FORESIGHT QUESTIONNAIRE

PoWER PLUS is a project funded by the Interreg V-B Adriatic-Ionian Cooperation Programme (ADRION) which involves 8 partners located in 6 different countries.

It aims at performing a foresight process in order to detect the main issues which may be affecting Adriatic-Ionian ports in the short- to mid-term in the light of the Covid19 outbreak and related economic crisis. The results of these processes will be used to update and, therefore, enhance the main results produced by the former PoWER project, i.e. The PoWER Methodology for building innovation supply Chain, The PoWER Strategy for evolving ports into Innovation Hubs, and the ICT Platform "PoWERports".

This questionnaire is the first step of the aforementioned foresight process, dedicated to the collection of experts' views on possible future scenarios related to the port areas involved in the project (Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, and Serbia) also in consideration of the wider situation and trends in the Adriatic-Ionian area.

The questionnaire has been developed with reference Next Generation EU and Agenda 2030 goals – which apply both to sea and river ports - and is articulated in 62 questions divided in four sections:

1. Towards smart ports: digital transition of services and processes in the port system;
2. The port in the territory: valorisation of the waterfront and new opportunities for regenerating the physical spaces in the port - city interface;
3. Ports in the Adriatic-Ionian area;
4. The port environment after the Covid19 pandemic outbreak.

Your precious contribution will help the PoWER PLUS team to grasp the complexity and the specificity of the port areas located on the sea and the rivers of the Adriatic - Ionian Region.

Your participation in the survey is on voluntary basis. Your contribution and those of the other experts involved will be consulted and processed by the PoWER PLUS team in order to draft a project document called "Factsheets on local scenarios". The original questionnaire you filled in will be annexed to the abovementioned Factsheets and made available on the PoWERports platform upon your authorisation.

Thank you very much for your time and cooperation. Your feedback is very important to us!

By filling in and sending back this document to your contact person you authorise the PoWER Plus team to consult it and process it in order to draft the project deliverable T1.1.2 "Factsheets on local scenarios". This document will open-access and will be delivered, for prior validation, to the funding Programme's authorities.

Moreover, the PoWER Plus team would like to annex a copy of this document, in its original version, to the abovementioned Factsheets and to make it available on the PoWERports platform.

If you wish, the filled-in questionnaire can be published in anonymous form.

☒ I give my permission to the PoWER PLUS project team to annex a copy of the questionnaire I filled in to PoWER PLUS Project's deliverable T1.1.2 "Factsheets on local scenarios".

☒ I give my permission to the PoWER PLUS project team to make available a copy of the questionnaire I filled on the PoWERports platform.

☐ I wish my contribution is made available only in anonymous form.

Please, fill in the following table with your data. If you checked the box related to the anonymization of your contact data, they will be consulted only by the PoWER PLUS Project team and not diffused.

Name	Florensa
Surname	Haxhi
Affiliation	General Director, Unit of Development Programmes and Cooperation, Unit of Development Programmes and Cooperation, Department of Development and Good governance, Prime Minister's Office
Role	Expert in Blue Growth

1. TOWARDS SMART PORTS: DIGITAL TRANSITION OF SERVICES AND PROCESSES IN THE PORT SYSTEM

A tentative classification of port services in terms of Technological Readiness Level has been made considering 4 macro sectors characterised by a more advanced digital perspective:

A) Vessel & Marine Navigation;

B) e-Freight & (Intermodal) Logistics;

C) Passenger Transport;

D) Environmental sustainability.

This classification is showed in Tables 1, 2 and 3.

Table 1 Technological readiness - in standardisation

Technological readiness - in standardisation	
Service	**Enabling functions**
A.1 - Vessel Traffic Management	Accurate Vessel Positioning (terrestrial and satellite), Full information about cargo, Low-Rate Vessel-Port bi- directional communication
A.5 - Berth allocation and docking	Accurate Vessel Positioning (terrestrial and satellite), Accurate Bathymetric Data, Low-Rate Vessel-Port bi- directional communication
B.1 - Freight Management and Control	Containerized and General) cargo pervasive monitoring and control in port areas (docks, warehouses, stores).
B.3 - In-port Smart Navigation	Real-time communication Port-Terminals- Trucks

1. **According to your experience and knowledge, do you think the table above (**Table 1**) should be updated? If so, please, propose your version in the table below.**

Technological readiness - in standardisation	
Service	**Enabling functions**

2. **Please, provide a view on the current situation of the services listed in the table above according to your knowledge. You can address only the services you are familiar with.**

Due to infrastructural restrictions and limitations, Albania does not seem to have a significant share in international maritime transport. There are 4 main commercial ports handling all kinds of general cargoes, bulk cargoes and containers and two oil ports. Most of the cargoes that are imported and handled in these ports, remains in the domestic market and a small share goes transit in other markets of the region. Maritime transport is primarily concerned with the transport of freight and passengers by sea. The sector is associated with many other activities such as ship agency, chartering and brokering, maritime labor and education, multimodal and intermodal transport and related services.

Table 2 Technological readiness - not yet in standardization, facing technological challenges

Technological readiness - not yet in standardization, facing technological challenges	
Service	**Enabling functions**
A.3 - Water Incident	Accurate Vessel Positioning (terrestrial and satellite), IoT- based distributed network
A.4 - Suspicious Vessel / Maneuver	Accurate Vessel Positioning (terrestrial and satellite), Vessel-Port bi- directional communication
B.2 - Gate Automation	Accounting for users, vehicles and goods
B.4 - Freight Routing	Port-to-Port, Port-to-Road, Port-to-Railways communications
B.5 - Incident at Landside	Distributed monitoring network
C.1 - Info mobility and journey monitor	Journey planner and manager (booking, payment), JIT information delivery
C.2 - Integration with Traffic Control Centres (TCC)	Port-to-road full-fledged data exchange
C.3 - In-port Smart and Autonomous Mobility (including safety)	Real-time communication Port-Vehicles-Pedestrians
D.1 - Pollution Level (including CO_x and noise)	Distributed monitoring network
D.2 - Road Traffic Level	Distributed monitoring network

3. **According to your experience and knowledge, do you think the table above (**Table 2**) should be updated? If so, please, propose your version in the table below.**

Technological readiness - not yet in standardization, facing technological challenges	
Service	**Enabling functions**

4. **Please, provide a view on the current situation of the services listed in the table above according to your knowledge. You can address only the services you are familiar with.**

Max 1500 characters, spaces included

Table 3 Technological readiness - beyond state of the art, not technologically consolidated

Technological readiness - beyond state of the art, not technologically consolidated	
Service	**Enabling functions**
A.2 - Vessel maneuvering in port waters	Accurate Vessel Positioning (terrestrial and satellite), Accurate Bathymetric Data, Real-Time meteo-marine monitoring, HD video sources on vessel & port.
D.3 - Dynamic pricing (all services) to Vessels, Terminals	Distributed monitoring network

5. **According to your experience and knowledge, do you think the table above (**Table 3**) should be updated? If so, please, propose your version in the table below.**

Technological readiness - beyond state of the art, not technologically consolidated	
Service	**Enabling functions**

6. **Please, provide a view on the current situation of the services listed in the table above according to your knowledge. You can address only the services you are familiar with.**

Max 1500 characters, spaces included

7. **In your opinion, which of the following sectors need innovation the most?**
Please, put an "X" next to them; there is no limit to the number of sectors you can check.

ENERGY X

- Efficiency of buildings
- Efficiency of industrial processes
- Production of renewable energy
- Port Grid

INNOVATION AND NEW TECHNOLOGIES IN ALL TRANSPORT MODES

- Deployment of alternative fuels infrastructure - Directive 2014/94 /EU - 22 October 2014
- LNG Retrofit (Realization of a network of points of refuelling for LNG (Liquefied Natural Gas)
- Electrification of port docks
- Construction of LNG-powered ships

SEA-RELATED SOURCES OF RENEWABLE ENERGY

- tidal and sea waves
- hydrogen
- off-shore wind power
- on-shore micro-wind power

ENERGY EFFICIENCY IN PORTS' ACTIVITIES X

- more efficient processes
- more efficient behaviours
- more efficient buildings
- more efficient infrastructures (e.g.: lighting)

ROBOTICS AND AUTOMATION FOR X

- increasing efficiency
- increasing safety
- increasing comfortability
- monitoring and improving the flows of goods
- savings in time
- savings in fuel
- savings in personnel

AUTONOMOUS VEHICLES (LAND, AIR, WATER) X

- driverless trucks and vans for logistics
- drone planes
- for cargo transport
- for parcel delivery services
- drone ships

INTERNET OF THINGS AND BIG DATA

SIMULATION AND VIRTUAL REALITY

CYBERSECURITY

8. If other, please, specify

Max 1500 characters, spaces included

9. With reference to the sectors, you indicated in question(s) 7 and 8, is their innovation hindered from a lack of infrastructure? Please, substantiate your answer.

Blue growth needs a safe and secure environment. Integrated maritime surveillance aims to provide authorities involved in the different aspects of surveillance, i.e. border control, safety and security, fisheries inspection and control, customs, environment or defence, with ways to exchange information and data.
The lack of a fully functional fisheries management system due to limited on-time data as a result of a non-functional vessel monitoring system (VMS), a satellite-based monitoring system which at regular intervals provides data to the fisheries authorities on the location, course and speed of vessels, has led to a discontinuous monitoring and control of fishing effort. VMS is nowadays a standard tool of fisheries monitoring and control worldwide, but it was the EU which led the way, becoming the first part of the world to introduce compulsory VMS tracking for all the larger boats in its fleet.

10. With reference to the sectors, you indicated in question(s) 7 and 8, which are the main developments and improvements you consider relevant? Please, substantiate your answer.

Republic of Albania should vigorously monitor compliance with the security rules by ships intending to enter an Albanian port, whatever their origin. Republic of Albania should appoint a 'competent authority for maritime security' responsible for coordinating, implementing and monitoring the application of the security measures laid down in respective Regulation as they apply to ships and port facilities. This authority should require each ship intending to enter the port to provide in advance information concerning its international ship security certificate and the levels of safety at which it operates and has previously operated, and any other practical information concerning security.

Setting up a surveillance system such as vessel traffic monitoring and information system should help to prevent accidents and pollution at sea and to minimise their impact on the marine and coastal environment, the economy and the health of local communities. The efficiency of maritime traffic, and in particular of the management of ships' calls into ports, also depends on ships giving sufficient advance notice of their arrival.

11. With reference to the sectors indicated in question(s) 7 and 8, which are the Key Enabling Technologies (KET)[1] scientific research should focus on? Which KET could bring the most disruptive innovation? Please, substantiate your answer.

[1] The Commission defines KETs as "knowledge intensive and associated with high R&D intensity, rapid innovation cycles, high capital expenditure and highly skilled employment. They enable process, goods and service innovation throughout the economy and are of systemic relevance. They are multidisciplinary, cutting across many technology areas with a trend towards convergence and integration. KETs can assist technology leaders in other fields to capitalise on their research efforts" https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0341:FIN:EN:PDF

A possible new setup for research and innovation in Albania could be piloted through the establishment of a Blue Economy center in Vlora. The marine space between Albanian coast (Vlora) and Puglia (Italy) is the entrance gate to the Adriatic Sea and the connection with the Mediterranean Sea. Thus Otranto Channel is one of the most important and unique areas to be studied in the basin of the Adriatic sea. This center can be jointly owned by the Ministry of Agriculture and Rural Development, Ministry of Education, Sports and Youth and other entities such as the Public University Ismail Qemali of Vlora and Agricultural University of Tirana. A well-organized and administered national Blue Economy center, could act as the executive arm of Commission for Coordinating Scientific, Technological and Economic Research established by the law 64/2012 "On fisheries", capable of organizing, analyzing, accumulating, and preserving a database for all aquaculture and fisheries activities in Albania, to support the public sector organizations and to promote research and innovation partnerships, sector organizing bodies, ecological and biologic certification initiatives and value chain integration.

While most research activities would be funded by the government, there are other activities that could be driven by the industry; public-private collaborations that address common challenges. This center can also function as a center of excellence for marine sciences in Albania opened to joint activities between Albanian scientists and international ones and to different kind of collaborations with universities in Albania and abroad, fostering regional cooperation between the countries that coast in the Adriatic and Ionian Sea in the marine sciences sector.

12. Which are the innovative interventions you consider most urgent and relevant according to you? Which results you expect they would have?

Max 1500 characters, spaces included

13. A digital twin (DT) is a realistic digital model simulating or ''twinning'' the life of a physical asset; each digital twin is linked to its physical twin allowing to establish a bijective relationship between the DT and its physical twin; a DT follows the lifecycle of its physical twin to monitor, control, and optimize its processes and functions and to predict future statuses.
How can the digital twin and other technologies be useful for making ports smart?

Max 1500 characters, spaces included

14. If you have additional comments, please write them here.

Max 1500 characters, spaces included

15. If your previous contributions are referred to a specific port or area, please, let us know.

-

16. **Briefly describe a FUTURE SCENARIO (25-30 years) related to ports as Innovation Hubs, also in the light of the topics addressed in the previous questions.**
With "scenario" we mean a narrative story describing how the situation should be in the future also including your hopes and fears.
You can either refer to a specific port area or, more in general, to Adriatic-Ionian Ports.

Max 4000 characters, spaces included

17. **Which are the main forces that could drive to the scenario you described? Which would be the main actors involved? Which actions should be taken to realize the future scenario you described?**

Max 1500 characters, spaces included

18. **What are the main obstacles and risks to the scenario you described? (within 1500 characters, spaces included)**

Max 1500 characters, spaces included

2. THE PORT IN THE TERRITORY: VALORISATION OF THE WATERFRONT AND NEW OPPORTUNITIES FOR REGENERATING THE PHYSICAL SPACES IN THE PORT-CITY INTERFACE

1. **Which is your opinion on the relationship between a city and its port? If you are referring to a specific city/port please let us know.**

The relationship between a city and its port is very important. In the meantime, the Ministry of Infrastructure and Energy has already foreseen the program "Sea Transport" with the general scope to develop Albania from a coastal country to a developed maritime country oriented towards improving port infrastructure, increasing processing docking capacity, level of services in seaports and increasing investment in port infrastructure. Investments in public fishery related infrastructure should also take in consideration, the access infrastructure in the fishing ports from the city, especially for the fishing port of Durres due to its location close to the city promenade. A better access infrastructure/road to the fishing port will improve linkages, establishing direct relationships between fishers and potential buyers (resident citizens, tourists, retailers, wholesalers, restaurants, etc.), especially if associated with the building of a fish wholesale market in the fishing port of Durres.

2. **Which is your opinion on waterfront enhancement as an opportunity to reconnect cities with their ports?**

Max 1500 characters, spaces included

3. **Is a territorial waterfront with an integrated transport system consisting of the three-track coastal light rail (tramway), cycling and pedestrian roads, and coastal navigation a good solution for transport and mobility along the territorial waterfront? Please, substantiate your answer.**

Max 1500 characters, spaces included

4. **In case you are involved in a port development process, please, describe your experience in relation to Blue Economy development.**

Max 1500 characters, spaces included

5. **A renewed development of port economy, that considers the city with the port in the same system, would be able to drive overall competitive economic development in the current global economic challenge. What is your opinion?**

Max 1500 characters, spaces included

6. **Did you experience Integrated Logistics Areas (ILA) or Special Economic Zones (SEZ)? Do you think that ILA and SEZ can be considered as complementary to the port systems? Please, substantiate your answer.**

Max 1500 characters, spaces included

7. **Do you believe that the Special Economic Zones ("SEZ") can represent an opportunity for the development of the territories of the less developed regions? Please, substantiate your answer.**

Max 1500 characters, spaces included

8. **Do you think that the Special Economic Zones ("SEZ") could be rethought in an ecological key? Please, substantiate your answer.**

Max 1500 characters, spaces included

9. **Which subjects should primarily participate in the decarbonisation effort of the Port-City System? Please, substantiate your answer.**

Max 1500 characters, spaces included

10. **What and how much is currently being done for the depollution and decontamination of the Port areas?**

Max 1500 characters, spaces included

11. **Is the economic and social development of traditional relations with neighbouring countries via the Adriatic-Ionian ports feasible? Please, substantiate your answer.**

Max 1500 characters, spaces included

12. **Do you think that the seas and rivers of the Adriatic-Ionian area could be main players in the Mediterranean geopolitics? Please, substantiate your answer.**

Max 1500 characters, spaces included

13. **In your opinion, which of the following sectors need innovation the most? Please, put an "X" next to them; there is no limit to the number of sectors you can check.**

SOCIAL SCIENCES

- Social innovation
- Social inclusion and discrimination
- Gender studies
- Inclusive or participation processes
- Facilitation for innovation
- On field researches
- Surveys and data analytics

PUBLIC ADMINISTRATION

- Economic development strategies
- Public procurement: works
- Public procurement: services

ENTREPRENEURIAL INNOVATION

- Start-ups
- Internationalization
- Digitalization (e.g. additive manufacturing)
- Industrial design
- Service design
- Internal organization

BUSINESS

- Investing and trading
- Commerce
- Crafts
- Small and Medium industries
- Large industries
- Services (logistics, software, consultancies, etc.)
- Restoration
- Tourism and Leisure

EMPLOYMENT DECREASE

NEW SUITES OF SKILLS

SEA-RELATED SOURCES OF RENEWABLE ENERGY

- tidal and sea waves
- hydrogen
- off-shore wind power
- on-shore micro-wind power

BLUE GROWTH

- Fishery and aquaculture
- Green shipping

- Exploitation of marine resources
- Innovation in tourism
- New solutions for environmental resilience

DE-CARBONIZATION OF PRODUCTS AND PROCESSES

SCIENTIFIC RESEARCH

- Theoretic or base research
- Applied research
- Private R&D investments

CULTURAL PRODUCTION

- Digital sector
- Traditional sectors (e.g., theatre or cinema)
- Heritage preservation
- Design professions
- Journalism, books and essay writers

SUSTAINABILITY

- Circular economy
- Innovative products
- Waste management and recycling
- Intelligent mobility
- Disposal of ballast water sediments in the port area - art. 5 of the Ballast Water convention, in progress ratification)

14. If other, please, specify

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15. With reference to the sectors indicated in questions 13 and 14, which are the main obstacles to their development?

Max 1500 characters, spaces included

16. With reference to the sectors indicated in questions 13 and 14, which are the Key Enabling Technologies (KET) scientific research should focus on? Which KET could bring the most disruptive innovation? Please, substantiate your answer.

Max 1500 characters, spaces included

17. With reference to the sectors indicated in questions 13 and 14, which results would the adoption of the disruptive technologies described in the question above (n. 16) lead to?

Max 1500 characters, spaces included

18. **Briefly describe a FUTURE SCENARIO (25-30 years) related to ports and their cities/ territories, also in the light of the topics addressed in the previous questions.**
With "scenario" we mean a narrative story describing how the situation should be in the future also including your hopes and fears.
You can either refer to a specific port area or, more in general, to Adriatic-Ionian Ports.

Max 4000 characters, spaces included

19. **Which are the main forces that could drive to the scenario you described? Which would be the main actors involved? Which actions should be taken to realize the future scenario you described?**

Max 1500 characters, spaces included

20. **What are the main obstacles and risks preventing the realisation of the scenario described?**

Max 1500 characters, spaces included

21. **If you have additional comments, please write them here.**

3. PORTS IN THE ADRIATIC-IONIAN AREA

1. **In your opinion, what is the untapped potential for enhancing energy efficiency in Adriatic-Ionian ports?**

Max 1500 characters, spaces included

2. **Which are the main drivers towards that enhancement increasing energy efficiency? Which the main obstacles?**

Max 1500 characters, spaces included

3. **With reference to the two previous answers, which are, in your opinion, the main challenges ports, free zones and the global shipping industry will have to face? What should be done to mitigate their negative impacts?**

Max 1500 characters, spaces included

4. **How does the development of ports affect the local community? Please, refer both to the city- and the wider region-level.**

Max 1500 characters, spaces included

5. **Do you think that in the Adriatic-Ionian area water transport is underdeveloped as compared to other types of transport? What if compared to other geographical areas?**

Max 1500 characters, spaces included

6. **Climate change is requiring a quick and resolute transformation in all sectors (e.g. industry, society, organization, urbanization, etc.). How could Adriatic-Ionian ports and their cities contribute?**

Max 1500 characters, spaces included

7. **If you have additional comments, please write them here.**

Max 1500 characters, spaces included

8. **Briefly describe a FUTURE SCENARIO (25-30 years) related to Adriatic-Ionian port areas, also in the light of the topics addressed in the previous questions.**
With "scenario" we mean a narrative story describing how the situation should be in the future

also including your hopes and fears.
You can either refer to a specific port area or, more in general, to Adriatic-Ionian Ports.

Max 4000 characters, spaces included

9. **Which are the main forces that could drive to the scenario you described? Which would be the main actors involved? Which actions should be taken to realize the future scenario you described?**

Max 1500 characters, spaces included

10. **What are the main obstacles and risks preventing the realisation of the scenario described?**

Max 1500 characters, spaces included

11. **If you have additional comments, please write them here.**

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4. THE PORT ENVIRONMENT AFTER THE COVID19 PANDEMIC OUTBREAK

1. **According to your knowledge, which are the main challenges that affected ports and port cities after the Covid19 pandemic outbreak?**

Max 1500 characters, spaces included

2. **What impact had/have lockdown actions on vessel traffic??**

Max 1500 characters, spaces included

3. **What role can port authorities play in managing the emergency? Has their role changed only temporarily or will it be changed for good? Please, substantiate your answer.**

Max 1500 characters, spaces included

4. **How are the relations between port and city changing?**

Max 1500 characters, spaces included

5. **How the port-urban landscape is changing?**

Max 1500 characters, spaces included

6. **What are the previously existing problems, limitations or needs which the pandemic has emphasized?**

Max 1500 characters, spaces included

7. **How could the Covid19-related emergency become an opportunity to grow for port areas?**

Max 1500 characters, spaces included

8. **Is the ecological footprint of port cities going to decrease? Please, substantiate your answer.**

Max 1500 characters, spaces included

9. **Briefly describe a FUTURE SCENARIO (25-30 years) related to port areas' post-pandemic situation, also in the light of the topics addressed in the previous questions.**

With "scenario" we mean a narrative story describing how the situation should be in the future also including your hopes and fears.
You can either refer to a specific port area or, more in general, to Adriatic-Ionian Ports.

Max 4000 characters, spaces included

10. **Which are the main forces that could drive to the scenario you described? Which would be the main actors involved? Which actions should be taken to realize the future scenario you described?**

Max 1500 characters, spaces included

11. **What are the main obstacles and risks preventing the realisation of the scenario described?**

Max 1500 characters, spaces included

12. **If you have additional comments, please write them here.**