Asked Questions

1. **Question for Caroline Vodrazka from Michela Le Pira (University of Catania, Italy): Are stakeholders willing to collaborate and share information? Were there barriers to the digitalization process?**

Caroline Vodrazka (Marlo) - The stakeholders are invited to collaborate in this networking by sharing and contributing for the synchronizing intermodal services to build. With this, it will be possible to provide optimal support to supply chains, it's a win-win situation. The information shared is mostly logistical data (ETA for vessels and carriers, type of truck, drivers' authorisations, cargo specifications, customs allowances, etc) that will improve the operations for all the stakeholders, leading to a well synchronized, smart and seamless network, supporting corridors and hubs in their daily work. The barriers can be more in administrative matters, like paperless processes where they may have some constraints to go digital.

2. **How to overcome this challenges to go digital?**

Caroline Vodrazka (Marlo) - In Portugal, the LSW project has overcome this challenge by promoting the participation of all the public and private sector, and with a digital policy promotion promoted at a national level. Still a lot of work to do, but that seems the right path to achieve this goal.

3. **Wouldn't it be interesting to accompany the technical advances with legislative and tariff changes that would reward more sustainable ships and ship owners?**

Dimitris Spyrou (Port of Piraeus) - It is a topic with the interest of the administration of the port with a very close cooperation with the stakeholders and ship owners who use the Port of Piraeus. We are very

willing to have special tariffs to reward sustainable measures. It is indeed something that is in our plans.

Paolo Pagano (Port of Livorno/CNIT) - To align innovation with logistics I don't think it is a matter of legislation, but rather a matter of common feeling so that innovation practices must be taking into account in new development/provisions of services. So, I think it's more a matter of convincing the operators and then to do the right legislation.

Josep Sanz (Port of Valencia)– I think it's necessary, from the technical point of view the options available are challenging, so we have to push it also in additional ways by easing the transformation through legislative measures and also the use of pipelines and other approaches are interesting.

4. **Is there any port around the world which is energy independent?**

(Port of Aveiro) We don't this is a reality yet, but there are definitely a lot of ports working towards this goal today.

5. **A question for Piotr from BCT Gdynia - is this INCOS platform is just based on real data exchange or does it make any performance analysis?**

Piotr Frąckowiak (Gdynia Port) - They do it both ways. Our platform is working since this February based on operating real data information and we are working with a report module and some statistic and analyses are already available as well. Nevertheless the platform will continue to be developed and upgraded until September.

6. **Regarding the European Green Deal goals set to gradually reduce the emission of GHG until achieving the carbon neutrality, why it is so important the decarbonisation of small and medium sized ports specially?**

Florin Nemtanu (Danube Delta) – For us, it is quite important because we have only small and medium ports, but also the relation of small and medium ports to the cities. For instance, if you look at a large port you will see that it is isolated, with no direct relation between citizens and port activities, being a sort of an island, and in the case of a small and medium port could be the force to transform the cities and regions around them, being in fact the case of the port of Tulcea and the Port of Sulina in the Danube Delta. It is important to decarbonise these ports and then move this actions to the Danube Delta.

7. **Could the production of energy vectors by ports for vessels/machinery be an interesting business for port authorities?**

Maria Manuel (Port of Aveiro) - Yes, definitely! Port authorities are always looking for better ways to serve their client needs and there are no doubts that in the future, vessels and port equipment will be running based on more green fuels, so port authorities should be ahead of this trends and look for the means to make this transition towards carbon neutrality a reality, in this area by becoming a provider of green energy and eventually its producer.

8. **What are the environmental impacts of hydrogen fuel? Is this fuel truly net zero in its production and distribution?**

Paul Haering (Steinbeis) – The environmental impact of hydrogen as a fuel depends on the production pathways. There are different ways to produce hydrogen. Usually, a distinction is made between "grey hydrogen", produced by steam reforming, "blue hydrogen", where CO_2 emitted during the production process is captured and sequestered, and

"green hydrogen", when hydrogen is produced from renewable energy sources, e.g. water electrolysis-based hydrogen production.

The emission intensity varies between these pathways, but also within the pathways: the environmental impact of water electrolysis, for example, depends strongly on the carbon content of the electricity used to run the electrolyser. Green hydrogen has the lowest carbon-equivalent emissions, and therefore it receives the most political support because of its potential to significantly cut CO_2 emissions.

Further detailed information can be found in the report "Hydrogen decarbonisation pathways" published by the Hydrogen Council: https://hydrogencouncil.com/wp-content/uploads/2021/01/Hydrogen-Council-Report_Decarbonization-Pathways_Part-1-Lifecycle-Assessment.pdf

9. Regarding pilot demonstrator projects, how can they be replicated to other ports?

Josu Goiogana (Wärtsillä) – I hope that they are not only replicated but become popular. The new fields are there for us to take this direction into getting rid of the fossil fuels, so we have to make use of fuels that are carbonless, the ammonia and hydrogen are the new green fuels, having already applications in place, but not directly injected in a combustion engines that we are working, since vessels need a lot of autonomy to cover a long range of distances and to handle this in a liquid form, but we are working on it in a laboratory to go further in this field, ammonia will be available in the market in the next year and hydrogen will follow in a couple of years.

10. How should the framework for the circular economy be established?

Delia Dimitriu (Geostud) – Setting up a framework for circular economy will speed up the decarbonisation process. The first step is to explore what you have on site and then to maximize the use of resources and use of circular manufactures fuels looking for waste and energy, since waste

to energy is the key. Each port should set up its network and the framework particularly, because circular economy will limit the development and implementing of green solutions. It is an issue coming everywhere and to be successful the ports should talk to the city particularly, they have in place circular economy and sometimes it is not recognize it. So I invite everyone to join Geostud because we will set up starting from waste and then moving to energy.

11.   How to (at a minor scale) engage stakeholders in the achievement of solutions? What should an infrastructure manager do to empower for instance, the users to have a voice?

(Port of Aveiro) Keep in mind that there are no one size fit us all solution, since each case require a unique solution, but we would say that efforts and advantages should be equally shared and perceived as such by everyone. If stakeholders do see something that would benefit them, for sure they would be willing to participate and be a part of the problem solving.

12.   What do you think it's the role of networks to disseminate this framework of knowledge, training and the preparing of generations, even the old ones that need to adapt to this skills?

Hugo Faria (Inova+) - There is a linear and simple answer for that but not a simple implementation. The simple answer is that first we all need to be aware of the problem, for instance we as a community of several ports, we as stakeholders and community and society in general, we need to be aware and part of the effort of this kind of projects and funded projects are exactly to disseminate this problem thinking and tentative of having solutions. Then we need to engage people and for that there are trending ways to do it, for instance now we see lot of community building efforts throughout the project and that is the way we link the technical projects themselves with society, stakeholders and others. Finally we need to show results that are indeed convincing and that is the most critical and challenging, but at the same time one of the advantages, because we have

a clear roadmap and mind-set of what to do and I think results will speak for themselves.

Tiziana Campisi (University of Enna Kore) – I think the best solution is a bottom up approach in order to encourage and compare different case studies and also to generate something like best practices or a road map in order to encourage all people or level of society towards decarbonisation.

13. How to set up a network of small and medium ports?

Bogdan Ołdakowski (BPO) – Within our organization we do have a network of smaller ports, we call it comprehensive ports working group and the reason to establish it was that those ports are having different challenges, different agenda, different problems, so it is hard for them to speak at the events with big ports for instance. In European scale to deal with decarbonisation, probably it is not that easy, but if you show them that the network would give them the opportunity to share, to learn or to even get together to enhance new initiatives, or projects, even financing, they would be interesting. For these ports with small organisations and hence not very willing to spend too much time on meetings, you have to be very effective.

Lucas Bosser (CPMR) – I share Bogdan point of view, keeping in mind that people that are working in the port they are already doing their day to day job, some of them also involved in the activities led by ESPO and BPO as well, one thing would be to consider that they are already full plate. So, I would hardly see this work being developed outside the networks already in place.