EVENT FOLLOW-UP REPORT

Organisation of the Final Conference & Thematic seminar with other initiatives/EU Programmes 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 21st June 2023

Deliverables D.2.1.4 and D.3.3.2

Event summary

Type of event	*Physical/online*
Location (if physical)	*Trieste*
Date of the event	*21st June 2023*
Time/Duration	*1 day*
Purpose of the event (By whom was it organized? What was the objective?)	*As described in the AF, the event combined the following deliverables:* • *D.2.1.4 - High-level final conference. High-level public cross-border event open to main project target groups and stakeholders, involving thematic experts, to present final outputs and cluster results.* • *D.3.3.2 - Thematic seminar with other initiatives/EU Programmes. In the framework of the high-level final conference (D.2.1.4), LP organises a thematic seminar with other initiatives/EU Programmes on project results tackling ICT applied to multimodal transport.* *The objective of the event 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.* *Given the similar and complementary scopes, the event was organised jointly with SUSPORT (Interreg Italy-Croatia), ACCESSMILE (Interreg Central Europe) and EALING (Connecting Europe Facility) projects.*
Short description of the event (what happened during the event?)	*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). *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.* *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.* *Among the speakers, Prof. Thierry Vanelslander 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.* *Anne Jensen, European coordinator of the Adriatic-Baltic Corridor, also attended the conference and visited the port of Trieste in the afternoon.*
Results/Outcomes of the event (What are the takeaways from the event?)	*The event promoted a fruitful discussion among different stakeholders on the importance of ICT tools in the maritime sector. The conference stressed the importance of sharing, capitalising and implementing ICT tools to promote maritime traffic growth.*
Number of attendees	*Presence 79 + 38 online*
Type of stakeholders/target groups that were represented	*EU Commission, Macro-Regional Strategies Public, local and national authorities, port authorities, research institutes, universities, general public*

AGENDA OF THE EVENT:

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 Ferdinandeo

Agenda

9:00 – 9:30	Welcome coffee Registration / connection to the EUSAIR web platform
9:30 – 10:00	Welcome and opening speeches • 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 • Mr. Alberto Cozzi, Port Network Authority of the Eastern Adriatic Sea

10:30 – 11:30	Keynote speeches: *Green and smart ports: challenges, strategies, solutions* • *Greening ports: challenges, opportunities and best practices*, Mr. Thierry Vanelslander, University of Antwerp, Department of Transport and Regional Economics (TPR) • *Cybersecurity for ports: new challenges and solutions*, Mr. Gadi Benmoshe, Vice Chair of IAPH Data Collaboration Committee and Managing director of Marinnovators • *Green and Smart ports development within the European Strategy for the Adriatic-Ionian Region (EUSAIR)*, Mr. Pierluigi Coppola, Coordinator of the EUSAIR Pillar 2 "Connecting the region"
11:30 – 11:45	Coffee break
11:45 – 12:30	Round table discussion *Trilateral cooperation for green and smart ports: practice and outlook from NAPA* Moderator: Prof. Edvard Tijan, Vice Dean for Business Affairs at University of Rijeka, Faculty of Maritime Studies • 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	Conclusions and closing remarks • 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

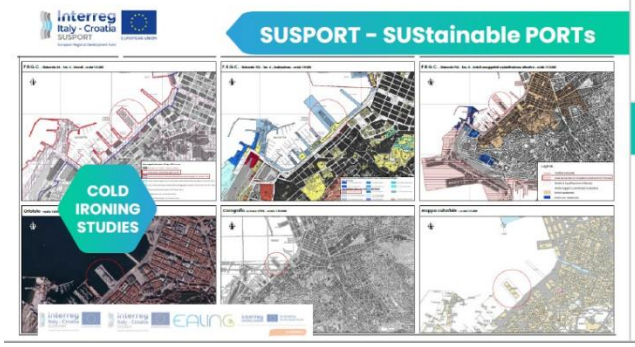
Please register at this link

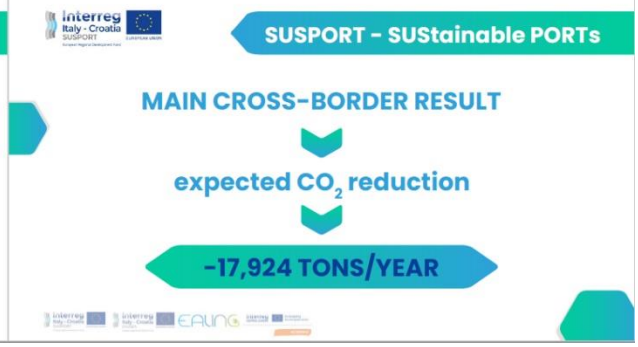
POWEPOINT PRESENTATIONS

MR. COZZI

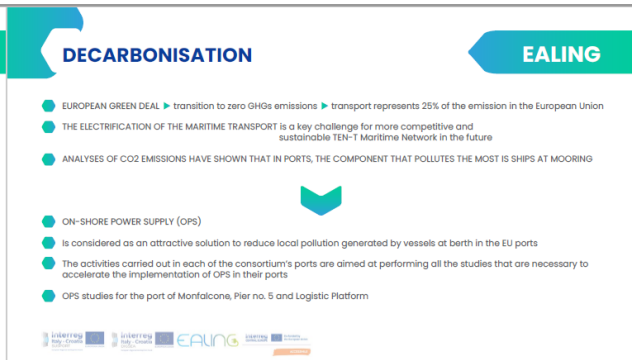
SUSPORT - SUStainable PORTs
PHOTO VOLTAIC SYSTEM

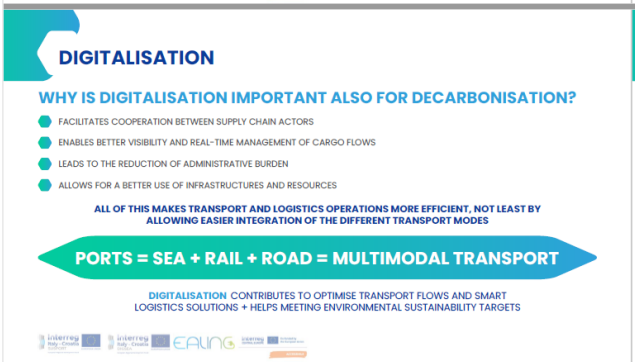
SUSPORT - SUStainable PORTs
E-MOBILITY

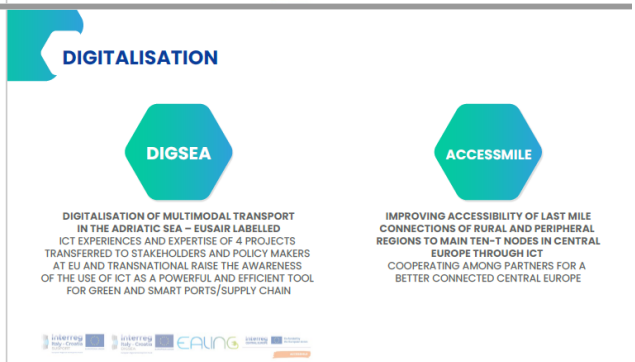

SUSPORT - SUStainable PORTs
COLD IRONING STUDIES


SUSPORT - SUStainable PORTs
MAIN CROSS-BORDER RESULT
expected CO_2 reduction
-17,924 TONS/YEAR

DECARBONISATION
EALING
Common EU harmonized, 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
EALING Studies Action
EALING Works Valenciaport
Preparation of the electrical grid of the Port of Valencia for Onshore Power Supply
Implementation of at least 30 installations in at least the 16 EU ports of the EALING Studies Action
Future EALING Actions


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 Monfalcone, 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

01 **TRANSPOGOOD** – INNOVATIVE ICT TOOLS THAT ASSISTS USERS IN FINDING THE BEST SOLUTION OF TRANSPORT SERVICES

02 **DIGLOGS** – ICT TOOLS FOR MOST ADVANCED DIGITALISED LOGISTIC PROCESSES FOR MULTIMODAL FREIGHT TRANSPORT AND PASSENGERS' SERVICES

03 **PROMARES** – ICT TO MAKE HINTERLAND TRANSPORT MORE EFFICIENT AND CONNECTED WITH PORTS

04 **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

01 **MULTIMODAL TRANSPORT INEFFICIENCY**

02 **WEAKER ECONOMIC GROWTH**

03 **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

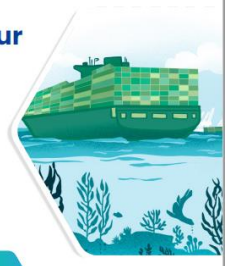
TOPIC 3 CARGO BUNDLING AND TRACKING

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

Thank you for your kind attention!



PORT NETWORK AUTHORITY OF EASTERN ADRIATIC SEA
PORTS OF TRIESTE AND MONFALCONE

ALBERTO COZZI
alberto.cozzi@porto.trieste.it

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

Marinnovators

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 30, 2022

The 40th 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 BIMA proposing amendments to the Maritime Single Window Guidelines to include guidance on the port call process and the operational and nautical 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 version of IMO's 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

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The five essential steps towards cyber resilience

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

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Step three

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

Risk identification

- Asset identification
- Understanding data as an asset
- Assess for threats
- Create risk scenarios

- Risk analysis

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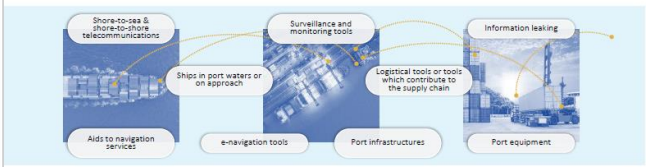
Ports context : cyber vulnerabilities amplification

- 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 Ollivier 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.

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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-physicals impacts

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

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.seatrade-maritime.com/technology/shipping-industry-expects-cyber-attack-deaths-collisions-and-groundings?trk=feed_main-feed-card_feed-article-content

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, 56% of maritime professionals expect cyber-attacks to cause physical injury or death in the industry within the next few years.

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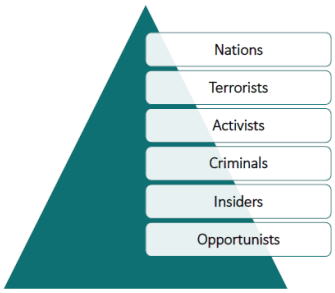
Cyber pirates



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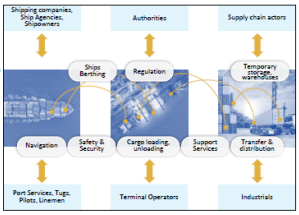
Defining the Organization's Cyber Ecosystem: Activities & Stakeholders

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.)



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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

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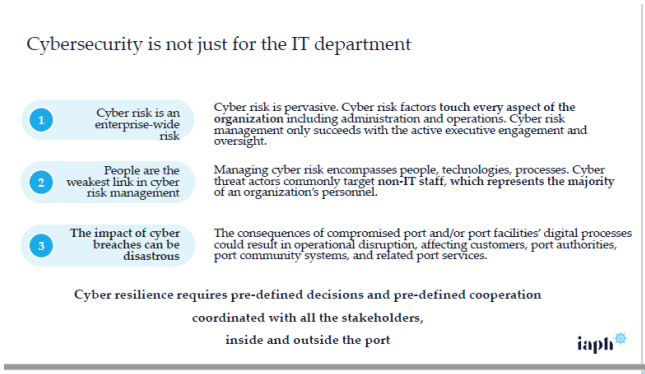
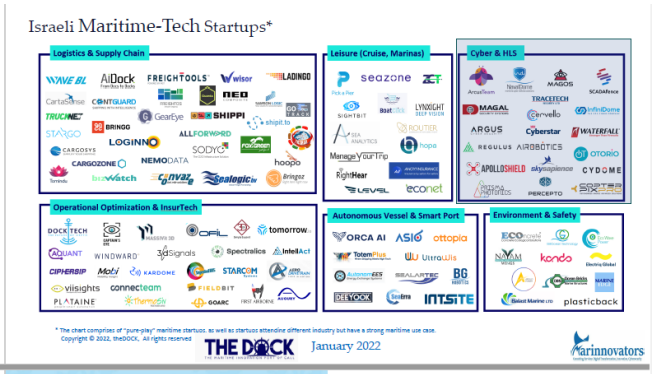
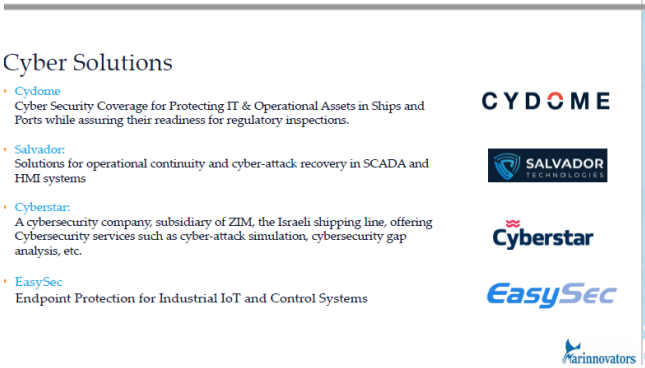
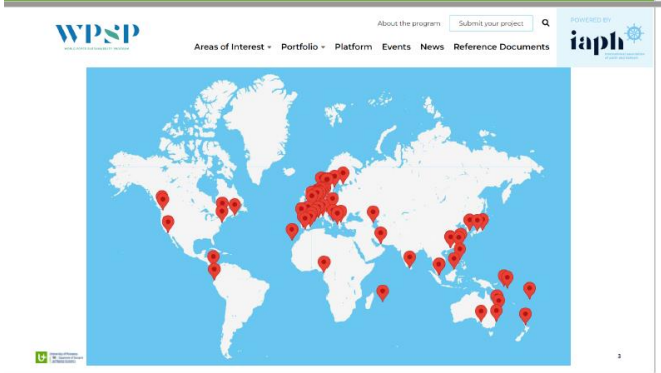
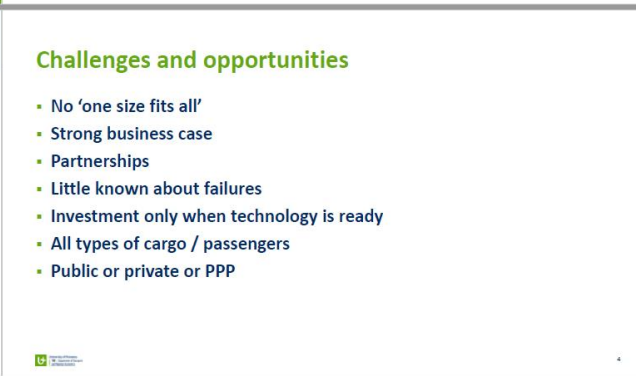






MR VANELSLANDER





Most common initiatives

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

https://pioneers-ports.eu/

PIONEERS' 46 PARTNERS

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

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

PSA Antwerp

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 refueling 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

PIONEERS

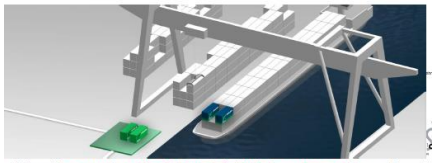
Engineering and demonstration of 350 bar, high speed hydrogen refuelling station for straddle carriers:

- Operations
- Refuelling process

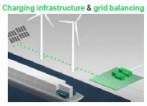
→ (possible) links to Green Straddle Carriers (Task 5.4) and Modular Docking Stations for Energy Containers (Task 4.4)

14

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



Exchangeable energy containers | Charging infrastructure & grid balancing | Pay per use business model



ZERO EMISSION SERVICES

danser

Port of Antwerp Bruges

HUTCHISON PORTS BELGIUM

HUTCHISON PORTS VENLO

PIONEERS

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

16

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.

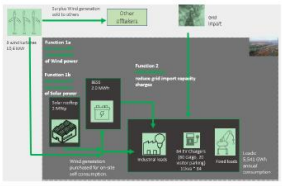
PIONEERS

17

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

AET

Envision digital



PIONEERS

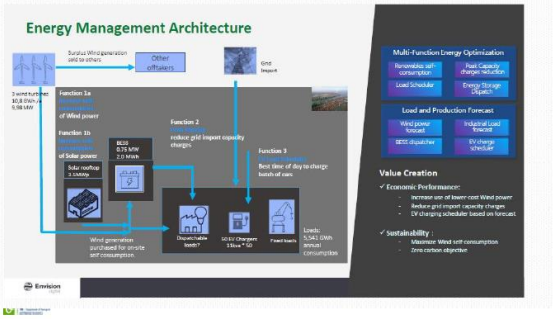
Energy transition on AET

- 3 new windmills on quay 10 M W
- 3,8° solar park on top of new multilevel storage building
- QPDI for electric cars
- Charging poles for electic vehicles
  - cargo as well as own cars
- Cold ironing
- Battery Energy Storage System and intelligent Energy management sytem (PIONEERS Project)

AET

19

Energy Management Architecture



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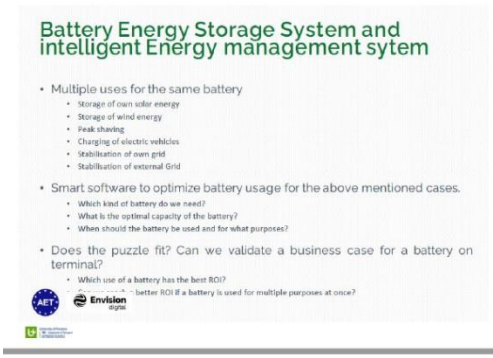
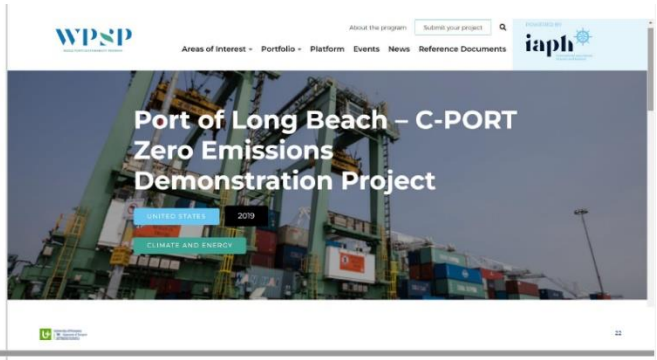

Battery Energy Storage System and intelligent Energy management sytem
Multiple uses for the same battery
Storage of own solar energy
Storage of wind energy
Peak shaving
Charging of electric vehicles
Stabilisation of own grid
Stabilisation of external Grid
Smart software to optimize battery usage for 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?
better ROI if a battery is used for multiple purposes at once?
Envision digital


WPSP
Areas of Interest
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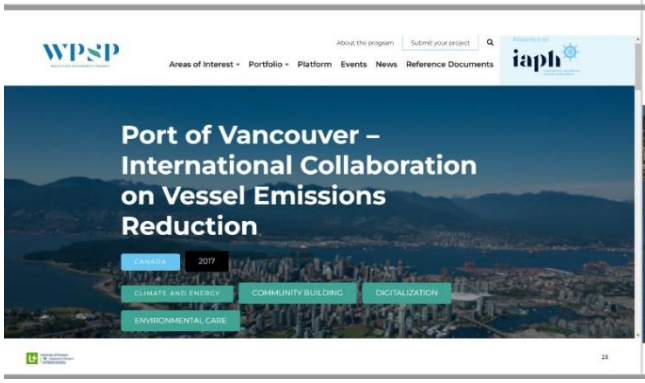
Events
News
Reference Documents
iaph
Port of Long Beach – C-PORT Zero Emissions Demonstration Project
UNITED STATES
2019
CLIMATE AND ENERGY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Reference Documents
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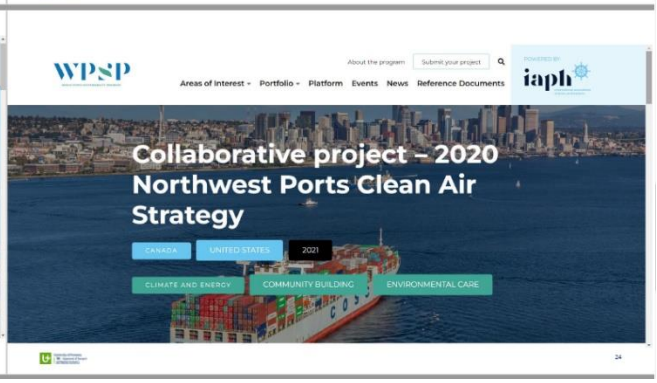
Port of Vancouver – International Collaboration on Vessel Emissions Reduction
CANADA
2017
CLIMATE AND ENERGY
COMMUNITY BUILDING
DIGITALIZATION
ENVIRONMENTAL CARE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Collaborative project – 2020 Northwest Ports Clean Air Strategy
CANADA
UNITED STATES
2021
CLIMATE AND ENERGY
COMMUNITY BUILDING
ENVIRONMENTAL CARE

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Reference Documents
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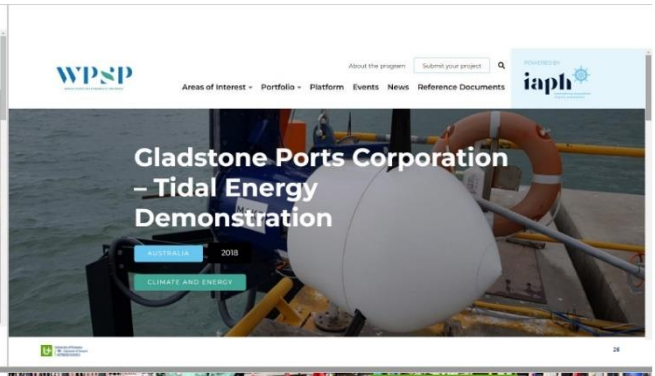
Port of Guangzhou – Onshore Power Supply Project
CHINA
2017
CLIMATE AND ENERGY
ENVIRONMENTAL CARE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Reference Documents
iaph
Gladstone Ports Corporation – Tidal Energy Demonstration
AUSTRALIA
2018
CLIMATE AND ENERGY

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

Pillar 2 Overall Goal

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

Transport Priority Actions

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

EU Strategy for the Adriatic and Ionian Region EUSAIR

Project Labelling

INFRASTRUCTURAL PROJECTS

1 Upgrading of Trieste Port (railway infrastructures)
2 Heavy vehicle road, connecting the TEN-T Port of Bari, Interporto (intermodal terminal) and the main road system
7 Hydro-technical and dredge excavation on critical sectors on the Sava river
9 Improving Metor-ways of the sea Venice Patras (MoS Venice-Patras)
10 Preparation of project documentation for construction of highway E-761 Pozega-Ušce-Kotromani (Bosnia and Herzegovina Border)
11 Feasibility study for Adriatic-Ionian Highway/expressway
12 Reconstruction and modernization of railway line Beograd-Bar (CPI)
13 Technical studies on railway missing link between Greece - Albania (section Florina - Pogradec)
14 Second Railway track Divača - Port of Koper
15 Upgrading of Rijeka Port
16 Reconstruction and upgrading of functional facilities in the Port of Bečići
17 Motorway section Kriččak - Žuta Lokva 56 km
18 Ulke and Dalmatian Railway
19 MOBILITY ON THE IONIAN COAST (COMOBILION)
20 MOBILITY ON THE IONIAN COAST + (COMOBILION+)
21 ADRIETA - Adriatic/Ionian multimodal Corridor
24 Improvement of port capacity and port services for Cruise Shipping
25 Construction of new passenger terminals in the Port of Corfu
26 Upgrading of freight infrastructure and services at the Port of Patras
27 Completion of Igoumenitsa Freight Village infrastructure and services
28 Multimodal Northern Adriatic Corridor
29 Multimodal Central Adriatic Corridor
30 Upgrading Palermo - Catania - Messina railways on the Scandeci Corridor
31 Improvement of the connections between the Po River navigation network and the Adriatic Sea
37 Preparation of project documentation for construction of highway E-763 Pozega-Boljare (Montenegro Border) - Bar
38 Reconstruction and modernization of railway line Beograd-Zagreb
39 Construction of motorway Hill Aberdare-Priština
40 Port of Koper, Pier I - core network: accessibility and intermodality
41 Port of Koper, Basin III - MOS: accessibility and intermodality
42 Port of Koper, Basin II - core network: maritime accessibility

SOFT MEASURES

7 ADRIPASS (Integrating multimodal connections in the Adriatic-Ionian region)
8 MARAPPRO (Multidisciplinary approach and solutions to develop intermodal transport in the Region)
9 EUREKA - EUropean network of Maritime Administrations in the Adriatic-Ionian Region
LNG NET MED (connecting public and private operators for the deployment of LNG as sustainable alternative fuel for intermodal transport)
AVANTRAIN (Adriatic Water Train. Fluvio-maritime transport plan for the Northern Adriatic sea)
22 Adriatic/Ionian small ports network
23 Adriatic/Ionian port observatory
ADRIATIC-IONIAN Cycle Route (ADRIOCYRO)
CROSSMORY - "Cross-border sustainable mobility planning and passenger transport services based on intermodality"
DNA Link
See Lighthouse (Fari di Mare) "Sustainable Extension of Adriatic Sea-Transports in hinterland areas
ECO-ROUTE)
SMA Vessel traffic monitoring centre upgrade

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 understating the needs in the sector
- Stakeholder in the AI Region to intercept the funding opportunities coming from ETC

EU Strategy for the Adriatic and Ionian Region EUSAIR

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

A Clean Planet for All (2018)

European Green Deal (2019)

Sustainable and Smart Mobility Strategy (2020)

Fit for 55 package (2021)

FuelEU maritime regulation proposal
Proposal for the revision of the EU Emissions Trading System, including maritime transport

Transition towards paperless procedures; automated processes; smart solutions to achieve the Commission strategy goals on digitalisation (*Shaping Europe's Digital Future*)

What is «Green & Smart» ?

Scope	Theme
IMPROVING SUSTAINABILITY IN MARITIME VESSELS OPERATIONS	• 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	• 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	• Enhancing transport safety and security
DIGITALISATION IN PORTS	• Development of efficient capacity allocation and traffic management systems • Diffusion of innovation, data and AI for smart mobility and cybersecurity

EU Strategy for the Adriatic and Ionian Region
EUSAIR

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EU Strategy for the Adriatic and Ionian Region
EUSAIR

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, TRANSPOGOOD	EFINTIS, 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, TRANSPOGOOD			

EU Strategy for the Adriatic and Ionian Region
EUSAIR

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, ISTEN, INTER-PASS	ADRIGREEN, MIMOSA, MOSES, PROMARES		SWAN
Improve conditions and competitiveness of existing or new MoS and/or small cruises infrastruture and services	MULTI-APPRO		ALMONIT-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)

EU Strategy for the Adriatic and Ionian Region
EUSAIR

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, MULTIAPPRO, SUPAIR, NEWBRAIN	FRAMESPORT, PROMARES, SUSPORT	SAGOV, PORTS 4.0, ISACC	CLEAN BERTH
Knowledge sharing and cooperation support	SUPAIR		TRADAM, ECSYT, PORTS 4.0	
Capacity building			PORTS, ISACC	
Resilience and risk management of transport operations			CRISIS	
Support the preparation of projects to improve their maturity for funding and financing	NEWBRAIN			

Initiatives and projects by Theme (1/3)

	Number of projects in the ports in:					
	Albania	Croatia	Greece	Italy	Montenegro	Slovenia
A. Improvement of the energy efficiency and reduction of emissions of vessels		x	x	x		x
A.1 Deployment of Liquid Natural Gas (LNG) fuelled vessels.		1	3	4		1
A.2 Test and deployment of full electric vessels and tugs.			2			
B. Creation of a comprehensive network of recharging and refuelling infrastructure		x	x	x		x
B.1 Construction of LNG depots and facilities.		1	4	3		1
B.2 Deployment of LNG bunkering vessels.		1	3	3		1
C. Deployment of renewable and low-carbon fuels and powering stationed vessels with renewable power			x	x		x
C.1 Electrification of quays and deployment of onshore power supply systems (cold ironing).			4	6		1

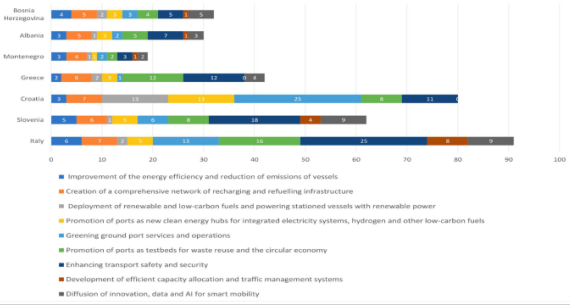
Initiatives and projects by Theme (2/3)

	Number of projects in the ports in:					
	Albania	Croatia	Greece	Italy	Montenegro	Slovenia
D. Promotion of ports as new clean energy hubs for integrated electricity systems, hydrogen and other low-carbon fuels		x	x	x	x	x
D.1 Creation of green hydrogen sites for production and distribution of hydrogen power.						
D.2 Deployment of public charging points for electric vehicles.			1	2	1	
D.3 Use of renewable energy sources, deployment of new more efficient lighting system, creation of power management system.		2	4	36	3	4
E. Greening ground port services and operations		x	x	x	x	
E.1 Greening port spaces.		1	4	21	2	
E.2 Greening port operations.		2	5	15	4	
F. Promotion of ports as testbeds for waste reuse and the circular economy				x		
F.1 Use of secondary material in production and costruction, deployment of waste-to energy facilities.				2		
F.2 Conversion of industrial and port areas.				4		

Initiatives and projects by Theme (3/3)

	Number of projects in the ports in:					
	Albania	Croatia	Greece	Italy	Montenegro	Slovenia
G. Enhancing transport safety and security				x		
G.1 Improvement of infrastructure resilience and deployment of measures to contain the impact of extreme weather events.				4		
G.2 Planning and implementation of measures to reduce the impact of pandemics and other sanitary emergencies						
H. Development of efficient capacity allocation and traffic management systems	x	x	x	x	x	
H.1 Further deployment of Vessel Traffic Monitoring and Information Systems (VTMIS).				4	1	
H.2 Deployment of solutions for enabling multimodal travel planning.	1	2	2	26	7	
H.3 Safe deployment of automated and autonomous maritime operations.		2	1	12	1	
I. Diffusion of innovation, data and AI for smart mobility	x	x	x	x	x	
I.1 Diffusion and integration of Port Community Systems at the port, port cluster, and national levels		1	1	6	1	
I.2 Diffusion of Maritime Single Window solutions and deployment of automated and paperless procedures and solutions				3		
I.3 Other IT solutions (rail traffic management, Iot, Blockchain, port operation)	2	4	4	9	4	

Initiative and projects by Country



EU Strategy for the Adriatic and Ionian Region EUSAIR

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

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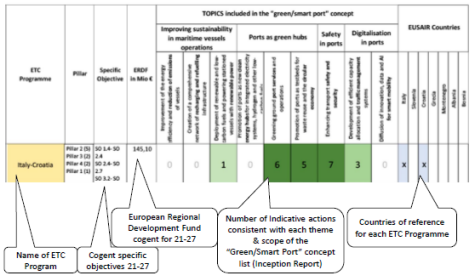
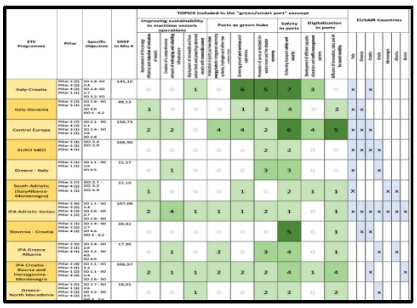
- Indicative actions of the new Interreg Programmes operating in the Region

Indicative actions of the 2021-2027 Interreg Programmes in the Region, classified by themes

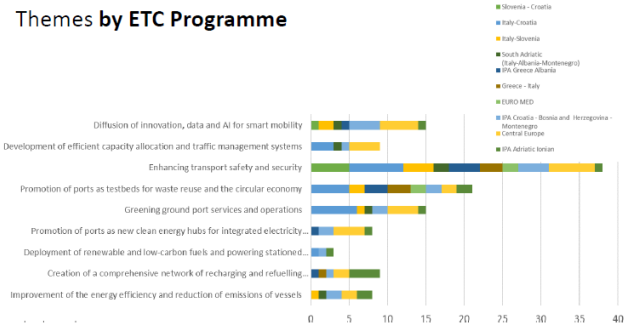


Themes **by ETC Programme**

9 'themes' included in "green/smart port concept"



Themes **by ETC Programme**



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
Adrion; 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
Adrion; Croatia-Bosnia and Herzegovina-Montenegro; Greece-Italy	Improving sustainability in maritime vessels operations: creation of a comprehensive network of recharging and refuelling infrastructure

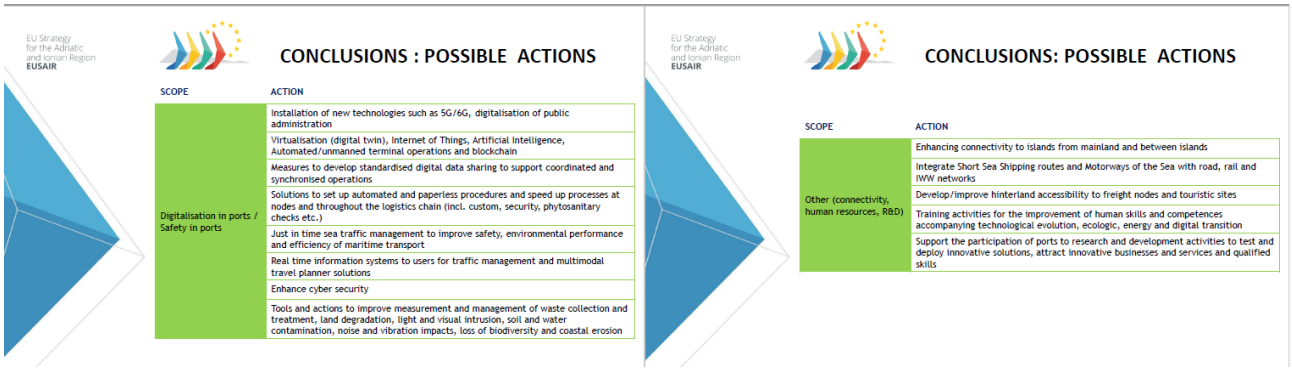
Conclusions : opportunities from Interreg programmes

Programmes	Theme most matching with indicative actions
Adrion	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

EU Strategy for the Adriatic and Ionian Region EUSAIR

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 LNG (interim transitionary 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 synchronised 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

EU Strategy for the Adriatic and Ionian Region EUSAIR

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

PICTURES:

Interreg
Italy - Croatia
DIGSEA

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Largo Caduti di Nassiriya, 1
Trieste Conference Hall "Grande Salone Generali"
Palazzo Ferdinandeo/online
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21st June 2023
GREEN AND SMART PORTS
IN THE ADRIATIC IONIAN REGION.
DECARBONISATION AND DIGITALIZATION
OF PORTS AND FREIGHT TRANSPORT.
THE CONTRIBUTION OF ITS TERRITORIAL
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