to boost their product and overall company. Ports may employ recyclable and ecologically friendly products and perhaps even propose how boaters can be more environmentally mindful.

Table 9: Statistical representation of ecological aspects in small ports and harbours in Croatia

| | |
|--|---|
| Presence of a port wastewater monitoring system – 0% | Presence of desalination equipment – 0% |
| Presence of a separate waste collection system in the port – 18% | Presence of air purification system in the shipyard (within the port) – 0% |
| Presence of a sewage treatment plant in the port – 11% | Presence of water purification plant inside the shipyard – 1% |
| Presence of ecological tanks for collecting waste oils and wastewater – 51% | Level of environmental education and activities promoted for users and staff – 32% |
| Presence of a proper battery disposal service – 16% | Level of promotion of sustainable modes of transport – 32% |
| Existence of Environmental Management System Certification (renewable annually) – 22% | Fuel distribution centers/Pump out stations – 6% |

The overall ecological impact could be decreased in different ways, in particular:

- Taking better care of waste management infrastructure (emptying containers regularly, locating them close to ports and berths, and enabling waste sorting),
- better maintenance of shore pump-out stations (checking and repairing them regularly, providing proper instructions on how to use them, and ensuring sufficient shore pump-out stations that are safe and easy to use), and
- generally, increasing the number of shore pump-out stations could help reduce the overall ecological impact.
- Better marking recycling areas to make them simpler to find for boaters, thus reducing the consumption and spillage of fuel into the water.
- In line with EU environmental guidelines, reduce availability and sales of single-use plastic items in favour of more sustainable materials

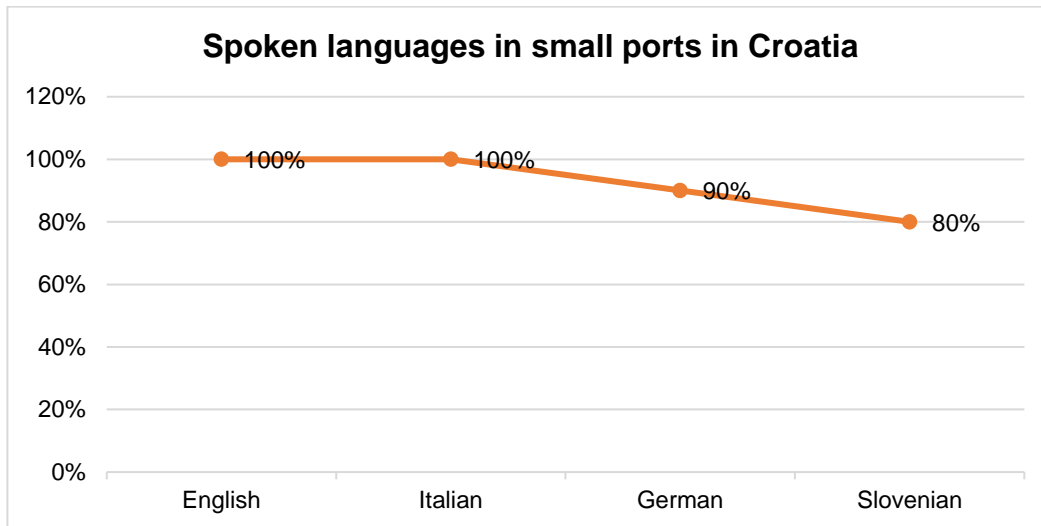
Touristic services can be characterized as an all-encompassing solution to port end-users beyond fundamental needs. Tourist services cover a wide range of disciplines where customers seek personal fulfilment, impacting the overall perception of available ports.

Welcoming visitors in their native language conveys a sense of respect and hospitality. Croatian shores have long been influenced by Italian (Venetian) culture, resulting in a higher-than-average presence of Italian speakers and, as a result, many Istrians and Dalmatians who grew up among them and learned the language and culture over generations.

Croatia is a tourist destination, with tourism accounting for 25% of the country's GDP. English is spoken fluently in every port and seaport in Croatia. The second most spoken language is Italian since there is only a sea between the two coasts and the bulk of visitors come from Italy. Slovenian and German tourists are among the top tourists visiting Croatia, explaining high rate of foreign language representation.

The port's location influences the availability of services. Ports closer to cities or with bigger gravitational populations often provide more customer services, whereas ports on islands or in areas with limited access to larger cities may only provide rudimentary facilities. Seasonality has a significant impact on port services, as the authors have seen patterns in which some services are only available during specific seasons in order to better serve guests. During his inquiry and data collection, the authors discovered that different groups of services have different providers. Some port authorities hire workers to perform mooring and unmooring, whereas others have 'outsourced' these tasks by awarding concessions. In some areas, these services are only offered during the summer, whereas in others, they are available all year.

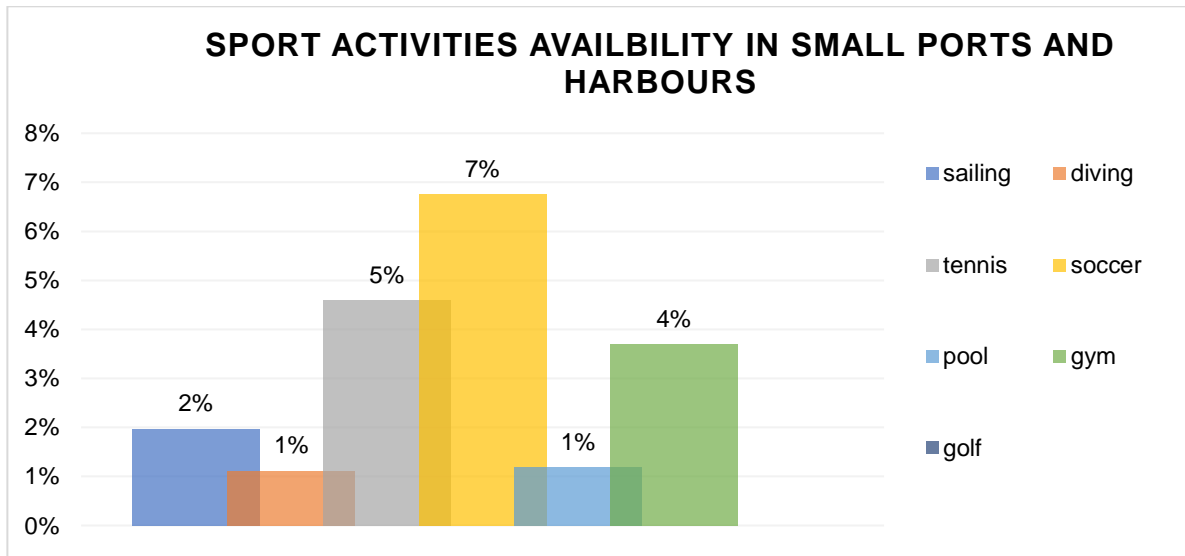
Table 10: Most commonly spoken languages in small ports in Croatia



Sporting fields and amenities also contribute significantly to the diversification of the tourism offer. Seaside cities are reasonably developed in terms of cultural events and infrastructure demands. However, some ports are typically in secluded locations, sometimes even more challenging to get by land, and are thus a little "under-equipped".

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Figure 22: Sport activities availabilities in the vicinity of small ports

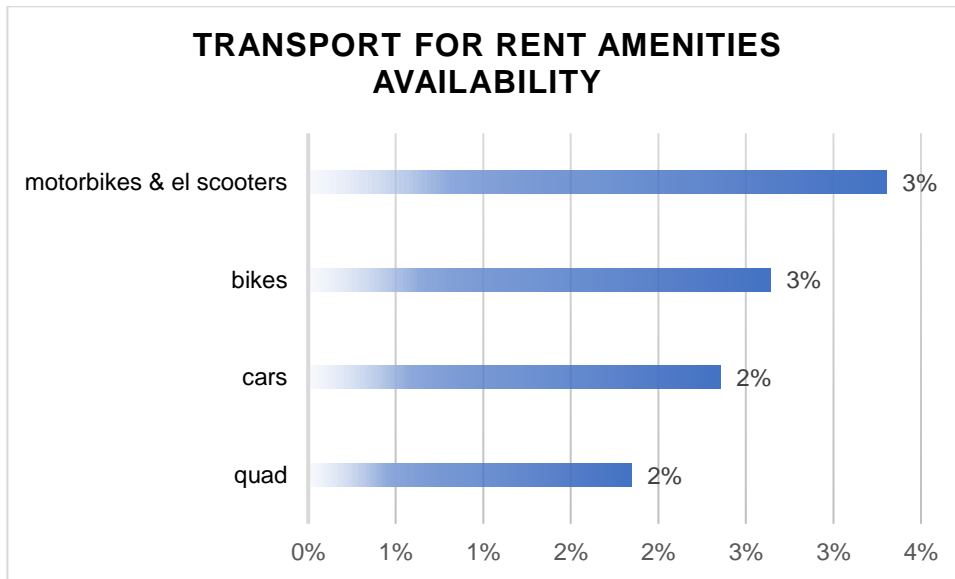


By no means does this imply that such ports are struggling to attract clients; on the contrary, people are fleeing busy areas favouring those that are a little more secluded. In sporting activities (windsurfing, sports clubs, sailing schools, and diving schools), 51 out of 397 interviewed ports contain these activities, which means that 87% of ports have no additional material connected to sea-related sports activities. Other sports and wellness facilities are dispersed similarly (mostly ports nearby bigger cities are sufficiently equipped while the smaller harbours are often not).

With the ever-increasing demand for various types of SPA and beauty centres, wellness facilities have become a necessary accessory in today's environment. Only 5% percent of ports have at least one wellness facility (SPA centre, health resort, medical centre, beauty centre, hair salon, or barbershop) nearby – within 1 km.

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Figure 23: Transport for rent amenities availability



The average distance from ports to critical facilities such as police stations and fire departments is summarized in the table below. This is one of the most important considerations when selecting a port. The proximity of these institutions provides end-users with crucial information on the first steps to take in an emergency.

The availability of port facilities for those with reduced mobility is a significant benefit. However, most small Croatian ports are not adjusted to allow mobility for people with reduced mobility. In terms of accommodating those with limited mobility, 5 percent of Croatia ports cater to the disabled. At the same time, 20% in Italy have at least some ramps, bridges, or elevators to make moving easier for those who may be affected. The best county is Istria, with more than 45% of ports with adjusted mobility options.

It's also worth noting that pet-friendly amenities aren't available in port services in Croatia, In Italy it's about 15% of ports offer this kind of service. Marinas (privately operated and not included in this survey) do so, highlighting the need to investigate such elements for marinas in light of the growing demand from end-users for pet-friendly accommodations.

Restaurants and coffee shops are a must-have for any tourist destination. Even though they do not strictly belong to the port regions, most ports and harbours are within walking distance of such amenities (concessions).

4. SWOT analysis on small port's phenomenon

A study tool known as the SWOT analysis was utilized to analyze the growth of naval tourism in the programme area. SWOT analysis, also known as situational analysis, is an intuitive method of examining and evaluating the internal (strengths and weaknesses) and external (opportunities and threats) aspects of the environment or factors in the context of observing the state and potential development of a specific phenomenon, in this case, the small port phenomenon.

| | |
|---|---|
| <p>Strengths</p> <ul style="list-style-type: none"> • Natural beauty, clear sea, indented coast and numerous islands • Favorable climate • Ecologically preserved landscape • Strategic position • Traffic connection / accessibility • Supporting tourist infrastructure (service activities) • Strategic sector of Blue Economy • Hospitality • Educational structure of staff • Personal safety and safety of navigation • Existing asset availability | <p>Weaknesses</p> <ul style="list-style-type: none"> • Insufficient number of berths • Lack of berths for larger yachts • Content of the offer in marinas and level of service • Level of technical service in marinas • Seasonality of demand • Content of the destination offer and quality of services • Need for a more sustainable management and improvement of services for waste collection and water treatment • Inconsistency of legal regulations • Administrative barriers • Inadequate categorization of ports • Lack of nautical tourism development strategy |
| <p>Opportunities</p> <ul style="list-style-type: none"> • Opening new markets, broader reach • Uptrends in tourism • Croatia and Italy are popular tourist destinations • Sharing knowledge on practices between countries • Adoption of a nautical tourism development strategy on both shores | <p>Threats</p> <ul style="list-style-type: none"> • Recession in the world market • Risk for marine pollution • Reconstruction of the coast • Insufficient awareness of the need for protection of the environment and biodiversity conservation • Inadequate legal and other regulations • World pandemic |

- Climatic conditions favorable for significant season extension
- Increase in the quality of another tourist offer
- Foreign investment

- War
- Fast urbanization of coastal towns and cities

5. Conclusion

This report examined 464 small ports, harbours and marinas in the programme area (432 from Croatia and 67 from Italy), and pertinent information on port structures and services was presented as a result of data collection via a dedicated questionnaire developed within the technical WP3.

During the research period a lot of insight was gain and many lessons were learned about the different status of small and tourist ports on both sides of the Adriatic. This pattern is likely to be found across all EU countries due to differing national legislation and port status. It all starts with the different legislative definitions and status of ports in Italy and Croatia, which leads to differences in organization, promotion, and maintenance, among other things.

To maximize the benefits to ports on both sides of the Adriatic Sea, a common port classification standard should be established, from which a general classification of all ports in the European Union can be launched later. This would allow for port classification and the adoption of a single standard, allowing all visitors to know what to expect in each port.

Overall, infrastructure availability by small ports and harbours appears to be satisfactory. A wide range of features limitations about port sizes and dimensions, such as the lengths, heights, and tonnage of vessels to be accommodated, the number of moorings, the ports' overall area, and entrance width, are in place. Such findings highlight the importance of providing users with clear information about the various features.

Despite the fact that small ports and harbours have one of the best chances for success due to their favorable geolocation in the Mediterranean and proximity to neighbouring states with similar views on the sector, some development appears to be out of reach. The majority of Croatia's small Adriatic ports are classified as "satellite ports," which means they serve as a temporary hideaway, with some berths improvised with homemade equipment. Because some of them are illegally constructed and artificially extended, there is no structural cohesion between berthing piers.

As it is impossible to invest in all of the ports simultaneously, becoming sustainable and self-sustainable is set as a long-term goal for ports on both side of the Adriatic.

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List of figures

| | |
|---|----|
| Figure 1: Italy-Croatia Interreg Programme Area | 7 |
| Figure 2: The Adriatic Sea and countries on its shores | 8 |
| Figure 3: Map of Italy | 12 |
| Figure 4: European TEN-T network | 15 |
| Figure 5: Italy's TEN-T road network | 16 |
| Figure 6: Ais Traffic-2014 | 18 |
| Figure 7: Rail network in Italy | 19 |
| Figure 8: Map of Croatia | 22 |
| Figure 9: Croatia's road network | 26 |
| Figure 10: Ferry connections between Italy and Croatia | 28 |
| Figure 11: Rail network in Croatia | 30 |
| Figure 12: Small ports in Italy | 39 |
| Figure 13: Number of berths in Italian Marinas on the Adriatic coast | 40 |
| Figure 14: Technical data - averages for small ports in Italy | 41 |
| Figure 15: Basic port service availability in small ports and harbours in Italy | 43 |
| Figure 16: Presence of the basic services to the boaters in ports in Italy | 44 |
| Figure 17: Availability of sporting facilities in the small ports in Italy | 47 |
| Figure 18: Average, minimum and Maximum berths available per region in Croatia | 50 |
| Figure 19: Tehnical data on small ports in Croatia | 51 |
| Figure 20: Mooring service in the port | 52 |
| Figure 21: Technical diver service and Fire suppression system availability in Croatian ports | 55 |
| Figure 22: Sport activities availabilities in the vicinity of small ports | 59 |
| Figure 23:Transport for rent amenities availability | 60 |

List of tables:

| | |
|--|----|
| Table 1: Italy - Statistical data | 11 |
| Table 2: Croatia - statistics | 21 |
| Table 3: Marinas hinterland connections | 42 |
| Table 4: Services provided to users in small ports and harbours in Italy | 45 |
| Table 5: Statistical representation of ecological aspects in small ports and harbours in Italy | 46 |
| Table 10: Average distance to nearest facilities | 52 |
| Table 6: Statistical representation of essential services in the ports | 53 |
| Table 7: Statistical representation of services/maintenance services offered in ports | 53 |
| Table 8: Statistical representation of ecological aspects in small ports and harbours in Croatia | 55 |
| Table 9: Most commonly spoken languages in small ports in Croatia | 58 |