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Integrating Danube Region into Smart & Sustainable Multi-modal & Intermodal Transport Chains

D.T3.3.5 Strategic roadmap for follow-up activities

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Contributing Authors

Name	Organisation	Email
Robert Rafael	PDM	rafael@prodanube.eu
Ruxandra Matzalik Florescu	PDM	florescu@prodanube.eu
Christian Stark	PDM	stark@prodanube.eu
Karin Voglsam	EHOO	k.voglsam@ennshafen.at
Yuriy Bondiuchenko	USPA	Yurii.Bondiuchenko@uspa.gov.ua
Adina Cristiana Dima	MPAC	CDima@constantza-port.ro
PP experts (assigned Communication experts)	All DIONYSUS partners	

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3 Abbreviations

Abbreviation	Explanation
DPN	Danube Ports Network
EUSDR	EU Strategy for the Danube Region
IWT	Inland Waterway Transport
PDM	Pro Danube Management GmbH

4 Introduction

Elaborated in the frame of WP T3 Integrated Port Development, Activity A.T3.3 Project Capitalisation Through Danube Ports Network, the aim of this deliverable is to provide a concise, strategic roadmap for follow-up activities after the completion of DIONYSUS. Given that the Danube Ports Network served the objectives of DIONYSUS in terms of capitalisation, knowledge-transfer & creation activities, the spotlight of this document will lie on securing its continuation beyond the limited lifespan of the project. Therefore, in a first step, this document shall present a **theoretical approach** based on which the DIONYSUS strategic follow-up roadmap is developed. Secondly, this document aims to provide a brief assessment of the e-tools developed in the frame of DIONYSUS and hosted by the DPN website – the **Port Knowledge Center** and the **Digital Initiatives Observatory**. The following chapter illustrates a **concise roadmap** proposed to adequately secure DIONYSUS's follow-up activities – in terms of **project initiation**, participation at relevant **EU consultations** as well as **knowledge-transfer & creation** activities. This document concludes with a brief overview of the roadmap by highlighting its core objectives and the responsible implementing partner.

5 Why a strategic roadmap?

This deliverable proposes a concrete strategic roadmap for follow-up activities after the completion of the DIONYSUS project. Its aim is to determine a concrete pathway that ensures that the capitalisation activities and knowledge-transfer and creation facilities that were successfully developed within the project continue to have a beneficial impact on port development aspects well beyond the limited lifespan of DIONYSUS.

Why a strategic roadmap? Firstly, a strategic roadmap is useful to focus on the **available resources**. Knowing which resources are available is an important factor in deciding how to adequately distribute responsibilities. Secondly, an important pillar of any strategic roadmap is the existence of a **clear direction and vision**, which means the capacity to align to well-defined strategic priorities. This will help to focus on what's important and possible to execute given the available resources – both human and financial. As a third step, it is important to **prioritize** and based on that, fourthly, to concentrate on the **execution** of the proposed roadmap. Last but not least, this strategic roadmap aims to **increase/maximize the impact** of DIONYSUS's outcomes. The image below illustrates the strategic roadmap proposed for follow-up activities to be executed after the completion of the DIONYSUS project:

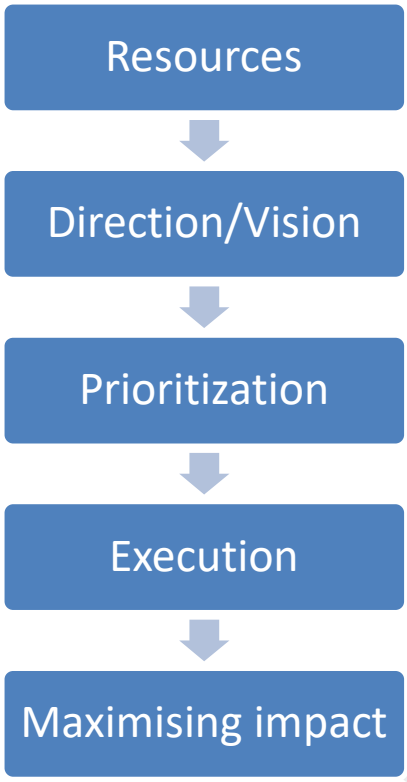

Figure 1: Strategic roadmap for follow-up activities

Based on this roadmap, the next chapter of this deliverable will focus on the main achievements of the DIONYSUS project in terms of capitalisation, knowledge creation and transfer activities. What are the

benefits of the instruments developed within DIONYSUS? How can their impact continue well beyond the limited lifespan of the project?

Given that in the frame of DIONYSUS the Danube Ports Network was at the heart of coordinated project capitalisation tasks that contributed to efficient project implementation, knowledge-creation and transfer, as well as to synergies with EU transport policy initiatives and other port development related projects, the strategic roadmap developed within this deliverable aims to secure its continuity beyond the completion of the project. Special attention shall be given in this regard to the regular updates of the e-tools hosted by the DPN website – the Port Knowledge Center and the Digital Initiatives Observatory – as well as to the network's role as a successful project initiator.

6 Taking stock of the DPN's achievements

In the frame of DIONYSUS, the Danube Ports Network was at the heart of coordinated project capitalisation activities that contributed to efficient project implementation, knowledge-creation and transfer, as well as to synergies with EU transport policy initiatives and port development related projects. Continuing these well-established practices – initiated by the DAPhNE project and further developed in the frame of DIONYSUS - is the core objective of this strategy. Therefore, as a first step, this document shall take stock of the core achievements of the DPN, proposing, in a second step, concrete follow-up activities to secure its impact on the well-being of the Danube ports community after the completion of the project.

The DPN website[1] was prepared and launched in the frame of the DAPhNE project in 2018. It accommodates several dedicated sections which provide its visitors first-hand information on the manifold activities carried out by the DPN, on conferences, events and other relevant port-development related issues. In the frame of DIONYSUS, the DPN website received two new functionalities, namely the **Port Knowledge Center** and the **Digital Initiatives Observatory**.

The Port Knowledge Center comprises 4 subsections, namely:

- Port Statistics
- Publications
- Events & Coordination Meetings
- Deliverables and Outputs.

The image below illustrates the Port Knowledge Center:

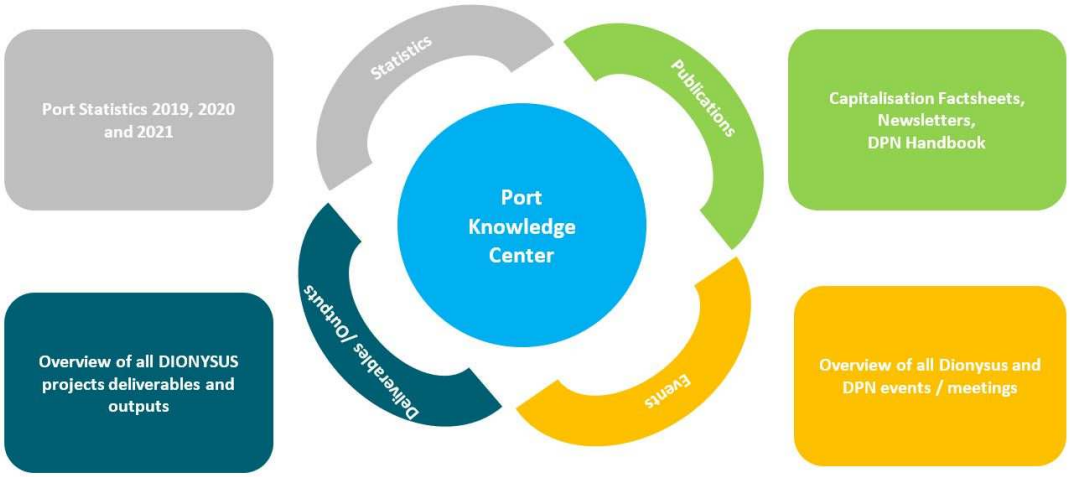

Figure 2: Port Knowledge Center

All these subsections played a vital role in efficiently facilitating a wide range of knowledge-transfer & creation activities throughout the lifespan of DIONYSUS. Creating new knowledge for the benefit of the Danube ports community was high on the agenda: while primary data was collected via two dedicated surveys to assess the impact of a never-before seen health crisis on port operations, the Port Knowledge

[1] www.danubeports.eu

Center furthermore ensured proper visibility of the achieved milestones and concrete results of the project to the outside world. All the outputs, deliverables and instruments developed in the frame of DIONYSUS were made available to the outside world in a user-friendly manner.

The second e-tool added to the DPN website in the frame of DIONYSUS, the **Digital Initiatives Observatory**, collected information on digitalisation initiatives along the logistic chains in line with RIS deployments, EU digitalisation policy goals, legislation and measures in relation to IWT. This instrument enables the visitor a fast and easy access to the most relevant information. By means of dedicated filters, the visitors will select the information which interests them the most, choosing between the following pre-defined categories:

- Country,
- transnational projects,
- policy initiatives,
- dedicated working groups,
- funding opportunities.

The image below illustrates the Digital Initiatives Observatory:

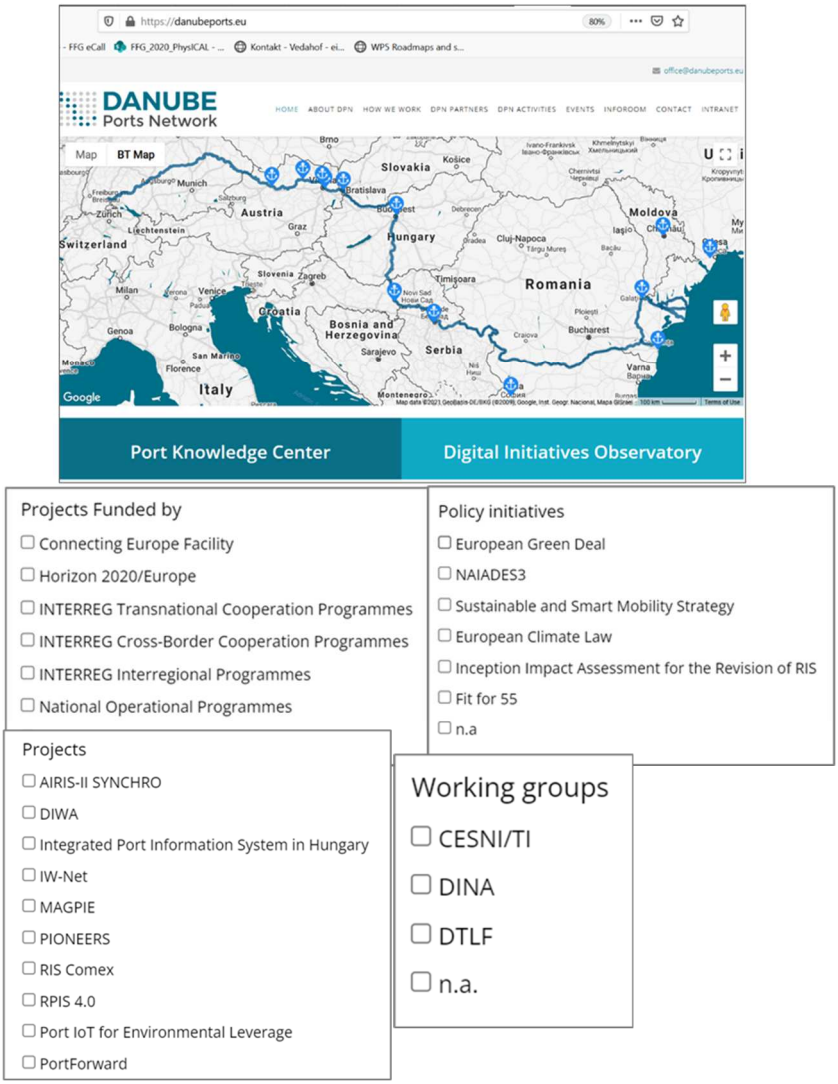

Figure 3: Digital Initiatives Observatory

As can be seen in the image above, the Digital Initiatives Observatory played a key role in collecting and transferring relevant information and knowledge in all aspects related to digitalisation.

Equally important to highlight is the fact that the DPN, through its Technical Secretariat, was actively involved in other activities representing the interests of the network and its partners in national and transnational port related initiatives and projects.

7 Strategic roadmap for follow-up activities

This chapter illustrates follow-up activities supported by the Danube Ports Network for the benefit of the Danube ports community in terms of project initiation, update of its website and e-tools with relevant information and its participation at relevant EU events and consultations dedicated to port-development themes.

7.1 Supporting the initiation of new projects

The Danube Ports Network supported during the lifecycle of DIONYSUS two important initiatives: engineering of the **DaRePORT** project (in the 1st call of the Interreg Danube Region Programme) and the initiation of the **Study on Enabling the Sustainable Management and Development of Inland Ports** (DG MOVE tender). Whereas the study has already successfully passed the evaluation procedure, DaRePORT is currently undergoing the usual assessment procedure, with an evaluation of the expression of interest expected in the course of next year.

7.1.1 DaRePORT

The project aims to investigate the potentials of Danube Region (DR) ports in renewable energy production, reduction of emissions and the subsequent logistics throughout the Danube Region on a transnational basis. The partnership of the project is orchestrated in a way which reflects the DRP's Call requirements and methodology by means of involving energy experts that - together with the wellproven transport experts - will deliver viable solutions to exploit renewable energy in DR ports as key actors in decreasing carbon intensity in the inland waterway transport sector. The project promotes Danube Region ports as energy hubs for producing, storing and distributing renewable energy as well as alternative fuels to selected customers from industries and transport while facilitating a sustainable energy mix. The solutions investigated by the consortium (which take into consideration the needs in different types of inland and maritime ports) and the lessons learnt from the pilots and the use cases will be shared with more than 50 Danube ports as possible blueprints. Improved coordination and transnational integration achieved via know-how transfer actions with the involvement of private and public stakeholders of the port community and beyond will lead to joint solutions presented as part of a masterplan on renewable energy production in ports and its uptake. The linked multi-level governance Renewable Energy for Ports Masterplan will create an enabling framework for investment as well as for further investigations supported by setting up a consistent long-term strategy and dedicated action plans for the involved ports as transferable good practice examples for the region. These results will prove that bringing together energy and transport experts facilitates the upgrading of DR ports into energy hubs contributing to a greener, low carbon and resilient Danube Region.

7.1.1.1 Overall objectives

DaRePORT enhances the collaboration between port administrations in the DR, research institutions, energy organisations and consultancies to jointly develop solutions and create favourable conditions for increasing the production and use of energy from renewable and alternative sources, hence contributing to the decarbonization of transport and port operations. The project facilitates Danube ports to become key elements of more efficient and sustainable energy & transport networks in the DR.

Ports from the Upper Danube will cooperate with those from the Central & Lower Danube assessing policy, regulatory and financial framework affairs to support them in this endeavour. A detailed assessment on potential technologies in relation to the local characteristics and needs of ports will represent a starting point in the development and rollout of selected use cases for the port itself as well

as for its users such as inland navigation vessels. Special attention will be paid to conducting a market and barrier analysis for ports and their users in relation to the provision and update of smart energy solutions.

The following **use cases** are foreseen to be elaborated in the DaRePORT project:

- Creation of an energy hub concept for a bio-economy network based on innovative concepts using and transporting biomass to be upscaled from a factory located in Vidin, Bulgaria.
- Investigation of installation possibilities of PV units directly on or nearby water surfaces for production and further installations for storage in ports.
- Study focusing on the status of the current electric power supply system at the passenger piers on the Danube River in Croatia, as well as possibilities for on-shore power supply for vessels while being moored.
- Study on the application of hydrogen panels used for heating port buildings.
- Development of innovative technical concepts for new vessel solutions used for port services as well as for a river ferry and river leisure crafts.
- Concepts for green power generation in order to electrify port equipment & offering OPS for maritime & inland crafts.

Several of the use cases will be developed further – with the involvement of **small-scale investments** – to **pilot activities**, such as:

- Setting up state-of-the-art solutions in ports in order to offer supply of clean energy to port service equipment and vessels.
- Modernising the lighting system in a port by using renewable energy source.
- Monitoring tools to measure the savings in emissions and the demand decrease from the grid.
- Power storage of energy surplus.

Thematic group consultations will be organised with industry experts and users in order to collect best practices which together with the consolidation of investment needs with regard to financial aspects, human resources and digitalisation will be reflected in the Masterplan on renewable energy production in ports.

7.1.1.2 Relevance of the project

Addressing the issue of emission reduction is a true priority both nationally and transnationally. The Paris Agreement, which aims to slow down the pace of climate change (with i.e. a maximum increase in the global average temperature to well below 2 °C above pre-industrial levels by 2100) by reducing CO2 emissions, is definitely one key starting point. On 28 November 2018, the European Commission presented its strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050 - A Clean Planet for All, asking for a European policy on the reduction of greenhouse gas emissions towards climate neutrality in 2050 for all transport modes including the inland navigation sector. In addition, the May 2018 Communication “A Europe that protects: Clean air for all” from the European Commission provides the policy framework for the reduction of air pollutant emissions such as NOx and Particulate Matter, covering, amongst other sectors, the transport sector. The European Commission’s Green Deal for Europe, of December 2019 and its “Smart and Sustainable Mobility Strategy” of December 2020, lay out priority policy areas, one of these being sustainable mobility, and actions to be realised to achieve climate neutrality by 2050.

On the regional level, the EU Strategy for the Danube Region, supported by two of its Priority Areas PA1A (Inland waterways) and PA2 (Energy) proposes short- to medium-term measures in order to ensure the efficient and effective realisation of harmonised targets valid at corridor level in line with the EU Green Deal which are meant, on one hand to further investigate the greening of the inland fleet, development of land-side infrastructure in ports and on the other hand to facilitate the launch of cutting edge technology developments, which will increase the energy efficiency of the region and enhance the use of renewable energy sources.

There is currently a strong call for the ports of tomorrow to expand their capabilities beyond the port as a transhipment hub providing physical infrastructure and services, to ports as energy hubs. At the same time, there is a clear need to shift from fossil-fuelled vehicles to vehicles running on low-carbon fuels (like drop-in fuels, hydrogen, biofuels, e-fuels, etc.) or electricity produced by renewable sources like solar, wind and hydropower.

Since the introduction of the Renewable Energy Directive (2009/28/EC) in 2009, the deployment of renewables has kept growing yearly, reaching more than 22% in 2020. With its two revisions in place in 2018 and 2021 as well as by joining efforts with the REPowerEU plan ambitions, the binding renewable energy target for the EU by 2030 is to deliver around 45% of its electricity consumption from renewable sources of electricity. Within the last 30 years, wind and solar energy have been the two segments that showed the strongest growth within renewable energies in the European Union.

Electrification and green transports will accelerate the climate and energy transition and at the same time improve the air quality in and around ports. To solve these challenges, a port needs to develop capabilities to produce electricity to operate its facilities, service vehicles, port equipment and dedicated machinery being used within the port as well as provide electrical connections and capacity to recharging stations and berths for external port users.

As electrification is not the core competence of ports, there is a strong need to engage in collaboration with energy experts and dedicated companies and support establishing collaborative processes in relation to securing the needed electricity capacity as well as in relation to energy storage and ownership.

Developing the correct solutions in order to decrease the Danube Region's dependency on imported fossil fuels and to create integrated answers in ports requires dedicated expertise on the various associated technologies as well as on the related market opportunities and challenges. This is realised in four areas, such as:

- Promoting renewable energy production
- Sustainable alternative fuels & new technologies
- Green and smart mobility solutions
- Resilient & responsive Infrastructure & equipment

In order to fully exploit their potential and to transform them into energy hubs, a more dynamic and more harmonized development of ports as regards infrastructure and service levels is required.

The project is to be co-funded by the **Interreg Danube Region Programme**.

7.1.2 Study on Enabling Sustainable Management and Development of inland ports

The study aims to identify and evaluate the factors affecting the sustainable development of inland ports and propose solutions for the implementation of green objectives paired with their economic development.

The environmental effects from the existence of inland ports pertain to the operation of vessels, port operations, the port city/hinterland and their seaport connection activities. The study will document these environmental effects, the related legislation and which effects are not addressed, the impediments in implementing sustainable management and development as well as good practices aiding in achieving so.

The study will also assess the role of digitalisation to this effect and propose solutions. Moreover, it will identify possibilities of adopting inland waterway transport for urban mobility and short-distance transport. The study will aid in knowledge sharing and identification of best practices and of the tools for the sustainable management and development that can be adopted by inland ports, adjusting them to their own specificities. Pilot projects of several inland ports will be set up for implementing the Environmental and Sustainable Management Systems (ESMS) tools and implement coordinated actions for sustainable port management and operation. A best practice report will be disseminated to all TEN-T ports, along workshops, dedicated website and a final conference.

7.2 DPN website & e-tools

As was highlighted in the frame of this deliverable, both the Digital Initiatives Observatory as well as the Port Knowledge Center were key instruments in successfully creating and transferring knowledge to the Danube ports community and beyond. Both the website and the two e-tools will continue to be updated by PDM in accordance with its available internal resources.

7.3 European Initiatives

Fulfilling its role as information provider and knowledge creation facilitator, the Danube Ports Network was, throughout the entire lifespan of DIONYSUS, involved in numerous action programs, meetings and workshops that played a vital role in shaping IWT's future in the MFF 2021-2027. It is foreseen that in the aftermath of DIONYSUS, the Danube Ports Network, through its Technical Secretariat, shall attend consultations and events at EU and national levels that are relevant for the future development of Danube ports considering the implementation process of the European Green Deal. The following events & consultations (the list is non-exhaustive) will be attended by the DPN after the lifespan of the DIONYSUS project ends:

- Motorways of the Sea in the Black Sea and effective integration in the Rhine-Danube & Orient-East Med Core Network Corridors,
- Working Group Meetings of the Rhine-Danube Corridor on Ports and Inland Waterways,
- Meeting of the Rhine-Danube Core Network Corridor Forum,
- NAIADES3 Implementation Group,
- Danube Commission Expert Group on Ports,
- EU SDR PA 1a Steering Group and Working Group meetings,
- Conferences, events & workshops of relevant projects.

Likewise important to highlight is the fact that regular meetings of the **DPN Advisory Group** will continue in the aftermath of DIONYSUS as well.

With this approach, the DPN shall continue to follow the impact of the DIONYSUS implementation process on the well-being of the Danube ports community.

8 Conclusions

The purpose of this deliverable was to propose a strategic roadmap for follow-up activities after the completion of the DIONYSUS project. At the heart of coordinated knowledge-creation and transfer as well as capitalisation activities, the DPN emphasized throughout the entire lifespan of the DIONYSUS project the importance of sharing knowledge and networking to strengthen the role of Danube ports in the multimodal transport system. The table below provides a concise overview of the DIONYSUS follow-up activities under the umbrella of the DPN:

	Activity	Responsibility
DPN website	Regular updates[2]	DPN/PDM
Port Knowledge Center	Regular updates[3]	DPN/PDM
Digital Initiatives Observatory	Regular updates[4]	DPN/PDM
Project Initiation	DaRePORT/Port Study	DPN/PDM
DPN Technical Secretariat	Update meetings	DPN/PDM
DPN Advisory Group	Update meetings	DPN/PDM
EU Initiatives/Consultations	Participation/input	DPN/PDM

Table 1: DIONYSUS follow-up activities

This approach secures that the positive impact of DIONYSUS on Danube ports will continue well beyond the limited lifespan of the project.

[2] in accordance with PDM's available resources

[3] in accordance with PDM's available resources

[4] in accordance with PDM's available resources