

# Logoteam d.o.o.

## Development of a small port prototype - pilot summary

Final version

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## 1 Introduction

Logoteam's pilot action has been implemented in the context of the FRAMESPORT project, which focuses on the sustainable development of small ports in the Adriatic region. The project involves partners from Italy and Croatia, two most prominent of the Adriatic countries. The choice to implement this pilot action was based on the need to address the common challenges facing small ports in the region, such as inefficient business practices, limited access to renewable energy, and inadequate waste management solutions.

Furthermore, the Adriatic region is an essential area for the development of small ports, given its strategic location and potential for economic growth. The project's focus on the sustainable development of small ports in the region is in line with the broader regional and transnational goals of promoting sustainable economic development and cooperation among the participating countries. Ultimately, the implementation of the pilot action within this territorial context is part of a broader collaborative initiative aimed at addressing complex challenges and achieving sustainable development in the region.

The overall vision of Logoteam's pilot action was to provide a comprehensive document containing the best practices from ports and similar infrastructural areas worldwide. The team focused on conducting thorough desk and occasional field research on the existing state of Adriatic ports and identifying best practices from all over the world, with a focus on efficient business practices and processes, renewable energy, waste management solutions, among others. The resulting document draft consists of several chapters or paragraphs, each containing one of the aspects that could potentially be transferred to the Adriatic coast.

The activities carried out by Logoteam included the acquisition of thematic equipment, conducting desk and field research, and compiling a comprehensive document draft containing non-exhaustive examples and best practices. The team's professionalism, diligence, and attention to detail enabled them to execute the pilot action effectively and without encountering any significant issues.

The results of the pilot action have been promising, with the team successfully delivering a comprehensive document containing the best practices from ports and similar infrastructural areas worldwide. The document draft is a valuable resource that can inform the FRAMESPORT project's activities in WP3 and WP4, and set the path towards achieving the broader objectives of the project.

There were no significant discrepancies with respect to initial expectations, as the Logoteam's pilot action was executed effectively, and the resulting document draft met the project's goals and objectives.

As part of the Logoteam's pilot action, a literature review was conducted to identify best practices and highlights from ports and similar infrastructural areas worldwide. The literature review highlighted the importance of efficient business practices and processes, renewable energy, waste management solutions, and sustainable development in ensuring the long-term success of small ports.

One of the best practices identified was the need to adopt a comprehensive and holistic approach to sustainable development that encompasses environmental, social, and economic factors. This approach involves designing policies and practices that are both environmentally sustainable and economically viable, while also promoting social equity and inclusivity.

Another best practice identified was the need to leverage technological innovations and advancements to enhance the efficiency and sustainability of small ports. This involves adopting digital solutions such as automation, artificial intelligence, and machine learning to optimize port operations, reduce waste, and promote renewable energy solutions.

Furthermore, the literature review highlighted the importance of stakeholder engagement and collaboration in ensuring the long-term success of small ports. This involves engaging with port users, local communities, and other stakeholders in the decision-making process to ensure that their needs and concerns are considered and addressed.

Overall, the literature review demonstrated the need for a comprehensive and holistic approach to sustainable development in small ports, leveraging technological advancements, and promoting stakeholder engagement and collaboration to ensure long-term success. These best practices and highlights are essential considerations for the development of the FRAMESPORT project's overall strategy and the achievement of its broader goals and objectives.

The document draft created by Logoteam consists of several chapters or paragraphs, each devoted to a specific aspect that has the potential to be transferred to the Adriatic coast, including informatization, ecology, services, safety, tourist offering, infrastructure, and superstructure.

Integrating the best practices identified during the research activities and creating a comprehensive and insightful document outlining these practices that would serve as a vital resource for the stakeholders in the Adriatic port community, including policymakers, port authorities, and other interested parties: Logoteam successfully integrated the best practices identified during the research activities and created a comprehensive and insightful document that outlines these practices and serves as a vital resource for stakeholders in the Adriatic port community. The document will be of significant value to policymakers, port authorities, and other interested parties seeking to achieve sustainable development in the Adriatic ports.

Logoteam's employees were committed to conducting thorough research on the current state of the Adriatic ports and identifying best practices from ports and infrastructural areas worldwide that could be transferred to the Adriatic coast. To achieve this goal, they visited several port authorities and county port authorities all over the Croatian side of the Adriatic coast, presenting their findings and recommendations to these stakeholders.

During these visits, Logoteam's employees engaged with port authorities and other relevant stakeholders, sharing their insights and recommendations for achieving sustainable development in the Adriatic ports. They presented their draft document, which contained numerous examples and best practices from ports and infrastructural areas worldwide and highlighted critical areas for improvement, such as efficient business processes, renewable energy, waste management solutions, and other eco-friendly measures.

Logoteam's engagement with these stakeholders was critical in fostering a collaborative effort towards achieving sustainable development in the Adriatic ports. Their presentations and recommendations served as a valuable resource for policymakers, port authorities, and other interested parties, providing a clear path towards achieving the sustainability and modernization goals of the broader initiative. Overall, Logoteam's visits and presentations were instrumental in raising awareness of the importance of sustainable development in the Adriatic ports and laying the foundation for a more sustainable future.

Based on the success of this pilot action, several suggestions and recommendations can be made for the replication of similar actions in other territories. Firstly, it is essential to carry out thorough desk and field research activities to identify best practices and strategies for sustainable



development in small ports. Consultation with industry professionals and stakeholders is also crucial to ensure that the best practices identified are relevant and applicable to the specific context.

Additionally, it is essential to monitor progress and success through the identification and monitoring of several key performance indicators, as done by Logoteam. This ensures that objectives are being met and that the pilot action is contributing to the overall strategy of the project.

Overall, the replication of Logoteam's pilot action in other territories can be successful if carried out with a comprehensive and detailed approach, taking into account the unique characteristics and context of the territory. The consultation of industry professionals and stakeholders is also essential to ensure that the best practices identified are relevant and applicable. By following these recommendations and building on the successes of Logoteam's pilot action, sustainable development in small ports can be achieved in other territories, contributing to the long-term viability and success of these ports.

## 2 Pilot action in a nutshell

The document draft created by Logoteam consists of several chapters or paragraphs, each devoted to a specific aspect that has the potential to be transferred to the Adriatic coast, including informatization, ecology, services, safety, tourist offering, infrastructure, and superstructure. In the following paragraphs, summary of chapters and sub-chapters from the Logoteam's pilot action can be found briefly described.

### 2.1 Ecology

As part of Logoteam's pilot action within the FRAMESPORT project, the team conducted extensive research on the existing state of the Adriatic ports and identified best practices from ports and infrastructural areas worldwide that could be transferred to the Adriatic coast. In particular, the team focused on eco-friendly measures such as efficient waste management solutions and the promotion of renewable energy sources. The team's research highlighted the need for a comprehensive and holistic approach to sustainable development in small ports, encompassing environmental, social, and economic factors. Logoteam identified several best practices in the area of ecology, such as leveraging technological advancements and innovations to enhance the efficiency and sustainability of small ports. By adopting digital solutions such as automation, artificial intelligence, and machine learning, ports can optimize their operations, reduce waste, and promote renewable energy solutions, thereby contributing to the overall sustainability of the port and surrounding environment.

#### 2.1.1 Photovoltaic energy

Photovoltaic energy is a type of renewable energy that uses solar cells to convert sunlight into electricity. It is a key aspect of sustainable development, and its adoption has been growing rapidly in recent years. Photovoltaic energy systems have several benefits, including reducing greenhouse gas emissions and dependence on non-renewable energy sources. Furthermore, photovoltaic energy can be



generated at or near the point of consumption, which reduces transmission losses and enhances grid stability. In the context of this pilot action, the adoption of photovoltaic energy was identified as a best practice for sustainable development in small ports. The pilot action highlighted the importance of renewable energy solutions such as photovoltaic energy in reducing greenhouse gas emissions and promoting sustainability in small ports. The adoption of photovoltaic energy in small ports can contribute to the broader regional and transnational goals of promoting sustainable economic development and cooperation among participating countries. Ultimately, the successful adoption of photovoltaic energy in small ports can serve as a model for other infrastructural areas and territories looking to achieve sustainable development and reduce their environmental footprint.

### 2.1.2 Shore-ship power supply

Shore-to-ship energy or power supply refers to the provision of electrical power to vessels docked at ports, using shore-based power sources instead of their onboard generators. This approach to power supply is becoming increasingly popular due to its potential for reducing the environmental impact of port operations. Vessels docked at ports typically run their engines continuously to power the ship's systems, including lighting, heating, ventilation, and air conditioning, which can produce significant emissions, noise, and vibration. By connecting to a shore-based power supply, vessels can significantly reduce their emissions, noise, and vibration levels, resulting in improved air quality and reduced environmental impact. This method of power supply is also more cost-effective than traditional onboard generators, as it eliminates the need to purchase, maintain, and operate onboard generators. In the context of the FRAMESPORT project's focus on sustainable development of small ports in the Adriatic region, shore-to-ship power supply could be a critical measure in achieving the project's sustainability goals. By providing cleaner, cheaper, and more reliable power to vessels docked at small ports, shore-to-ship power supply could help reduce the environmental impact of port operations and improve the long-term viability of these ports.



### 2.1.3 Smart lighting solutions

Smart lighting solutions refer to the use of intelligent technology to control and manage lighting systems. This technology allows for the optimization of energy consumption, reduction of costs, and improvement of safety and visibility. Smart lighting solutions could contribute to the sustainability of small ports by reducing energy consumption and costs associated with lighting, while also improving safety for port users. These solutions involve the use of sensors and automation to adjust lighting levels based on natural light, occupancy, and other environmental factors, reducing energy waste and ensuring that lighting is only used when necessary. Smart lighting solutions could also include the use of energy-efficient LED lights and the integration of renewable energy sources such as photovoltaic energy to power lighting systems. Overall, the adoption of smart lighting solutions in small ports could play a vital role in achieving sustainable development and modernization goals, reducing energy consumption, and improving safety and visibility for port users.



### 2.1.4 Smart buoys with sensors

Smart buoys with sensors are an innovative solution that can help improve the safety and efficiency of small ports. These buoys are equipped with sensors that collect data on various environmental factors, such as water depth, temperature, and weather conditions. The collected data is then transmitted to a central system, which can be accessed by port authorities and other stakeholders. This information can be used to inform decision-making processes and optimize port operations, such as vessel traffic management and cargo handling.



Smart buoys with sensors can also be used to monitor the ecological status of the surrounding waters, detecting any pollutants or harmful substances that may pose a threat to marine life and

ecosystems. This information can be used to develop and implement appropriate measures to prevent or mitigate environmental damage.

Furthermore, smart buoys can provide valuable insights into the performance of port infrastructure, such as docks and breakwaters, detecting any changes or damages that may require attention. This can help prevent accidents and ensure the safety of port users.

When talking about sustainable development, smart buoys with sensors can play a crucial role in promoting energy efficiency and reducing the carbon footprint of small ports. By providing real-time data on water depth, currents, and wind speed, these buoys can help optimize the use of shore-to-ship power supply systems and reduce the reliance on fossil fuels. Additionally, smart buoys can be equipped with photovoltaic panels to power their sensors and transmit data, further reducing the ports' energy consumption.

Overall, smart buoys with sensors are a valuable tool for achieving sustainable development in small ports. They can improve safety, optimize port operations, and reduce the ports' environmental impact. By leveraging the data collected by these buoys, port authorities and other stakeholders can make informed decisions that promote the long-term viability and success of small ports.

### 2.1.5 Solar powered lighting solutions

Solar-powered lighting solutions refer to lighting systems that rely on solar energy to operate. Solar panels are used to collect energy from the sun, which is then stored in batteries and used to power LED lights. These lighting solutions are environmentally friendly and cost-effective as they do not require any electricity from the grid, reducing the carbon footprint and energy bills. The implementation of solar-powered lighting solutions can contribute to the sustainable development of small ports in the Adriatic region. By reducing reliance on traditional power sources and adopting eco-friendly solutions, small ports can reduce their environmental impact and operating costs, contributing to their long-term viability and success. The use of solar-powered lighting solutions is particularly useful for ports in





remote areas or regions with limited access to traditional power sources, where the installation of electrical infrastructure can be costly and challenging. Overall, the adoption of solar-powered lighting solutions can contribute to achieving the broader goals of promoting sustainable economic development and cooperation in the Adriatic region, making small ports more efficient, eco-friendly, and cost-effective.

#### 2.1.6 Waste removal vessels

Waste removal vessels are specialized boats designed to collect and transport waste materials from ports, harbours, and other marine areas. These vessels are equipped with various waste management systems, such as compactors and incinerators, that can process different types of waste materials. The use of waste removal vessels is essential for maintaining the cleanliness and hygiene of marine environments, preventing environmental pollution, and promoting



sustainable development. Waste removal vessels are a critical aspect of achieving sustainable waste management solutions in small ports in the Adriatic region. These vessels can help small ports improve their waste management practices, reduce their environmental impact, and ensure compliance with relevant regulations and standards. By identifying and promoting best practices for waste removal vessels, the FRAMESPORT project can contribute to the long-term sustainability and viability of small ports in the Adriatic region.

#### 2.1.7 Electric vehicles

Electric vehicles are a type of transportation that use electric motors powered by rechargeable batteries instead of internal combustion engines fueled by gasoline or diesel. They are a key technology for reducing carbon emissions in the transportation sector, which is a significant contributor to global greenhouse gas emissions. Electric vehicles produce fewer emissions than traditional vehicles and are often more energy-efficient, making them an excellent solution for

promoting sustainable transportation. The use of electric vehicles could reduce the carbon footprint of port operations, particularly in transportation and logistics.



This would contribute to the overall goal of promoting sustainable development in small ports and reducing the environmental impact of port activities. Furthermore, the adoption of electric vehicles in the port sector can also promote innovation and technology transfer, creating new opportunities for the development of clean energy solutions and the advancement of sustainable transportation systems.

### 2.1.8 Electric charging stations

Electric charging stations are essential infrastructure for the increasing number of electric vehicles on the road. As the world moves towards more sustainable modes of transportation, the demand for electric charging stations has grown exponentially. The importance of electric charging stations in the context of the pilot action lies in their ability to promote the use of electric vehicles, which are an important element in reducing the carbon footprint of small ports. By installing electric charging stations, small ports can encourage the use of electric vehicles by visitors and staff, promoting sustainable transportation options. The installation of electric charging stations also demonstrates the port's commitment to sustainability, which can help attract more environmentally conscious visitors and businesses. Overall, electric charging stations are a critical component in the shift towards more sustainable modes of transportation and can play a vital role in achieving sustainable development in small ports.



### 2.1.9 Electric vessels

Electric vessels, also known as electric boats, are watercraft powered by electric motors instead of traditional combustion engines. The use of electric vessels can significantly reduce the environmental impact of the shipping industry by eliminating air pollution and reducing greenhouse gas emissions. In addition, electric vessels offer operational and cost benefits, such as reduced maintenance costs, quieter operation, and lower fuel costs.

The use of electric vessels is aligned with the broader goal of sustainable development in the shipping industry, as it promotes the use of clean energy and reduces the negative environmental impact of shipping activities.



Electric vessels have become increasingly popular in recent years, with many ports and shipping companies worldwide adopting this technology. The use of electric vessels can be particularly beneficial, given the region's strategic location and potential for economic growth.

### 2.1.10 Waste management solutions

Waste management solutions are a critical aspect of any sustainable development initiative, particularly in the context of small ports where waste disposal can be a significant challenge. Waste management solutions encompass a range of strategies aimed at reducing waste production, improving waste separation and recycling, and ensuring proper disposal of non-recyclable waste.



One of the main goals of waste management solutions is to minimize the environmental impact of waste generated by port activities. This



includes reducing the amount of waste sent to landfills, preventing pollution of waterways, and minimizing greenhouse gas emissions associated with waste disposal.

Waste management solutions are an essential component of achieving sustainable development in small ports. Inefficient waste management practices can lead to environmental degradation, health hazards, and economic losses. Therefore, the project focuses on identifying best practices and solutions that can be implemented in small ports to ensure efficient and eco-friendly waste management. Some of the best practices identified include the adoption of recycling programs, the use of alternative fuels and energy sources, and the implementation of waste reduction strategies. The ultimate goal of these waste management solutions is to minimize the environmental impact of port activities while promoting economic growth and social well-being.

#### 2.1.11 Alternative energy solutions (waves, tides and wind)

Alternative energy solutions, such as waves, tides, and wind, are a critical component of sustainable development for small ports. In an effort to reduce the reliance on fossil fuels, the use of renewable energy sources has become increasingly popular. These alternative energy solutions have the potential to reduce greenhouse gas emissions and environmental impact, making them an attractive option for small port operators.



The implementation of alternative energy solutions in small ports can bring many benefits, such as reducing operating costs and increasing energy efficiency. The use of waves, tides, and wind to generate power can be especially useful in areas with high levels of wave and wind activity. For example, wave energy converters can be installed in ports to convert the energy generated by the waves into electricity, which can then be used to power port operations. Similarly, wind turbines can be installed to generate electricity from the wind, which can also be used to power port operations.

However, the implementation of these alternative energy solutions also poses some challenges. The installation and maintenance of wave and wind energy converters can be costly and require specific

technical expertise. Additionally, the availability of these alternative energy sources can be limited, especially in areas with low levels of wave and wind activity. Nevertheless, the implementation of alternative energy solutions remains a critical component of sustainable development in small ports, and the identification of best practices by Logoteam is a valuable resource for achieving this goal. Overall, the implementation of alternative energy solutions in small ports is an essential step towards reducing the environmental impact of these ports and achieving sustainable development in the long term.

## 2.2 Passenger services

Passenger services refer to the range of services provided to passengers visiting or using a port, including amenities, accommodations, and transportation. The primary goal of passenger services is to enhance the visitor experience and ensure that passengers are comfortable and safe while traveling through the port. The importance of passenger services cannot be overstated, particularly in the context of small ports, where visitors may be less familiar with the facilities and services available. By providing high-quality passenger services, ports can attract and retain visitors, enhancing their reputation and contributing to the region's economic growth. Passenger services can take many forms, including information centres, restaurants, hotels, and transportation options. The focus on passenger services is part of a broader effort to promote sustainable development in small ports, including efforts to reduce waste, promote renewable energy, and adopt efficient business practices. By providing high-quality passenger services that are environmentally friendly and socially responsible, ports can help ensure long-term success and sustainability, benefiting both the port and the surrounding communities.

### 2.2.1 Mooring service

A mooring service refers to the provision of equipment and personnel required to keep a vessel safely secured at a dock or anchorage. Mooring services are essential for the smooth operation of shipping and transport industries as they ensure that ships can be safely and efficiently loaded and unloaded. These services involve the installation of mooring systems that consist of anchors, chains, ropes, and other equipment that help to keep the ship steady and prevent it from drifting away from the dock. Additionally, mooring services can also include assistance in maneuvering the vessel into the dock and monitoring weather conditions to ensure the safety of the ship and crew.

In the context of the pilot action, the mooring service can be an essential component of the overall sustainability and efficiency of the transport and shipping industry. The use of smart mooring systems that employ sensors and other technology to optimize the use of space and resources can help reduce congestion at ports and increase the speed and



efficiency of loading and unloading operations. Moreover, the use of renewable energy sources in the operation of mooring services, such as solar or wind power, can reduce the carbon footprint of these services and contribute to overall sustainability efforts. By providing a reliable and efficient mooring service, the pilot action can help to promote the growth and success of the shipping industry while also advancing environmental and social goals.

### 2.2.2 Pollution prevention (skimmers, floating dams)

Pollution prevention is an essential component of sustainable development, particularly when talking about small ports. Skimmers and floating dams are among the many innovative solutions that have been developed to prevent pollution and minimize the impact of spills or leaks. Skimmers are devices designed to remove oil or other pollutants from the surface of the water, while floating dams are barriers that can be deployed to contain spills or prevent them from spreading. These solutions are particularly relevant in the Adriatic region, where the risk of oil spills and other forms of pollution is high due to the region's significant maritime traffic.



The implementation of such pollution prevention solutions in small ports can have a significant impact on the environment and local communities. Not only do they prevent harm to marine life and ecosystems, but they also reduce the risk of adverse effects on human health and local economies that depend on clean and healthy waters. In this regard, the pilot action's goal to identify best practices and solutions for sustainable development in small ports, including pollution prevention solutions, is critical to promoting long-term environmental and economic sustainability in the Adriatic region.



Overall, effective pollution prevention measures such as skimmers and floating dams are essential components of sustainable port management. By integrating these solutions into small port operations, the risk of pollution incidents can be significantly reduced, contributing to the overall goal of ensuring sustainable and responsible port management.

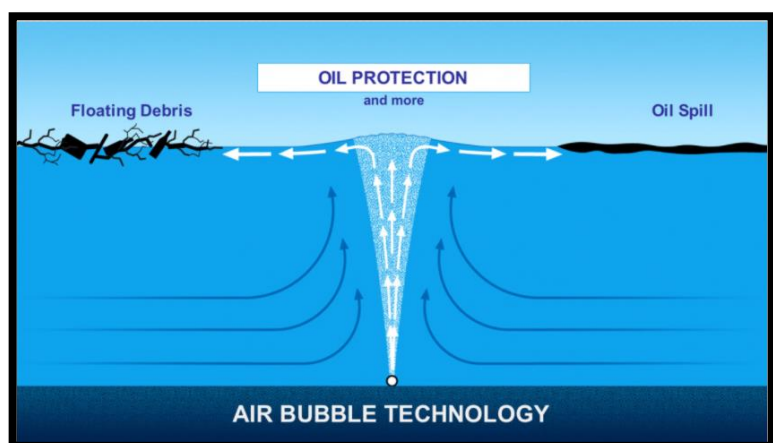
### 2.2.3 Floating waste collector

A floating waste collector is a specialized vessel designed to collect and remove floating debris, including plastics and other pollutants, from bodies of water such as rivers, lakes, and oceans. These vessels often employ a variety of methods to collect waste, including nets, booms, and conveyor belts. They may also incorporate automated systems to sort and process the collected waste for recycling or disposal. Floating waste collectors are an important component of marine and waterway pollution prevention and remediation efforts, as they help to prevent the accumulation of debris and the associated negative impacts on ecosystems, wildlife, and human health. A solution such as a floating waste collector could play a crucial role in reducing pollution in the targeted area by removing waste before it can accumulate and cause harm.



### 2.2.4 Compressed air water barrier

A compressed air water barrier is a type of technology used for pollution prevention in marine environments. It works by releasing compressed air through a perforated pipe or hose that is laid on the seabed or riverbed. This creates a wall of bubbles that rises to the surface, forming a barrier that prevents floating debris and





pollutants from crossing it. The pressure of the bubbles also helps to stir up sediment and encourage the breakdown of organic matter, improving the overall health of the ecosystem.

When talking about taking proactive actions, the use of compressed air water barriers can be a useful tool for preventing pollutants from reaching sensitive areas or protected habitats. By deploying these barriers strategically, ports can prevent debris and other pollutants from entering ports, harbours, and other waterways. Additionally, the improved water quality resulting from the use of this technology can help to support the growth of marine life and enhance the overall health of the ecosystem. Overall, the use of compressed air water barriers represents an innovative and effective approach to pollution prevention in marine environments.

### 2.2.5 Vessels for oil spillage prevention

Vessels for oil spillage prevention are specialized ships designed to combat oil spills in the sea. The primary function of these vessels is to prevent the spread of oil on the water surface and collect the spilled oil. These ships are equipped with specialized equipment, including oil booms, skimmers, and oil recovery tanks. The oil booms are used to create a barrier around the spill, preventing it from spreading further. The skimmers are then used to collect the oil from the surface of the water, while the oil recovery tanks store the collected oil until it can be disposed of safely.



The utilization of vessels for oil spillage prevention would play an essential role in achieving the goal of a more sustainable maritime industry. The prevention of oil spills is critical in maintaining the health and biodiversity of marine ecosystems, as well as preserving the safety and health of humans who depend on these ecosystems for their livelihood. By incorporating vessels for oil spillage prevention, the maritime industry can work towards minimizing its environmental impact and promoting sustainable practices.

### 2.2.6 Cold storage units

Cold storage units for fishermen are specialized facilities designed to store fresh fish and other seafood products. These units are typically located near fishing ports and markets to ensure that the fish can be quickly and efficiently transported from the fishing boat to the storage unit to preserve their freshness. The units are equipped with cooling systems, such as refrigeration and freezing technologies, to maintain optimal temperatures for storing fish and other seafood products. The use of cold storage units can help to reduce waste and increase profits for fishermen by allowing them to keep their catch fresh for longer periods, allowing them to sell the fish at a higher price. This technology can also help to improve the quality of the fish, as it prevents the growth of bacteria and other microorganisms that can cause spoilage.



### 2.2.7 Digital information totems

Digital information totems are interactive displays that provide information and services to users. They can be found in public spaces such as airports, train stations, and shopping centres. These totems can display real-time information such as news updates, weather forecasts, and traffic conditions. They can also provide directions, maps, and other services to assist people in finding their way around.

Digital information totems can be used to provide relevant and timely information to passengers and crew members on board vessels. This could include information on weather conditions, navigation updates, and other important updates related to the vessel's operations. Additionally, these totems could be used to provide information on local attractions, tourist sites, and other points of interest for passengers during their journey. By providing access to this information, digital information totems can enhance the passenger experience and improve the overall efficiency of vessel operations.



### 2.2.8 Smart benches

Smart benches are a new and innovative form of street furniture that are designed to provide additional benefits to people using them. They are essentially public benches that have been fitted with a range of high-tech features, such as Wi-Fi connectivity, charging ports for mobile devices, sensors for air quality monitoring, and even solar panels for powering the bench itself. The main aim of these benches is to provide a convenient and comfortable place for people to sit and relax while also offering additional benefits that can improve the quality of life in urban areas.

Smart benches are particularly relevant to the goal of modernization and digitalization as they can provide an excellent example of sustainable and innovative urban infrastructure. By integrating renewable energy sources and digital technologies into public spaces, cities can improve the overall livability and functionality of urban areas while also reducing their impact on the environment. The smart bench can be seen as a key element in the smart city concept, which seeks to use technology to optimize the management of urban services and improve the quality of life of citizens.



### 2.2.9 Wide range Wi-Fi access point

A wide range Wi-Fi access point is a device used to provide wireless internet connectivity over a large area. It is designed to deliver high-speed internet access to a large number of devices in a wide coverage area. This technology is particularly useful for public spaces such as parks, beaches, and public squares where people gather and need internet access. Wi-Fi access points can also be used to provide internet access in remote areas where wired connections are not feasible.

A wide range Wi-Fi access point could be used to enhance the tourist/passenger experience in the port by providing internet access. This would also enable the crew to have access to real-time data and communicate more efficiently. Additionally, Wi-Fi access points could be installed in the ports

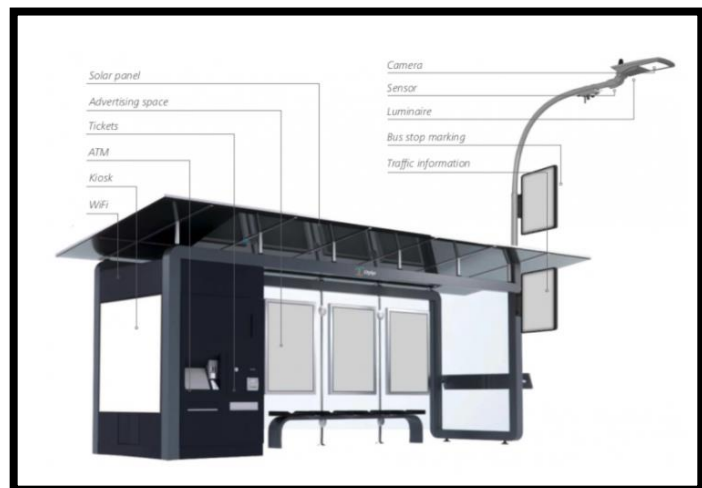


and marinas to enable easy access to information and services for boat owners and users. By using a wide range Wi-Fi access point service, ports could provide reliable, high-speed internet access to its passengers and customers, enhancing their experience and providing them with a better service.

#### 2.2.10 Waiting rooms / Smart waiting rooms and canopies

Waiting rooms, traditionally a dull and uninviting space, are now being transformed into modern, interactive, and comfortable spaces that offer a range of services to passengers waiting for their transportation. Smart waiting rooms and canopies are equipped with the latest technology, including free Wi-Fi, digital information screens, and charging points. These waiting rooms are designed to provide passengers with a seamless and stress-free experience while they wait for their transport. They offer a range of services, including food and beverage options, shops, and restrooms, providing a one-stop-shop for passengers.

The introduction of smart waiting rooms and canopies is a small but important part of the overall goal of improving the passenger experience. By providing modern and comfortable waiting spaces, passengers are more likely to have a positive experience while waiting for their transportation. Additionally, the integration of digital information screens and free Wi-Fi in these spaces provides passengers with access to important information and the ability to stay connected while they wait. The canopies themselves can also serve as a sustainable feature by utilizing solar power and rainwater harvesting technology. Overall, smart waiting rooms and canopies are an essential component of modern transportation systems that aim to provide a high-quality experience for their passengers.



### 2.2.11 Mobile children’s playgrounds

Mobile children's playgrounds refer to a set of portable playground equipment that can be easily transported from one location to another. These playgrounds are designed to provide children with safe, interactive, and engaging play experiences in outdoor settings. They come in various sizes and designs, with features such as swings, slides, seesaws, and climbing walls. The advantage of mobile playgrounds is that they can be used in different locations, such as parks, beaches, and recreational areas, making them accessible to a wider range of children. The use of mobile children's playgrounds is highly beneficial for children's physical and mental well-being. It provides them with opportunities for physical activity, socialization, and cognitive development. The availability of these playgrounds also encourages children to spend more time outdoors, reducing screen time and promoting healthy habits.



### 2.2.12 ATM service

An ATM service refers to the provision of automated teller machines for cash withdrawal and deposit transactions. These machines provide a convenient way for people to access their money without having to visit a bank branch. ATM services have become increasingly important in today's fast-paced world, providing around-the-clock access to cash and other banking services. In addition to basic cash transactions, modern ATMs often offer additional services such as account balance inquiries, account transfers, and bill payments.

In the context of the pilot action, incorporating ATM services within the port area can provide a convenient banking solution for port employees, travelers, and visitors. With the increasing number of digital transactions and online banking, ATM services have become



a vital element of financial infrastructure. The presence of ATM services within the port area can ensure that people have access to cash whenever needed, facilitating their daily transactions. Additionally, ATM services can be used to promote financial literacy by providing financial education material and guidance to users. Overall, the integration of ATM services within the port area can improve the financial accessibility and convenience of the port, enhancing the overall experience for port users.

## 2.3 Safety

Safety is an essential aspect of any project, and the same is true for maritime transport. Ensuring safety is a critical objective of the pilot action, and it includes many different measures. One of the key safety concerns is related to the personnel working on the vessels and the passengers onboard. These individuals need to be protected from harm and danger, and their safety is of utmost importance. The safety measures include the use of safety equipment, training programs for the crew, and safety protocols for handling emergency situations. Additionally, safety measures also include the use of modern technology, such as GPS tracking systems and monitoring equipment, to ensure the safety of the vessels and their cargo. The aim of the pilot action is to collect and implement best practices in safety, thus ensuring that the project meets the highest safety standards. This approach will provide a secure and safe environment for the crew, passengers, and cargo, which is crucial for the success of any maritime transportation project.

### 2.3.1 Social inclusion

Social inclusion refers to the process of ensuring that all members of society, regardless of their background or circumstances, have equal opportunities to participate in various aspects of life, including education, employment, health care, and community activities. It is an important concept that aims to promote fairness, equality, and diversity in society. Social inclusion is essential to create a more just and equitable society, where everyone has a voice and is valued.

The social inclusion is not only a moral imperative, but it is also vital for achieving sustainable development and long-term economic growth. By providing equal opportunities and access to services and resources, we can create a more inclusive and prosperous society for all.



### 2.3.2 Safety in the case of fire

Ensuring safety in the case of fire is of utmost importance in any environment, especially in maritime settings where the risk of fire can be particularly hazardous. The use of specialized fire equipment, such as fire extinguishers, fire alarms, smoke detectors, and sprinkler systems, can greatly enhance the safety of both passengers and crew members. Properly trained personnel and regular



maintenance and testing of these systems are also critical to ensure their effectiveness in the event of an emergency.



The inclusion of fire safety equipment and measures plays a crucial role in achieving the overall goal of improving safety and sustainability in maritime transportation. By prioritizing safety in the case of fire, the pilot project can help prevent accidents and mitigate potential damage to both the environment and human life.

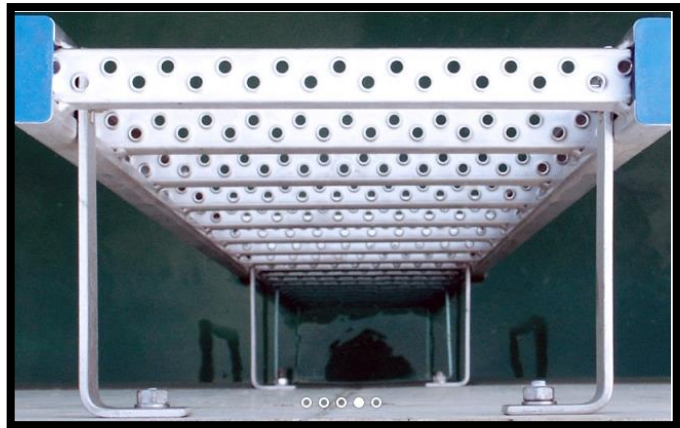
### 2.3.3 Safety ladder

A safety ladder is a type of ladder designed to provide a secure and stable means of escape in the event of an emergency. They are typically made of sturdy materials such as aluminium or steel, and are designed to withstand a significant amount of weight and pressure. Safety ladders are often used in multi-story buildings, such as apartments or commercial buildings, where occupants may need to quickly evacuate in the event of a fire or other emergency.

The main goal of the pilot action that this term is related to is to promote sustainable and safe maritime transportation, and safety ladders are an important component of that. In the event of an emergency on a vessel, a safety ladder provides a secure means of escape for crew members and

passengers. They can be particularly important for vessels that operate in harsh weather conditions or rough waters, where the risk of accidents or incidents is higher.

Safety ladders can also be an important tool for rescue operations. In the event of an accident at sea, rescue personnel may need to access a vessel quickly and safely, and a safety ladder can provide them with a secure and stable means of doing so. Overall, safety ladders are an important component of promoting safety and security in maritime transportation, and can help to mitigate the risks associated with emergency situations at sea.



#### 2.3.4 First aid kits

First aid kits are an essential element of any emergency preparedness plan, whether it be on land or at sea. These kits contain a range of medical supplies and equipment designed to provide immediate treatment for injuries or illnesses until professional medical help can arrive. A typical first aid kit may contain items such as bandages, antiseptics, pain relievers, gloves, and CPR masks, among others. On a vessel or in a port, having easily accessible first aid kits can make a significant difference in the outcome of an emergency situation. The goal of the pilot action could be to ensure that all vessels and ports have adequate and properly stocked first aid kits available at all times. Additionally, training for crew members and staff on how



to use the first aid kits and provide basic medical care could also be beneficial. By promoting the use of first aid kits and proper emergency medical response, the pilot action could help to improve overall safety and health outcomes for individuals working or traveling in marine environments.

### 2.3.5 Automatic external defibrillator

Automatic external defibrillators (AEDs) are portable electronic devices designed to diagnose and treat life-threatening cardiac arrhythmias. These devices work by delivering a controlled electric shock to the heart to help it return to its normal rhythm. AEDs are an essential tool for first responders and emergency medical personnel, and they are also increasingly being installed in public areas such as airports, schools, and shopping centres. The goal of the pilot action, which



includes AEDs, is to provide a safe and secure environment for passengers and workers in the maritime industry. By having AEDs readily available in strategic locations, response time can be reduced, and lives can be saved. This is particularly important given the remote and often challenging working environments encountered in the maritime industry. With the installation of AEDs, the pilot action is taking a proactive approach to safety, ensuring that potential cardiac emergencies can be addressed quickly and effectively, increasing the chances of a positive outcome.

### 2.3.6 Safety gear

Safety gear refers to protective clothing, equipment, and accessories designed to protect the user from injury or harm in hazardous situations. Safety gear can include items such as helmets, gloves, safety glasses, respirators, and more. The main purpose of safety gear is to reduce the risk of injury or illness in the workplace, as well as to increase productivity by ensuring that employees feel safe and confident while performing their duties.

A safety gear could play an important role in ensuring the safety of workers and passengers on board vessels and at port facilities. For example, workers involved in waste management, mooring

services, or oil spillage prevention could benefit from the use of appropriate safety gear to reduce their risk of injury or exposure to hazardous substances. Similarly, passengers could be provided with safety gear, such as life jackets or emergency breathing apparatus, to ensure their safety in the event of an emergency.

### 2.3.7 Gear storage crates

Gear storage crates are containers that are specifically designed to store and transport equipment and gear. These crates are commonly used in industries such as sports, military, and emergency services, where the safe and efficient transportation of equipment is critical. They come in various shapes and sizes, and are often made from durable materials such as plastic or metal to ensure the contents remain secure and protected during transport.

In the context of the pilot project, the use of gear storage crates may be related to the transportation and storage of safety gear or equipment for emergency services. Ensuring that this gear is transported and stored safely and efficiently is critical to the success of emergency response efforts. The use of gear storage crates can also help to streamline logistics and ensure that gear and equipment are readily available when needed. By incorporating best practices such as the use of gear storage crates, the pilot project may be able to improve the overall safety and effectiveness of emergency response services.





## 2.4 Informatization

Informatization is a term that refers to the process of integrating technology and information systems into various aspects of society. This can range from the digitization of paper-based processes to the creation of new digital solutions that improve efficiency, productivity, and communication. The goal of informatization is to make information and technology more accessible to individuals, businesses, and governments to improve decision-making, reduce costs, and increase innovation.

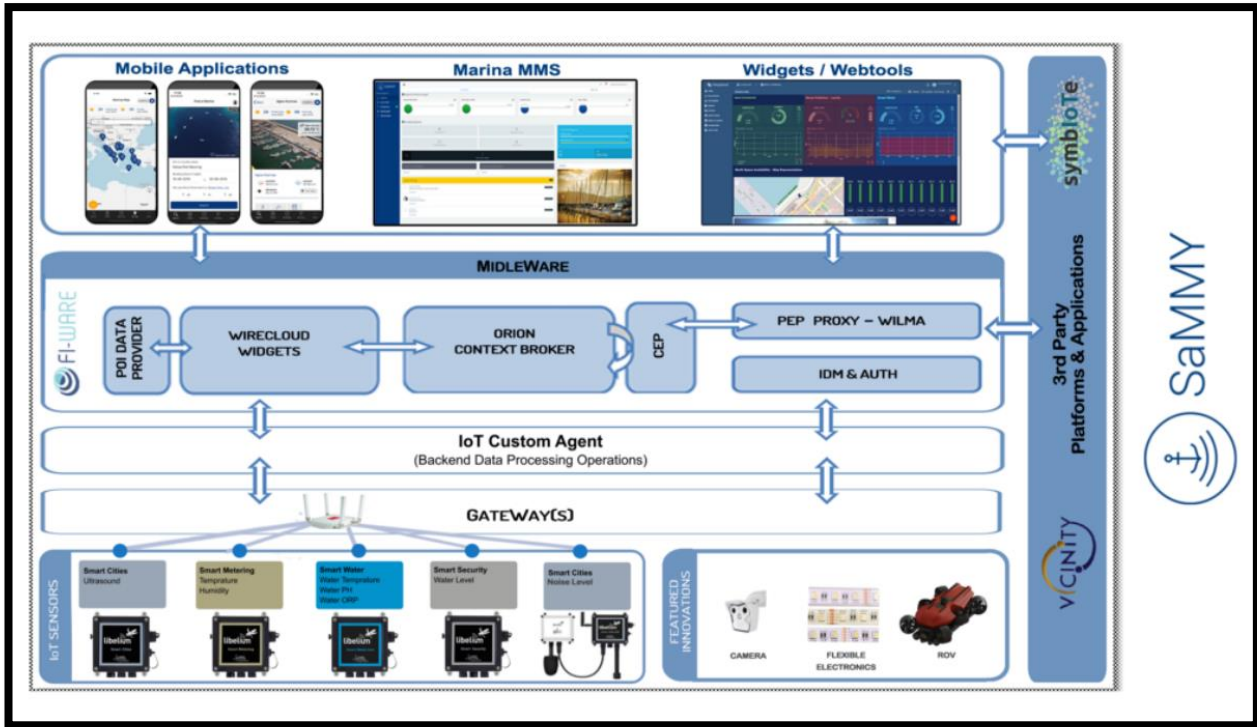
In the context of this document, informatization is an important aspect of the overall goal to improve the efficiency and sustainability of port operations. By utilizing digital solutions and information systems, port operators can better manage their resources, optimize their processes, and make data-driven decisions that help to reduce costs and minimize the environmental impact of their activities. Additionally, informatization can improve the safety and security of the port, as it allows for better tracking and monitoring of goods, vessels, and personnel.

Informatization is a constantly evolving process, as new technologies and systems are developed and integrated into various industries. It requires ongoing investment and training to ensure that individuals and organizations can adapt and effectively utilize new digital solutions. However, the benefits of informatization are clear, as it has the potential to transform traditional industries and create new opportunities for growth and sustainability.

### 2.4.1 Port community systems

Port community systems (PCS) are digital platforms that allow all stakeholders within a port community to efficiently exchange information and coordinate their activities. These systems integrate various services such as cargo tracking, vessel scheduling, and customs clearance, among others. PCS provide a centralized platform where port operators, shipping lines, freight forwarders, customs brokers, and other parties can communicate and exchange data in real-time. The main

objective of PCS is to improve the efficiency and competitiveness of ports by reducing the time and costs associated with port-related activities.



In the context of this document, the inclusion of PCS can facilitate communication and coordination between various stakeholders involved in the pilot. For example, the use of a PCS can enhance the efficiency of the waste management process by allowing waste removal vessels to communicate with port operators in real-time. Similarly, the use of a PCS can improve the scheduling of vessels for oil spillage prevention and other safety measures. Overall, the inclusion of PCS in the pilot can enhance the speed, accuracy, and reliability of information exchange, leading to a more efficient and sustainable port ecosystem.

## 2.5 Services for boaters

A "Service for boaters" refers to the provision of various amenities, facilities, and assistance for boaters who dock at marinas or use waterways. This service is aimed at making the boating experience enjoyable and stress-free for boat owners and their guests. Some of the services provided may include fueling stations, pump-out facilities, docking assistance, marina security, boat repairs and maintenance, showers, laundry facilities, and grocery stores.

The main goal of providing this service is to attract and retain boaters, as they play a significant role in the economic development of coastal communities. Boaters often spend money on local goods and services, boosting local economies. The provision of quality services for boaters can also help in promoting tourism and recreation activities in the area.

In addition to the economic benefits, providing services for boaters can also improve safety and security in waterways. By offering docking assistance, fueling, and pump-out facilities, boaters can ensure their vessels are properly maintained and in good condition, minimizing the risk of accidents and pollution. Also, offering marina security ensures the safety of both boats and their owners.

Overall, providing a service for boaters is an essential aspect of the marine industry, and it helps to enhance the overall boating experience. By improving facilities and amenities for boaters, waterway users can enjoy a safe, secure, and enjoyable boating experience, while also contributing to the economic growth of the coastal community.

### 2.5.1 Drive-in boat wash

A drive-in boat wash is a service that offers a quick and efficient way to clean boats and keep them in good condition. The concept is similar to a car wash, where boats can be driven onto a platform or through a tunnel and cleaned using high-pressure jets of water and specialized detergents. The main advantage of a drive-in boat wash is that it saves time and effort compared to traditional methods of cleaning boats, such as scrubbing with a brush and hose. It also helps to prevent the spread of invasive species that may be carried on boats, which is a major concern in many waterways around the world.

A drive-in boat wash is a practical solution to the challenge of maintaining a clean and healthy marine environment. By offering an easy and convenient way for boaters to clean their vessels, it

helps to prevent the build-up of dirt, grime, and other contaminants that can harm the ecosystem. This is particularly important in areas where boating activity is high, such as marinas and busy waterways. A drive-in boat wash also helps to promote responsible boating practices and encourages boaters to take an active role in preserving the



environment. By providing this service, the pilot aims to improve the sustainability and health of the marine environment, while also enhancing the overall boating experience for recreational users.

### 2.5.2 Meteorologic station

A meteorologic station is a facility designed to gather and measure various atmospheric conditions, such as temperature, humidity, precipitation, wind speed and direction, and barometric pressure. These stations use a combination of specialized instruments and computer systems to provide up-to-date and accurate weather data for a particular area. This information can be used by a wide range of users, including scientists, governments, and businesses, to make important decisions related to safety, transportation, agriculture, and energy.

In the context of the pilot project, meteorologic stations can be incredibly useful in helping boaters and port operators to stay informed about weather conditions that could impact their safety or operations. By providing real-time weather data, these stations can help boaters make informed decisions about when to depart and how to navigate, while also alerting port operators to any



potentially hazardous conditions that could impact shipping schedules or safety protocols. Additionally, meteorologic data can be used to support a range of other services, such as vessel routing and fuel efficiency analysis, which can help to reduce environmental impact and improve overall efficiency within the port community.

### 2.5.3 Video surveillance

Video surveillance, also known as closed-circuit television (CCTV), refers to the use of video cameras to monitor and record activities in a particular area or location. The cameras are strategically placed in various locations to capture footage that can be used for security and surveillance purposes. The footage can be monitored live by security personnel or stored for later review if an incident occurs.

Video surveillance can play a critical role in enhancing safety and security in the port area. With the port being a busy and high-risk area, the installation of video cameras can deter criminal activities such as theft, vandalism, and unauthorized access. The footage captured by the cameras can also be used to identify suspects and provide evidence in the event of an incident.

Moreover, video surveillance can also assist in the efficient management of port activities. The footage can be used to monitor the flow of traffic, track the movement of cargo, and ensure compliance with safety regulations. The real-time monitoring of activities can also help identify potential safety hazards, allowing for timely intervention and prevention of accidents.

Overall, the installation of video surveillance in the port area is a crucial step towards improving safety and security. It provides an extra layer of protection for port personnel, cargo, and infrastructure. Furthermore, it can also contribute to the efficient and effective management of port activities, ultimately improving the overall functioning of the port.





#### 2.5.4 Wave breakers

Wave breakers, also known as wave attenuators, are structures designed to reduce the impact of waves on coastlines or waterways. They are typically placed parallel to the shore or perpendicular to the direction of wave propagation, and can be made of a variety of materials including concrete, steel, and rock. The main function of wave breakers is to reduce the energy of incoming waves and create calmer waters behind them, providing protection for ships, boats, and other watercraft.

In the context of the pilot project, wave breakers could play an important role in protecting the marina and the vessels from the damaging effects of waves. As the marina is located in a coastal area, it is likely to be exposed to high waves during rough weather conditions. The installation of wave breakers can help reduce the intensity of the waves, creating a safe and stable environment for vessels to dock and operate. This is especially important for the larger vessels that may be more vulnerable to wave-induced damage.



Wave breakers can also help to minimize the impact of waves on the natural environment. High waves can cause erosion and damage to the coastline, and can also disrupt marine ecosystems. By reducing the energy of incoming waves, wave breakers can help to maintain a stable environment for marine life and coastal habitats.

Overall, the implementation of wave breakers can contribute to the safety and sustainability of the marina and the surrounding environment. It is a proven technology that has been used in coastal areas around the world, and can be an effective solution for reducing the impact of waves on the marina and its users.



### 2.5.5 Mobile mooring dock

A mobile mooring dock is a versatile solution that allows boats to dock and unload without the need for a permanent pier. This type of dock can be used in various waterways, including rivers, lakes, and oceans, and it can be easily transported to different locations. The dock consists of a modular design that can be assembled and disassembled quickly and efficiently, making it an ideal solution for temporary or emergency docking needs.

The main goal of the pilot is to improve the infrastructure and services of ports and harbours, and a mobile mooring dock can be an important tool for achieving this goal. By providing a flexible and adaptable docking solution, a mobile mooring dock can help accommodate a greater number of boats and vessels, which can improve the overall efficiency and safety of the port. Additionally, a mobile mooring dock can be a cost-effective alternative to traditional permanent docks, which require significant investment and maintenance.

Moreover, a mobile mooring dock can also help promote sustainable and eco-friendly practices in the maritime industry. For instance, the modular design of the dock allows for easy access and cleaning of the underwater areas, which can prevent the accumulation of debris and pollutants. Furthermore, a mobile mooring dock can also be equipped with renewable energy sources such as solar panels, reducing the reliance on traditional power sources and minimizing the environmental impact of the dock.

In conclusion, a mobile mooring dock is a versatile and innovative solution that can help improve the infrastructure and services of ports and harbours. Its modular design and easy portability make it an ideal solution for temporary or emergency docking needs, while also promoting sustainable practices in the maritime industry.



### 2.5.6 Nautical fuel stations

Nautical fuel stations are specialized service stations designed to provide fuel and other services to vessels, including boats, yachts, and ships. These stations are strategically located in waterways and harbours, making them easily accessible to marine traffic. Nautical fuel stations are typically equipped with a variety of fuel pumps, tanks, and safety equipment, including spill containment systems and fire suppression systems, to ensure that fuel is stored and dispensed safely.

The main goal of the pilot, which collected the best practices examples of different services and infrastructure that can be implemented in small ports, is to improve the safety and sustainability of small ports. In this regard, nautical fuel stations are an important component of this pilot, as they can help to reduce the risk of fuel spills and improve the efficiency of fuel delivery to vessels. By providing safe and reliable access to fuel, nautical fuel stations can also help to reduce the environmental impact of marine traffic, which is an important consideration when talking about sustainability.

Moreover, nautical fuel stations can also provide additional services to boaters, such as fresh water and waste pump-out services. These services can be especially important for vessels that are spending extended periods of time in small ports or marinas. Additionally, nautical fuel stations can also serve as a hub for other services, such as marine equipment rentals, repairs, and maintenance.

In conclusion, nautical fuel stations are an essential component of the infrastructure necessary to ensure the safety and sustainability of small ports. By providing safe and reliable access to fuel, as well as other services, nautical fuel stations can help to reduce the environmental impact of marine traffic, improve the efficiency of fuel delivery to vessels, and enhance the overall experience of boaters visiting small ports.



## 2.6 Infrastructure and superstructure

Infrastructure and superstructure refer to the basic physical and organizational structures needed for the functioning of a system or organization. In the context of maritime transportation, infrastructure and superstructure refer to the physical and organizational components of ports and harbours, including docks, wharves, cranes, warehouses, and other facilities that are essential for the loading and unloading of ships.

The main goal of the pilot program is to improve the safety, security, and environmental sustainability of ports and harbours, while also promoting their economic development. Infrastructure and superstructure are critical components of achieving these goals, as they provide the foundation for efficient and safe maritime transportation.

Efficient infrastructure and superstructure enable faster and safer loading and unloading of goods, which can increase productivity and competitiveness, while also reducing the risk of accidents and environmental incidents. Well-designed infrastructure and superstructure can also help reduce congestion and pollution, which are significant challenges facing many ports and harbours today.

In summary, infrastructure and superstructure are essential components of any port or harbour, and their effective design and implementation are critical to achieving the goals of the pilot program. By improving the physical and organizational structures of ports and harbours, the program aims to create a safer, more secure, and more sustainable maritime transportation system that supports economic growth and development.

### 2.6.1 Container solutions

Infrastructure and superstructure refer to the basic facilities, structures, and services needed to support the operation of any system or project. In the context of the maritime industry, infrastructure and superstructure are critical for the effective functioning of ports, harbours, and marinas. These facilities must be robust and durable enough to withstand the



harsh marine environment while providing a safe and efficient working environment for personnel and visitors.

One approach to addressing the challenges of infrastructure and superstructure in the maritime industry

is the use of prefab solutions from containers. This method involves using shipping containers as building blocks to construct various infrastructure and superstructure facilities, including offices, restrooms, storage areas, and other supporting structures. Prefabricated container solutions can be designed and assembled off-site, reducing construction time and costs while ensuring quality control.



The goal of the pilot project is to identify and showcase innovative solutions that can enhance the efficiency and sustainability of the maritime industry. The use of prefab solutions from containers can play a critical role in achieving this goal by providing a cost-effective and environmentally friendly approach to infrastructure and superstructure development. By showcasing best practices in the use of prefab solutions from containers, the pilot project aims to inspire and encourage the adoption of these solutions by other maritime industry stakeholders.

