

EVENT FOLLOW-UP REPORT

D.2.5.1 AND D.2.5.2 LP

Participation to the Final Conference entitled "Green and Smart Ports in the Adriatic-Ionian Region. The decarbonisation and digitalisation of ports and freight transport: the contribution of European territorial cooperation" held in Trieste on June 21st,2023

Event summary

Type of event	Physical/online
Location	Trieste
Date of the event	21st June 2023
Time/Duration	1 day
Purpose of the event (What was the objective?)	The objective of the workshop was to take stock of the state of the art of the inevitable processes of environmental sustainability and adoption of digital solutions between the ports of Italy, Slovenia and Croatia, analysing their challenges and possible joint strategies.
Short description of the event (what happened during the event?)	<p>Over the past few years, the ports of Italy, Slovenia and Croatia have been cooperating to improve their environmental performance and efficiency through telematic solutions, both within the North Adriatic Port Association (NAPA) and in the framework of several projects co-financed by European funds and led by the Port of Trieste, among which the projects "SUSPORT - SUSTainable PORTs" and "DIGSEA - Digitisation of Multimodal Transport in the Adriatic Sea", (Interreg Italy Croatia), "ACCESSMILE - Improving the accessibility of the last best for rural and peripheral areas to the main TEN-T nodes in Central Europe through ICT" (Interreg Central Europe).</p> <p>The knowledge developed within the framework of these projects, together with that of the broader project "EALING - European flagship action for cold ironing in ports" (CEF Programme), was pooled by bringing together the experiences of more than thirty ports, freight villages and logistics operators from eleven European countries.</p> <p>During the conference, the main results of these projects were illustrated and a joint protocol was signed between the representatives of the ports of Italy, Slovenia and Croatia for the creation of a system of cross-border cooperation in the field of decarbonisation of the port sector.</p>

	<p>Among the speakers, Prof. Thierry Vanellander from the University of Antwerp presented the latest research results on the challenges and possible solutions available to improve environmental performance. Gadi Benmoshe, Vice-Chairman of the IAPH (International Association of Ports and Harbors) Data Collaboration Committee, emphasised the increasingly topical challenges related to cyber security, also in the port sphere. Finally, Prof. Pierluigi Coppola, coordinator of thematic group no. 2 of the EUSAIR Strategy highlighted the role of green and digital ports in the broader context of the Adriatic-Ionian Region.</p> <p>Anne Jensen, European coordinator of the Adriatic-Baltic Corridor, also attended the conference and visited the port of Trieste in the afternoon.</p>
<p>Results/Outcomes of the event (What are the takeaways from the event?)</p>	<p>The presence of SUSPORT at the event allowed to widen the scope of target groups to professionals and experts in the domain of sustainability and decarbonization.</p>
<p>Number of attendees</p>	<p>Presence 79 + 38 online</p>
<p>Type of stakeholders/target groups that were represented</p>	<p>Eu Commission, Public, local and national authorities, port authorities, research institutes, universities, general public</p>

CONFERENCE PROGRAM:



Green and smart ports in the Adriatic Ionian Region

Decarbonisation and digitalisation of ports and freight transport. The contribution of EU territorial cooperation

Trieste, 21st June 2023

**MIB - Trieste School of Management, Largo Caduti di Nassiriya, 1, Trieste
Conference Hall "Grande Salone Generali" – Palazzo Ferdinando**

Agenda

9:00 – 9:30	Welcome coffee Registration / connection to the EUSAIR web platform
9:30 – 10:00	Welcome and opening speeches <ul style="list-style-type: none"> • Mr. Zeno D'Agostino, President of the Port Network Authority of the Eastern Adriatic Sea, President of the European Sea Ports Organisation • Mrs. Anne E. Jensen, European Coordinator for the Baltic-Adriatic Corridor • Mrs. Cristina Amirante, Friuli Venezia Giulia Regional Councillor for Infrastructure • Mr. Pierluigi Coppola, Coordinator of the EUSAIR Pillar 2 "Connecting the region" • Mr. Carlo Zijno, Italian Ministry of Infrastructure and Transport
10:00 – 10:30	European territorial cooperation and CEF for green and smart ports: the SUSPORT, EALING, DIGSEA and ACCESSMILE projects <ul style="list-style-type: none"> • Mr. Alberto Cozzi, Port Network Authority of the Eastern Adriatic Sea

10:30 – 11:30	<p>Keynote speeches: Green and smart ports: challenges, strategies, solutions</p> <ul style="list-style-type: none"> • <i>Greening ports: challenges, opportunities and best practices</i>, Mr. Thierry Vanelslander, University of Antwerp, Department of Transport and Regional Economics (TPR) • <i>Cybersecurity for ports: new challenges and solutions</i>, Mr. Gadi Benmoshe, Vice Chair of IAPH Data Collaboration Committee and Managing director of Marinnovators • <i>Green and Smart ports development within the European Strategy for the Adriatic-Ionian Region (EUSAIR)</i>, Mr. Pierluigi Coppola, Coordinator of the EUSAIR Pillar 2 “Connecting the region”
11:30 – 11:45	Coffee break
11:45 – 12:30	<p>Round table discussion <i>Trilateral cooperation for green and smart ports: practice and outlook from NAPA</i> Moderator: Prof. Edvard Tijan, Vice Dean for Business Affairs at University of Rijeka, Faculty of Maritime Studies</p> <ul style="list-style-type: none"> • Mr. Rajko Jurman, Head of Commercial Department, Port of Rijeka Authority • Mr. Borut Čok, Head of Department, Luka Koper d.d. • Mr. Zeno D’Agostino, President of the Port Network Authority of the Eastern Adriatic Sea – Ports of Trieste and Monfalcone • Mr. Fulvio Lino Di Blasio, President of the North Adriatic Sea Port Authority – Ports of Venice and Chioggia • Mr. Mario Petrosino, Head of Operations, Port of Ravenna Authority
12:30 – 12:45	Partners of the SUSPORT project and Luka Koper d.d. sign the Joint Protocol for permanent cross-border cooperation on environmental sustainability and energy efficiency
12:45 – 13:00	<p>Conclusions and closing remarks</p> <ul style="list-style-type: none"> • Mr. Xavier Garcia, EUSALP AG4 Coordinator • Mr. Franc Žepič, EUSDR PA 1b Coordinator • Mr. Hrvoje Grancarić, Joint Secretariat of the Interreg Italy-Croatia CBC Programme
13:00	Buffet lunch

Simultaneous translation in English, Italian and Croatian will be available

Please register at this [link](#)

POWEPPOINT PRESENTATIONS.

MR COZZI

EUROPEAN TERRITORIAL COOPERATION FOR GREEN AND SMART PORTS

THE SUSPORT, EALING, DIGSEA AND ACCESSMILE PROJECTS

DECARBONISING AND DIGITALISING PORTS IN THE EUSAIR: TACKLING CHALLENGES AND TAKING ADVANTAGE OF OPPORTUNITIES THROUGH INSTITUTIONAL COOPERATION



MARITIME TRANSPORT

IS THE MOST SUSTAINABLE WAY OF TRANSPORTING GOODS

PORTS ARE

- CROSSROADS OF GOODS AND PEOPLE
- SOURCE OF PROSPERITY FOR THEIR TERRITORIES
- KEY TO THEIR ECONOMIC DEVELOPMENT AND JOB CREATION
- IMPORTANT FREIGHT NODES ON TEN-T NETWORK

HOWEVER

- PORT OPERATIONS PRODUCE CO2 EMISSIONS
- MOST PORTS ARE NEAR CITIES
- LACK OF COORDINATED MITIGATION MEASURES
- FRAGMENTATION ALONG THE SUPPLY CHAIN
- WEAK LAST-MILE ACCESSIBILITY OF RURAL AND PERIPHERAL AREAS TO THE MAIN TEN-T FREIGHT NODES
- HIGHER TRANSPORT-RELATED AIR POLLUTION AND GREENHOUSE GAS EMISSIONS

TO FACE THESE CHALLENGES COOPERATION IS NECESSARY

WHY?

- POLLUTION AND TRAFFIC FLOWS DO NOT STOP AT BORDERS
- THE CHALLENGES CAN NOT BE ADDRESSED ONLY AT THE LOCAL LEVEL
- THEY NEED COOPERATION AT EUROPEAN LEVEL

2 CHALLENGES: DECARBONISATION & DIGITALISATION

EUROPEAN TERRITORIAL COOPERATION IN 4 PROJECTS



- PORTS
- LOGISTIC CENTRES
- UNIVERSITIES AND RESEARCH CENTRES
- CHAMBERS OF COMMERCE
- REGIONAL ADMINISTRATION

TOGETHER FOR:

DECARBONISATION

- SUSPORT – INTERREG ITALY-CROATIA
- EALING – CEP

DIGITALISATION

- DIGSEA – INTERREG ITALY-CROATIA
- ACCESSMILE – INTERREG CENTRAL EUROPE

DECARBONISATION

2 IMPORTANT STEPS FOR JOINT PLANNING OF PORT ENVIRONMENTAL SUSTAINABILITY AND ENERGY EFFICIENCY:



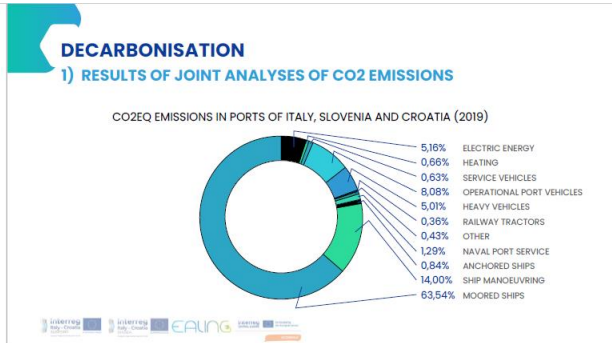
1

JOINT ANALYSES OF CO2 EMISSIONS



2

JOINT CROSS-BORDER ACTION PLAN WITH JOINT IMPLEMENTATION OF PILOT ACTIONS

DECARBONISATION

2) JOINT CROSS-BORDER ACTION PLAN WITH JOINT IMPLEMENTATION OF PILOT ACTIONS



SUSPORT

SUSTAINABLE PORTS – EUSAIR LABELLED
- PP DEVELOPED TOGETHER WITH A CROSS-BORDER STRATEGY SEVERAL PILOT ACTIONS TO REDUCE CO2 EMISSIONS IN PORTS



EALING

EUROPEAN FLAGSHIP ACTION FOR COLD IRONING IN PORTS
- IS A STUDY PROPOSING A COMMON EU HARMONISED AND INTEROPERABLE FRAMEWORK FOR THE TRANSITION TO ELECTRIFICATION OF EU MARITIME PORTS (OPS INFRASTRUCTURES AND EQUIPMENT IMPLEMENTATION)




SUSPORT - SUSTAINABLE PORTS

MAIN CROSS-BORDER RESULT

expected CO₂ reduction

-17,924 TONS/YEAR



DECARBONISATION

EALING




- Common EU harmonised, interoperable and sustainable framework for the deployment of Onshore Power Supply (OPS) in ports
- Port-to-vessel compatibility
- Effective launch of OPS infrastructures in ports
- Preparation of the electrical grid of the Port of Valencia for Onshore Power Supply
- Implementation of at least 30 installations in at least the 18 EU ports of the EALING Studies Action

DECARBONISATION

EALING

- EUROPEAN GREEN DEAL ► transition to zero GHGs emissions ► transport represents 25% of the emission in the European Union
- THE ELECTRIFICATION OF THE MARITIME TRANSPORT is a key challenge for more competitive and sustainable TEN-T Maritime Network in the future
- ANALYSES OF CO2 EMISSIONS HAVE SHOWN THAT IN PORTS, THE COMPONENT THAT POLLUTES THE MOST IS SHIPS AT MOORING



- ON-SHORE POWER SUPPLY (OPS)
- Is considered as an attractive solution to reduce local pollution generated by vessels at berth in the EU ports
- The activities carried out in each of the consortium's ports are aimed at performing all the studies that are necessary to accelerate the implementation of OPS in their ports
- OPS studies for the port of Manfredonia, Pier no. 5 and Logistic Platform

DIGITALISATION

WHY IS DIGITALISATION IMPORTANT ALSO FOR DECARBONISATION?

- FACILITATES COOPERATION BETWEEN SUPPLY CHAIN ACTORS
- ENABLES BETTER VISIBILITY AND REAL-TIME MANAGEMENT OF CARGO FLOWS
- LEADS TO THE REDUCTION OF ADMINISTRATIVE BURDEN
- ALLOWS FOR A BETTER USE OF INFRASTRUCTURES AND RESOURCES

ALL OF THIS MAKES TRANSPORT AND LOGISTICS OPERATIONS MORE EFFICIENT, NOT LEAST BY ALLOWING EASIER INTEGRATION OF THE DIFFERENT TRANSPORT MODES

PORTS = SEA + RAIL + ROAD = MULTIMODAL TRANSPORT

DIGITALISATION CONTRIBUTES TO OPTIMISE TRANSPORT FLOWS AND SMART LOGISTICS SOLUTIONS + HELPS MEETING ENVIRONMENTAL SUSTAINABILITY TARGETS

DIGITALISATION

DIGSEA

DIGITALISATION OF MULTIMODAL TRANSPORT IN THE ADRIATIC SEA – EUSAIR LABELLED ICT EXPERIENCES AND EXPERTISE OF 4 PROJECTS TRANSFERRED TO STAKEHOLDERS AND POLICY MAKERS AT EU AND TRANSNATIONAL RAISE THE AWARENESS OF THE USE OF ICT AS A POWERFUL AND EFFICIENT TOOL FOR GREEN AND SMART PORTS/SUPPLY CHAIN

ACCESSMILE

IMPROVING ACCESSIBILITY OF LAST MILE CONNECTIONS OF RURAL AND PERIPHERAL REGIONS TO MAIN TEN-T NODES IN CENTRAL EUROPE THROUGH ICT COOPERATING AMONG PARTNERS FOR A BETTER CONNECTED CENTRAL EUROPE

DIGITALISATION

DIGSEA

CLUSTERS ICT TECHNICAL KNOWLEDGE OF PREVIOUS PROJECTS APPLIED TO MARITIME AND MULTIMODAL TRANSPORT

- TRANSPOGOOD** – INNOVATIVE ICT TOOLS THAT ASSISTS USERS IN FINDING THE BEST SOLUTION OF TRANSPORT SERVICES
- DIGLOGS** – ICT TOOLS FOR MOST ADVANCED DIGITALISED LOGISTIC PROCESSES FOR MULTIMODAL FREIGHT TRANSPORT AND PASSENGERS' SERVICES
- PROMARES** – ICT TO MAKE HINTERLAND TRANSPORT MORE EFFICIENT AND CONNECTED WITH PORTS
- INTESA** – ICT TO MAKE PORT AND MARITIME TRANSPORT SYSTEM MORE EFFICIENT AND SAFE.

THE COLLECTED KNOWLEDGE CONSOLIDATED IN A SINGLE SEA PORT HINTERLAND LOGISTICS APPROACH TO IMPROVE THE EFFICIENCY AND INCREASE THE ENVIRONMENTAL PERFORMANCE OF PORTS AND THE WHOLE SUPPLY CHAIN

DIGITALISATION

ACCESSMILE

ACCESSMILE ► LAST MILE BY ROAD

- STARTED IN APRIL 2023
- TO SOLVE THE WEAK LAST-MILE ACCESSIBILITY OF RURAL AND PERIPHERAL AREAS TO THE MAIN TEN-T FREIGHT NODES.
- THIS CHALLENGE INVOLVES TRANSPORT OPERATORS FROM ITALY, SLOVENIA, CROATIA, AUSTRIA, HUNGARY, GERMANY AND POLAND ► AFFECTED BY

- MULTIMODAL TRANSPORT INEFFICIENCY**
- WEAKER ECONOMIC GROWTH**
- HIGHER TRANSPORT-RELATED AIR POLLUTION AND GREENHOUSE GAS**

DIGITALISATION

ACCESSMILE

ACCESSMILE ► LAST MILE BY ROAD

OPERATIONAL TOPICS CAN NOT BE DEALT AT LOCAL LEVEL, GIVEN THE GLOBAL NATURE OF TRANSPORT FLOWS

THIS IS WHY COOPERATION AMONG TRANSPORT OPERATORS IS ESSENTIAL

CO-DEVELOPMENT OF AN ACTION PLAN FOR IMPROVING THE LAST MILE ACCESSIBILITY OF RURAL/PERIPHERAL AREAS TO TEN-TS THROUGH ICT:

TOPIC 1

TRANSPORT FLOW MANAGEMENT AND VEHICLE BOOKING SYSTEMS

TOPIC 2

GATES AND ENTRY/EXIT TOOLS AND PROCEDURES

TOPIC 3

CARGO BUNDLING AND TRACKING

FINDINGS


Territorial cooperation plays a pivotal role in

- increasing competences
- mutual learning
- joint medium and long-term planning

ENHANCING DECARBONISATION AND DIGITALISATION OF PORTS THROUGH COOPERATION AMONG LOGISTIC NODES AND TERRITORIES IS THE KEY TO HAVING INCREASINGLY GREEN AND SMART PORTS




MR BENMOSHE

Cybersecurity for ports:
 new challenges and solutions
IAPH Cybersecurity Guidelines for Ports:
iaph
 international association
 of ports and harbors
Gadi Benmoshe,
 Vice-Chair IAPH DCC, Managing Director, Marinnovators
 'Decarbonization and Digitalization of Ports and Freight Transport:
 The Contribution of EU Territorial Cooperation'
 21/6/23


What are the guidelines?
 This 84 page document is the culmination of four months of intense work between 22 experts from IAPH member ports from around the world as well as Associate Member cybersecurity specialists and contributors from the World Bank.
 Its purpose is to serve as a crucial, neutral document for senior executive decision makers at ports who are responsible for safeguarding against cybersecurity risks as well as ensuring the continued business resilience of their organization.

IAPH submissions endorsed at IMO FAL 46

MAY 31, 2023
 The 46th meeting of the IMO Facilitation Committee (FAL 46) took place from 9 to 13 May. It was a successful meeting for IAPH with two submissions noted and approved by the Committee. Firstly, there was the paper by IAPH and co-sponsors BIMCO and ISMA proposing amendments to the Maritime Single Window Guidelines to include guidance on the port call process and the operational and technical data that may be exchanged through a maritime single window. Secondly, IAPH had submitted a proposal inviting the Committee to note the first edition of the [IAPH Cybersecurity Guidelines for Ports and Port Facilities](#) and to consider promoting them as appropriate and referencing them in the next revision of IMO Guidelines on Maritime Cyber Risk Management. Both documents were met with appreciation from Member States and were approved accordingly. The FAL Committee also adopted amendments to the Facilitation Convention, which will make the [Maritime Single Window](#)




The five essential steps towards cyber resilience

- 1** Port leaders should acknowledge cyber risk management as a top-level responsibility recognizing it as a competitive and operational imperative
- 2** Successful cyber risk management begins with and depends on a common understanding of terms, financial grounding, and recognition of shared responsibility
- 3** You cannot minimize the threat until you understand the risk
- 4** Protect, detect and mitigate
- 5** Work towards effective organizational cyber awareness



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Step three

- 1** Port leaders should acknowledge cyber risk management as a top-level responsibility recognizing it as a competitive and operational imperative
- 2** Successful cyber risk management begins with and depends on a common understanding of terms, financial grounding, and recognition of shared responsibility
- 3** You cannot minimize the threat until you understand the risk
- 4** Protect, detect and mitigate
- 5** Work towards effective organizational cyber awareness



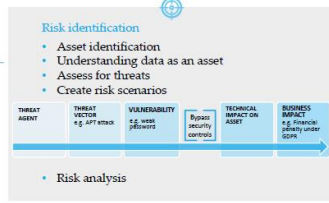
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Assessing for Risk

Assess for vulnerabilities
To identify and evaluate the cybersecurity vulnerabilities within the complex operating environment of a port or port facility.

Assess for impact
Impact refers to the potential harm that a cyber threat might cause to a port or port facility.

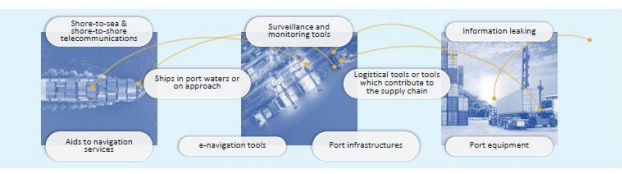
Assess for risk
To gain insights into the cyber risks to port and port facilities operations.



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Ports context : cyber vulnerabilities amplification

- Operational aspect:
 - Increased sharing of real-time data,
 - Interconnections with multiple stakeholders,
 - Complexity of business and OT systems
- Technical aspect: Difficulty in applying security updates / Continuous operation
- Smart Port trends : Increased exposure to cyberthreats



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IMO MSC 107 supports IAPH paper on cybersecurity

in Port News | 16/06/2023

The 107th meeting of the IMO Maritime Safety Committee (MSC 107) took place from 31 May to 9 June and was attended by Rhona Macdonald, Pascal Olivier and Frans van Zoelen. On the agenda was a submission by IAPH highlighting the critical importance of cybersecurity as an inherent component of the Maritime Single Window (MSW). This paper also stressed the need for capacity-building and cooperation to implement a cyber secure MSW by the 1 January 2024 deadline. This was submitted alongside a proposal by Australia and others for a new output to revise the Guidelines on Maritime Cyber Risk Management to include the latest cybersecurity guidance and identify next steps to enhance maritime cybersecurity.

The Committee welcomed these papers with strong support from delegations for a separate output to emphasise the importance and urgency of this topic, and it was ultimately agreed to include a separate item on this on the provisional agenda for the next session. MSC also

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Smart Port trends – Supporting Cybersecurity Resilience

Smart Container use case: Yard inventory count and registration

- Suppose that because of a cyber-attack the TOS database can't be restored and, as a result, there is a need to manually count and register the inventory of thousands of containers in the port yard.
- However, if the yard is filled with Smart Containers that can instantly transmit their identification numbers and locations, the TOS database can be immediately updated.
- This can save many hours of manual work and enable a quick recovery from the cyber-attack.



Marinnovators

Difficulty in mobilizing a port stakeholders community on cyber issues

- Many stakeholders to coordinate, often interdependent
- Business ecosystem relying on multinational companies & very small enterprises
- Professionals under pressure, often behind their schedule
- Narrow Vision, silo working
- Low interest in cybersecurity topics

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Physical & non-physical impacts



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Shipping industry expects cyber-attack deaths, collisions, and groundings



As well as enabling threat actors to demand ransom, steal intelligence and cause widespread disruption - which hackers can also achieve by breaching IT networks - attacks on OT systems can disable assets or safety controls. Indeed, 58% of maritime professionals expect cyber attacks to cause physical injury or death in the industry within the next few years.

Maritime cyber security needs more investment, better regulation, and sharing of incident experiences, according to a DNV report.

Gary Howard | Jun 06, 2023
<https://www.maritime-technology.com/technology/shipping-industry-expects-cyber-attack-deaths-collisions-and-groundings/74-76ed-main-feed-card-feed-article-1>



Cyber pirates



Defining the Organization's Cyber Ecosystem: Activities & Stakeholders

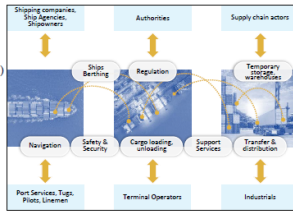
In order to manage their cyber risk port and port facility leaders must first understand what are the most critical operational activities, and who are the individual stakeholders supporting them.

Critical Activities:

- Activities linked to sea freight and hinterland transport (e.g. unloading and loading, etc.)
- Activities related to the transport of passengers and vehicles (e.g. border control, etc.)
- Activities related to traffic coordination (e.g. AIS, etc.)
- Industrial activities (e.g. petrochemicals, etc.)
- Fishing related activities (e.g. inspection of fish, etc.)

Critical Stakeholders

- Ocean transportation (e.g. shipping companies, etc.)
- Authorities (e.g. port authority, customs, etc.)
- Supply chain (e.g. freight forwarders, etc.)
- Terminal operators
- Port service providers (e.g. tug operators, etc.)
- PCS operators
- Industrial (e.g. petrochemicals, etc.)



Defining the Organization's Cyber Ecosystem: Assets

Critical Assets – Data exchange/Systems and tools

- Mandatory declarations (e.g. FAL forms, etc.)/ (e.g. MSW, etc.)
- Control and authorization (e.g. custom clearance, etc.)/ (e.g. PCS, etc.)
- Operational data related (e.g. freight scheduling, etc.)/ (e.g. TOS, etc.)
- Financial and business data (e.g. invoicing, etc.)/ (e.g. Billing, etc.)
- Navigation and traffic management data (e.g. AIS, VTS, etc.)



Port and port facility cyber ecosystems are dynamic and its stakeholders are highly interdependent. Therefore, periodic review of the ecosystem critical activities/stakeholders/assets and making appropriate adjustments, are recommended



Cybersecurity is not just for the IT department

- 1 Cyber risk is an enterprise-wide risk
 Cyber risk is pervasive. Cyber risk factors touch every aspect of the organization including administration and operations. Cyber risk management only succeeds with the active executive engagement and oversight.
- 2 People are the weakest link in cyber risk management
 Managing cyber risk encompasses people, technologies, processes. Cyber threat actors commonly target non-IT staff, which represents the majority of an organization's personnel.
- 3 The impact of cyber breaches can be disastrous
 The consequences of compromised port and/or port facilities' digital processes could result in operational disruption, affecting customers, port authorities, port community systems, and related port services.

Cyber resilience requires pre-defined decisions and pre-defined cooperation coordinated with all the stakeholders, inside and outside the port



Israeli Maritime-Tech Startups*

* The chart comprises of "pure-play" maritime startups, as well as startups entering different industry but have a strong maritime use case.
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THE DOCK January 2022



Cyber Solutions

- **Cydom**
 Cyber Security Coverage for Protecting IT & Operational Assets in Ships and Ports while assuring their readiness for regulatory inspections.
- **Salvador**
 Solutions for operational continuity and cyber-attack recovery in SCADA and HMI systems
- **Cyberstar**
 A cybersecurity company, subsidiary of ZIM, the Israeli shipping line, offering Cybersecurity services such as cyber-attack simulation, cybersecurity gap analysis, etc.
- **EasySec**
 Endpoint Protection for Industrial IoT and Control Systems

CYDOME



Cyberstar

EasySec



Thank you for your attention!

For your copy of the guidelines:
https://bit.ly/IAPH_CyberGuide1

For more information, contact:
gadib@marinnovators.com

To join IAPH and its Data Collaboration Technical Committee, contact:
antonis.michail@iaphworldports.org

The biggest room in the world, is the room for **CYBER** improvement

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MR VANELSLANDER



University of Antwerp
TPR | Department of Transport and Regional Economics

Greening ports: challenges, opportunities and best practices

Prof. Thierry Vanelslander
University of Antwerp
Department of Transport and Regional Economics

Contents

- Challenges and opportunities
- PIONEERS cases
- WSP best practices



WSP
About the program | Submit your project | iaph

Challenges and opportunities

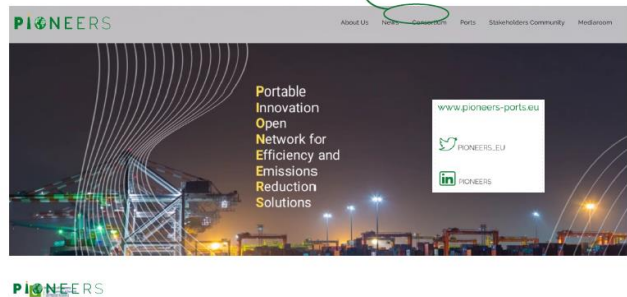
- No 'one size fits all'
- Strong business case
- Partnerships
- Little known about failures
- Investment only when technology is ready
- All types of cargo / passengers
- Public or private or PPP

Most common initiatives

- Sustainability reports
- Facilitators
- Cold ironing
- Renewable energy
- Alternative fuels
- CCUS
- Local environment and sustainability
- Green port dues
- Digitisation

<https://pioneers-ports.eu/>

Receive updates on the project through our stakeholder community network!



PIONEERS
About Us | News | Case Studies | Ports | Stakeholders Community | Mediamark

Portable Innovation
Open Network for Efficiency and Emissions Reduction Solutions

www.pioneers-ports.eu

PIONEERS' 46 PARTNERS



Port of Antwerp Bruges, BALANCE, Port de Barcelona, CHE MEYER, INFRABEL, VIB, BELGIUM, magellan, vectos, Universiteit Antwerpen, PORT MONTREAL, P&G, European Integrated Projects, proDEVELOP, Maastricht University, venlo, PSA Antwerp, SEAFAR, MACOMI, RACC, alice, VIAAMSE OVERHEID, Air Liquide, ZERO EMISSION SERVICES, danaser, Envision, LINEAS, HUTCHISON PORTS VENLO, vito, UITP

Green port demo's Antwerp

Demonstrations in real port environments of solutions and innovations related to green energy production, distribution and supply

WP4 partners:



- Identification and tackling non-technological barriers
- Green Hydropower Platform for Port Infrastructure
- Realisation of a hydrogen refuelling infrastructure
- Corridor of modular docking stations for energy containers
- Battery storage & smart mgmt of green energy in terminals
- Integration with other innovations in the PIONEERS ports



Location of the WP4 demo's

- 1 Hydrogen refuelling infrastructure
- 2 Corridor of modular docking stations for energy containers
- 3 Battery storage and Smart Management of Green Energy in terminal operations
- 4 Hydropower Turbine



Integrated Green Hydropower Platform for Port Infrastructure - De Meyer

Lead partner: **De Meyer NV** - Masters in Mechanics
Objective is to develop and demonstrate an end-to-end solution to convert energy from water to electricity, specifically in port infrastructure



PIONEERS

PIONEERS



Integrated Green Hydropower Platform for Port Infrastructure

- Back in 2017, De Meyer NV deployed a successful Hydropower Turbine Prototype in the 'Kallo Lock' (PoA)
- Result: Proven energy potential of 150 kW from one 3-blade turbine installed in a bypass sewer of the Kallo Lock

Integrated Green Hydropower Platform for Port Infrastructure

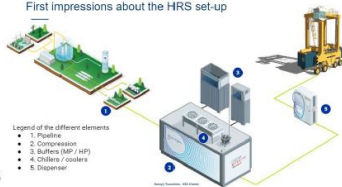
In 2021, De Meyer NV completed a modular, axial-flux engine/generator to complete the Hydropower installation. (PowerGen)



From Wind to Straddle - Air Liquide

Air Liquide's +40 years' hydrogen expertise at the service of the PIONEERS project:

- Energy sourcing
 - Core business: production & distribution of hydrogen
 - Solution development: → Providing the required refuelling infrastructure in order to decarbonise PSA Antwerp's fleet of straddle carriers & support a relentless operation of the terminal (currently powered on diesel → equivalent consumption > 100kg H2/day/straddle carrier)
- First impressions about the HRS set-up



Engineering and demonstration of 350 bar, high speed hydrogen refuelling station for straddle carriers:

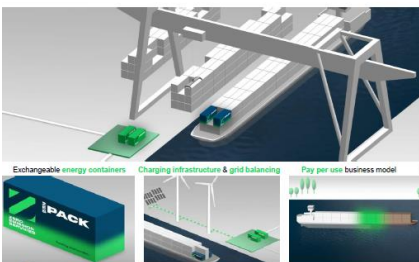
- Operations
- Refuelling process

→ (possible) links to Green Straddle Carriers (Task 5.4) and Modular Docking Stations for Energy Containers (Task 4.4.)

PIONEERS

PIONEERS

A corridor of modular docking stations for energy containers - Zero Emission Services



Electric propulsion of barges by means of battery containers

- Modular Energy Concept:
 - Barge with electric propulsion
 - 20 battery container
 - Docking station
 - Important side conditions:
 - Standardization and open access
 - Green electricity
- Emission-free inland waterway transport



PIONEERS

PIONEERS

Developing a network of docking stations

- PIONEERS: focus on the corridor Willebroek - Antwerp - Venlo
- Connection to other potential locations in Belgium: Ghent, Zeebrugge, Genk, Liège, etc.
- Connection to the future network in the Netherlands: Moerdijk, Bergen-Op-Zoom, etc.



PIONEERS

Battery storage and smart management of green energy in terminals - Antwerp Euroterminal




AET **Envision digital**

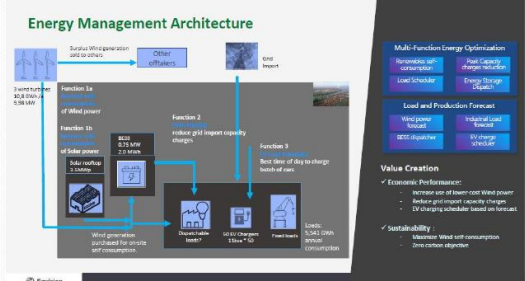
Energy transition on AET

- 3 new windmills on quay 10 MW
- 3,8^h solar park on top of new multilevel storage building
- QPDI for electric cars
- Charging poles for electric vehicles
 - cargo as well as own cars
- Cold ironing
- Battery Energy Storage System and Intelligent Energy management system (PIONEERS Project)



AET

Energy Management Architecture

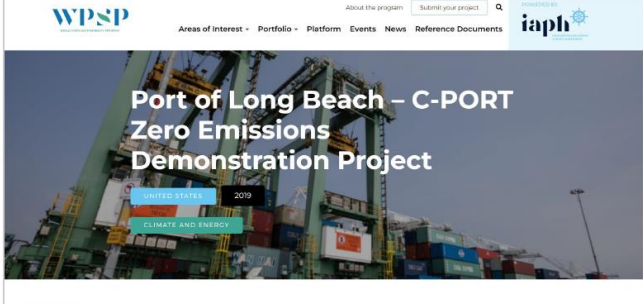


Envision


Battery Energy Storage System and intelligent Energy management system

- Multiple uses for the same battery
 - Storage of own solar energy
 - Storage of wind energy
 - Peak shaving
 - Charging of electric vehicles
 - Stabilization of own grid
 - Stabilization of external Grid
- Smart software to optimize battery usage for the above mentioned cases.
 - Which kind of battery do we need?
 - What is the optimal capacity of the battery?
 - When should the battery be used and for what purposes?
- Does the puzzle fit? Can we validate a business case for a battery on terminal?
 - Which use of a battery has the best ROI?
 - Is there a better ROI if a battery is used for multiple purposes at once?

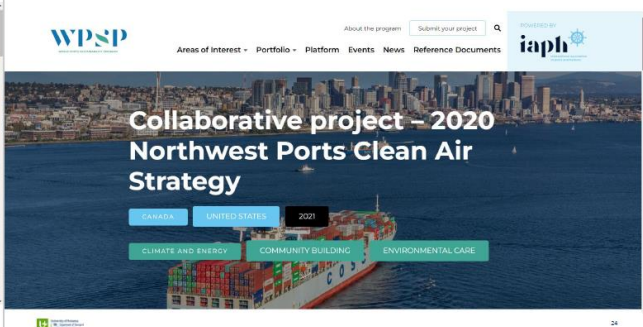
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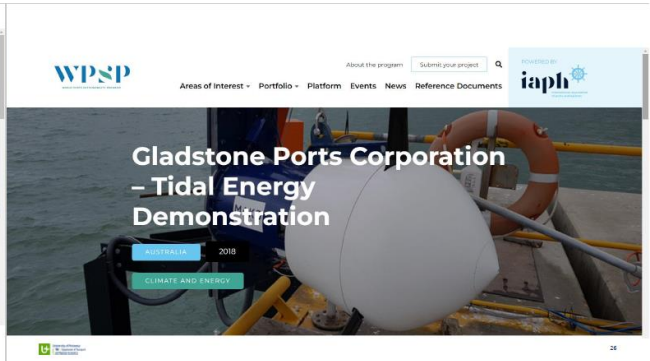
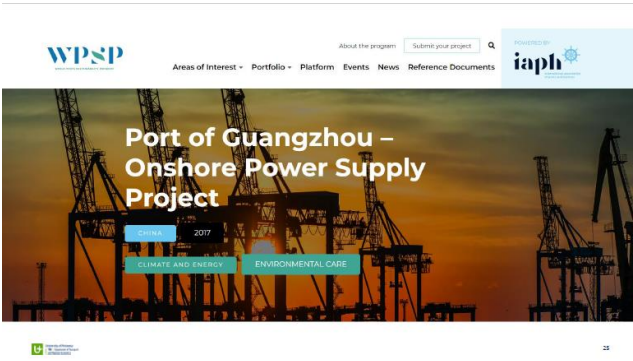
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WPSD **iaph**



Thanks a lot for your attention!

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MR COPPOLA

EU Strategy for the Adriatic and Ionian Region
EUSAIR

conference
“Green and Smart Ports in the Adriatic-Ionian Region”

Green and Smart ports development within the European Strategy for the Adriatic-Ionian Region (EUSAIR)

Pierluigi Coppola
EUSAIR Pillar 2 Coordinator

Trieste, 21 June 2023

EU Strategy for the Adriatic and Ionian Region
EUSAIR

Transport Priority Actions

Pillar 2 Overall Goal

To improve connectivity within the Region and with the rest of Europe in terms of transport and energy networks

MARITIME TRANSPORT

- Improving and harmonising traffic monitoring and management
- Developing ports, optimising port interfaces, infrastructures and procedures/operations

INTERMODAL CONNECTIONS

- Developing the Western Balkans comprehensive network
- Developing motorways of the sea
- Cross-border facilitation

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Project Labelling

INFRASTRUCTURAL PROJECTS

- 1 Upgrading of Trieste Port (air-sea infrastructure)
- 2 Heavy vehicle road, connecting the TIR of Port of Bari, Interregio (intermodal terminal) and sea terminal
- 3 Multi-functional and digital expansion on critical sectors on the Sea front
- 4 Improving efficiency of the sea terminal (JICA and Interreg)
- 5 Preparation of project documentation for construction of Highway 7-761 Pompa Ultra-Relativa (Bari and Interregio Bari)
- 6 Feasibility study for Adriatic-Ionian Highway Interregio
- 7 Reconstruction and modernization of railway line Bologna Bari (JICA)
- 8 Technical studies on railway linking Bari and Giovinetti - Albania (section Florina - Pogradec)
- 9 Second Railway Bari-Genoa - Port of Genoa
- 10 Upgrading of Rijeka Port
- 11 Reconstruction and upgrading of functional facilities in the Port of Bolfo
- 12 Railway section Padova - Zadar (JICA)
- 13 Link and Maritime Railway
- 14 MOBILITY ON THE COAST (COASTMILES)
- 15 MOBILITY ON THE COAST (COASTMILES)
- 16 MOBILITY ON THE COAST (COASTMILES)
- 17 Improvement of port capacity and port services for Cadix Shipping
- 18 Construction of sea passenger terminal in the Port of Cadix
- 19 Upgrading of freight infrastructure and services at the Port of Pula
- 20 Construction of passenger terminal in the Port of Pula
- 21 Multimodal Northern Adriatic Corridor
- 22 Intermodal Central Adriatic Corridor
- 23 Upgrading Palermo - Catania - Messina railway on the Sciarra Corridor
- 24 Improvement of the connections between the two interregional networks and the Adriatic Sea
- 25 Preparation of project documentation for construction of Highway 7-761 Pompa Ultra-Relativa in Bari
- 26 Reconstruction and modernization of railway line Bologna Zagreb
- 27 Construction of railway line Bari-Genoa-Portofino
- 28 Port of Rijeka - Croatia - Interregio - Adriatic connectivity
- 29 Port of Rijeka - Croatia - Interregio - Adriatic connectivity
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SOFT MEASURES

- 1 ADRISE (improving intermodal connections in the Adriatic-Ionian region)
- 2 INTERREGIO (interregional network and actions to develop intermodal transport in the Region)
- 3 BUREAU - Efficiency - Release of Maritime Administrations in the Adriatic-Ionian Region
- 4 UNIC NET WED (connecting public and private operators for the development of UNIC as sustainable alternative fuel for intermodal transport)
- 5 AMBITIAN (Adriatic Water Train: Functional/feasibility transport plan for the Northern Adriatic sea)
- 6 ADM/IONIAN small ports network
- 7 ADM/IONIAN port connectivity
- 8 ADM/IONIAN Core Route (ADM/IONIAN)
- 9 GREENSHIP - Cross-border sustainable mobility planning and passenger transport services based on intermodality
- 10 DNA LINK
- 11 Sea Lightship Port of Trieste (Sustainable Selection of Adriatic Sea Ports/ports in intermodal areas)
- 12 EDC/IO/ICE
- 13 DNA Visual traffic monitoring with AI/ML

51 projects

Green and Smart Ports concept as EUSAIR Flagship

Specific objectives

- **Technology testing** in ports to identify the technical and operational challenges
- **Mapping of local and macro regional needs** and development of **network of ports** to be transformed in accordance with the developments of the Macroregional Transport Masterplan
- Supporting to **zero emission actions** as well as promotion of interoperability through the development of the required infrastructure among the ports of the Region through the digitalisation of the provided services and the **development of innovative ICT solutions** to support the supply chain
- Supporting **circular economy projects** in ports finding solutions in turning waste to products due to their ideal background (proximity to large cities, industries as well as by operating as hosts of ships' waste)
- Alignment of the **EUSAIR States regulatory framework** for the electrification of ports

The EUSAIR Pillar (Transport sub-group) study

What is «Green & Smart»?
(in the AI Region)

What role for the European Territorial Co-operation (ETC) ?

- Supporting:**
- the MA operating in the AI Region in understanding the needs in the sector
 - Stakeholder in the AI Region to intercept the funding opportunities coming from ETC



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The EUSAIR Pillar (Transport sub-group) study: methodology

- The EU policy and legislative framework
- On-going initiatives and projects in the AI Region
- Indicative actions of the new Interreg Programmes operating in the Region

GREEN AND SMART PORTS EU policy and legislative framework



What is «Green & Smart» ?

Scope	Theme
IMPROVING SUSTAINABILITY IN MARITIME VESSELS OPERATIONS	<ul style="list-style-type: none"> • Improvement of the energy efficiency and reduction of emissions of vessels • Creation of a comprehensive network of recharging and refuelling infrastructure • Deployment of renewable and low-carbon fuels and powering stationed vessels with renewable power
PORTS AS GREEN HUBS	<ul style="list-style-type: none"> • Promotion of ports as new clean energy hubs for integrated electricity systems, hydrogen and other low-carbon fuels • Greening ground port services and operations • Promotion of ports as testbeds for waste reuse and the circular economy
SAFETY IN PORTS	<ul style="list-style-type: none"> • Enhancing transport safety and security
DIGITALISATION IN PORTS	<ul style="list-style-type: none"> • Development of efficient capacity allocation and traffic management systems • Diffusion of innovation, data and AI for smart mobility and cybersecurity

The EUSAIR Pillar (Transport sub-group) study: methodology

- The EU policy and legislative framework
- **On-going initiatives and projects in the AI Region**
- Indicative actions of the new Interreg Programmes operating in the Region

EXAMPLES OF 2014-2020 INTERREG PROJECTS

ZERO EMISSIONS IN PORTS	ADRION	IT-HR	IT-AL-ME		
Alternative clean fuels, cold ironing and green accessibility to marinas (vessels, motorboats...)	SUPER-LNG	DEEP-SEA, METRO	SuMo		
DIGITALISATION	ADRION	IT-HR	IT-AL-ME	GR-IT	IT-SI
ICT/digital solutions to upgrade information and data management and support multimodal integration and land accessibility to ports	ADRIPASS	DIGLOGS, DIGSEA E-CHAIN, MIMOSA, PROMARES, STEP-UP, TRANSGOOD	EPINITIS, ISACC	INVEST-MENT	
ICT/digital solutions to improve sea traffic management, and safety and security of transport operations, including cybersecurity	ADRIPASS, EUREKA	CHARGE, DIGLOGS, INTESA			SECNET
ICT/digital solutions to monitor the performance and impact of maritime transport operations at ports		ECOMOBILITY, GUTTA, TRANSGOOD			

EXAMPLES OF 2014-2020 INTERREG PROJECTS

CONNECTIVITY	ADRION	IT-HR	IT-AL-ME	GR-IT
Promote integration and connectivity between different transport modes, including last mile and hinterland connections	ADRIPASS, ISTEIN, INTER-PASS	ADRIGREEN, MIMOSA, MOSES, PROMARES		SWAN
Improve conditions and competitiveness of existing or new MoS and/or small cruises infrastructure and services	MULTI-APPRO		ALMONT-MTC, PORTS	DOCK-BI, FRESH WAYS, THEMIS
Promoting accessibility of tourists to inland destinations by maritime transport integrated with green transport solutions		ICARUS, SUSTRA	PORTS	TRUST

CIRCULAR ECONOMY IN PORTS (0)

EXAMPLES OF 2014-2020 INTERREG PROJECTS

ZERO EMISSIONS, DIGITALISATION AND CONNECTIVITY	ADRION	IT-HR	IT-AL-ME	IT-SI
Governance of planning, implementation and monitoring of projects/set up of transnational strategies and action plans	ADRIPASS, INTER-CONNECT, MULTIAAPRO, SUPAIR, NEWBRAIN	FRAMESPORT, SUSPORT	PROMARES	SAGOW, PORTS 4.0, ISACC
Knowledge sharing and cooperation support	SUPAIR			TRADAM, ECSYT, PORTS 4.0, ISACC
Capacity building				CRISIS
Resilience and risk management of transport operations				
Support the preparation of projects to improve their maturity for funding and financing	NEWBRAIN			

Conclusions

- Opportunities from Interreg programmes
- Possible actions to be prioritized

Conclusions : opportunities from Interreg programmes

Programmes	Scope/theme most matching with indicative actions
Italy-Croatia	Ports as green hubs: greening ground port services and operation
Adriatic; Central Europe; Croatia-Bosnia and Herzegovina-Montenegro; Greece-Albania; Greece-Italy; Greece-North Macedonia; Italy-Croatia	Ports as green hubs: promotion of ports as testbeds for waste reuse and the circular economy
Adriatic; Croatia-Bosnia and Herzegovina-Montenegro; Greece-Italy	Improving sustainability in maritime vessels operations: creation of a comprehensive network of recharging and refuelling infrastructure

Conclusions : opportunities from Interreg programmes

Programmes	Theme most matching with indicative actions
Adriatic	Improving sustainability in maritime vessels operations: improvement of the energy efficiency and reduction of emissions of vessels
Central Europe; Greece-North Macedonia	Digitalization in ports: diffusion of innovation, data and AI for smart mobility
Central Europe; Croatia-Bosnia and Herzegovina-Montenegro; Euro Med; Greece-Italy; Greece-North Macedonia; Italy-Albania-Montenegro; Italy-Slovenia; Slovenia-Croatia	Safety in ports: enhancing transport safety and security
Greece-Albania; Croatia-Bosnia and Herzegovina-Montenegro	Ports as green hubs: promotion of ports as new clean energy hubs for integrated electricity systems, hydrogen and other low-carbon fuels

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CONCLUSIONS: POSSIBLE ACTIONS

SCOPE

ACTION

Improving sustainability in maritime vessels operations

Construction of new vehicles prototypes, retrofitting of vessels
Procurement of green vessels, greening of ports' fleets and terminal cargo equipment/facilities

Ports as green hubs

Electrification of berths and small scale investments for deposits of LIG (interim transitional fuel), hydrogen, e-ammonia and e-methane...
Develop harmonised guidelines for construction and operation of storage/fueling equipment and vehicles
Support the development of low carbon multimodal transport chains
Use of secondary materials in production and construction (e.g. dredging sand in cement production -- Aalborg Portland)
Waste-to-energy facilities (transform hydrocarbon waste into carbon-neutral fuels to be used for integrated electricity systems)
Reconversion of industrial and port areas into eco-districts, exploring possibilities to set up ship decommissioning operations
Provide platform for start-ups and pilot projects for further development

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CONCLUSIONS : POSSIBLE ACTIONS

SCOPE

ACTION

Digitalisation in ports / Safety in ports

Installation of new technologies such as 5G/6G, digitalisation of public administration
Virtualisation (digital twin), Internet of Things, Artificial Intelligence, Automated/Unmanned terminal operations and blockchain
Measures to develop standardised digital data sharing to support coordinated and synchronized operations
Solutions to set up automated and paperless procedures and speed up processes at nodes and throughout the logistics chain (incl. custom, security, phytosanitary checks etc.)
Just in time sea traffic management to improve safety, environmental performance and efficiency of maritime transport
Real time information systems to users for traffic management and multimodal travel planner solutions
Enhance cyber security
Tools and actions to improve measurement and management of waste collection and treatment, land degradation, light and visual intrusion, soil and water contamination, noise and vibration impacts, loss of biodiversity and coastal erosion

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CONCLUSIONS: POSSIBLE ACTIONS

SCOPE

ACTION

Other (connectivity, human resources, R&D)

Enhancing connectivity to islands from mainland and between islands
Integrate Short Sea Shipping routes and Motorways of the Sea with road, rail and IWW networks
Develop/improve hinterland accessibility to freight nodes and touristic sites
Training activities for the improvement of human skills and competences accompanying technological evolution, ecologic, energy and digital transition
Support the participation of ports to research and development activities to test and deploy innovative solutions, attract innovative businesses and services and qualified skills

conference

“Green and Smart Ports in the Adriatic-Ionian Region”

Thanks for your attention!

Pierluigi Coppola
EUSAIR Pillar 2 Coordinator

Trieste, 21 June 2023

PHOTOS:



