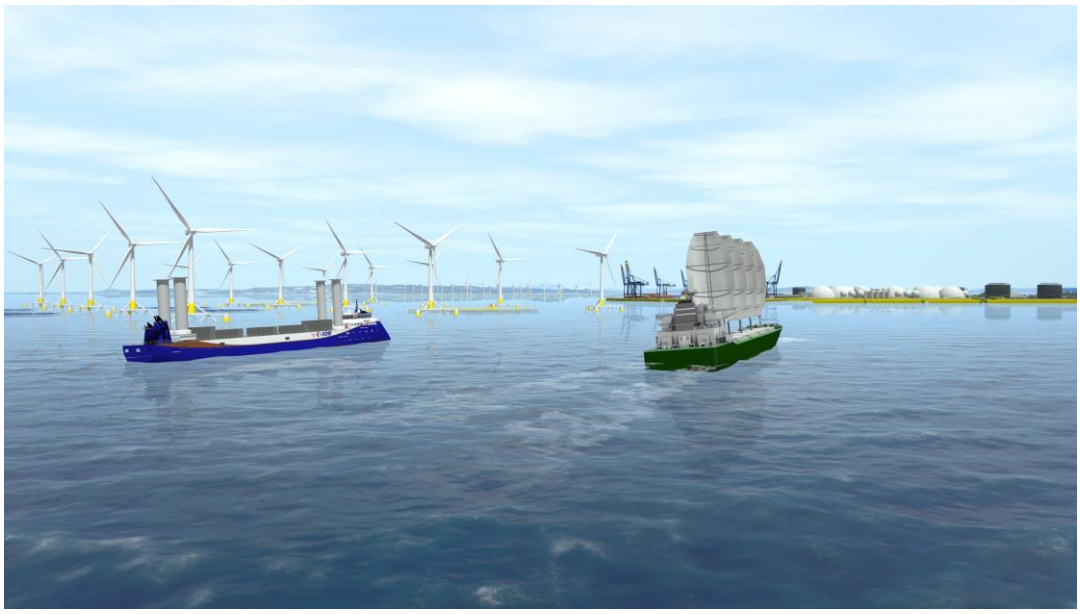
WATERBORNE

Report regarding the Open Consultation on the draft Strategic Research and Innovation Agenda

Zero-emission waterborne transport



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1 Open Consultation Draft Strategic Research and Innovation Agenda Zero-Emission Waterborne Transport

From 10 July to 7 August 2020, the Waterborne Technology Platform conducted an Open Consultation regarding the Draft Strategic Research and Innovation Agenda (SRIA) for the candidate Co-Programmed Partnership on zero-emission waterborne transport in the framework of Horizon Europe. This report provides an overview of the outcomes of the Open Consultation as well as the incorporation of the feedback received in the final version of the SRIA.

1.1 Statistics

In total, 110 persons have participated to the open consultation. Out of the 110 persons, 39% represented a company or business organisation, followed by 13,64% representing academies or universities. In addition, 5 citizens replied to the consultation, of which one is a non-EU citizen.

ANSWER CHOICES	RESPONSES	
Academic / University	13.64%	15
Research / Organisation	11.82%	13
Company / Business organisation	39.09%	43
Governmental Organisation / Public authority	10.91%	12
Non-Governmental Organisation (NGO)	4.55%	5
Business association	10.00%	11
EU citizen	3.64%	4
Non-EU citizen	0.91%	1
Other (please specify)	5.45%	6
TOTAL		110

Table 1: Contribution of various categories of stakeholders to the online consultation

Participants to the Open Consultation originated from all over Europe, and at least stakeholders from 17 EU Member States participated to the Open Consultation (see figure 1).

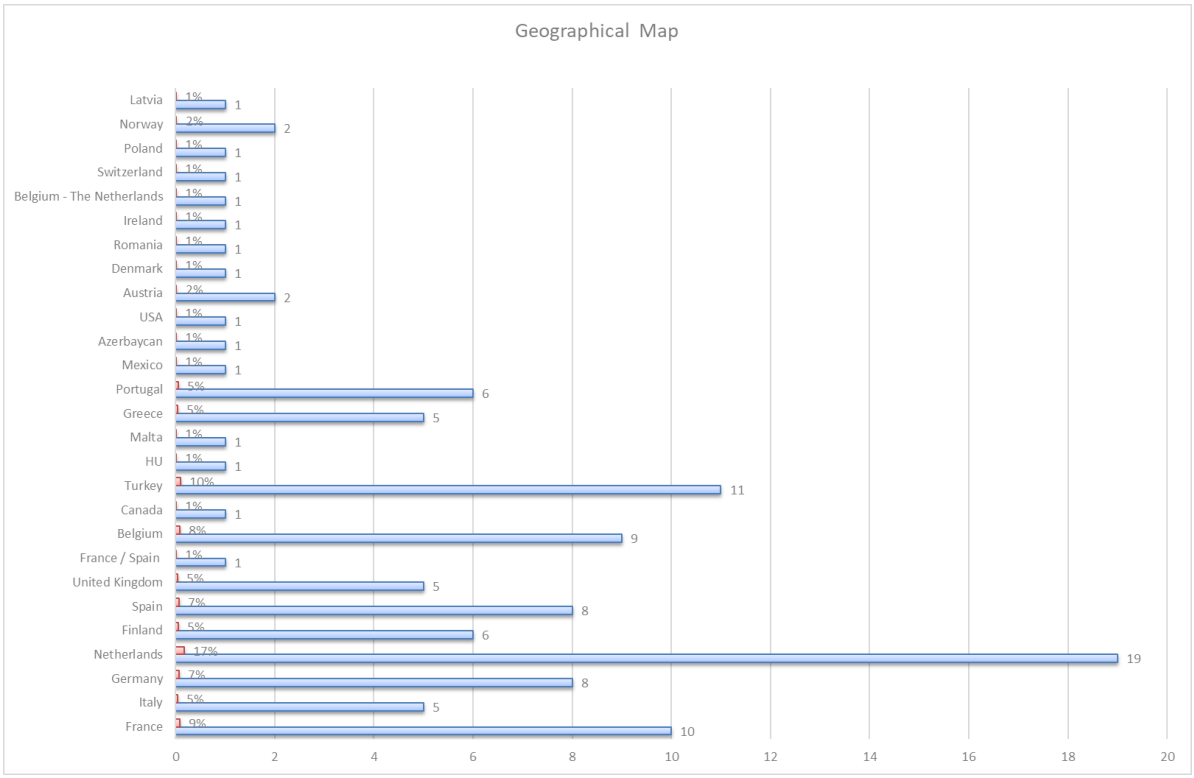

Figure 1: Location of participants to the Open Consultation

48% of the respondents from companies considered their organisation a small and medium sized enterprise (SME) and 52% indicated not to represent an SME.

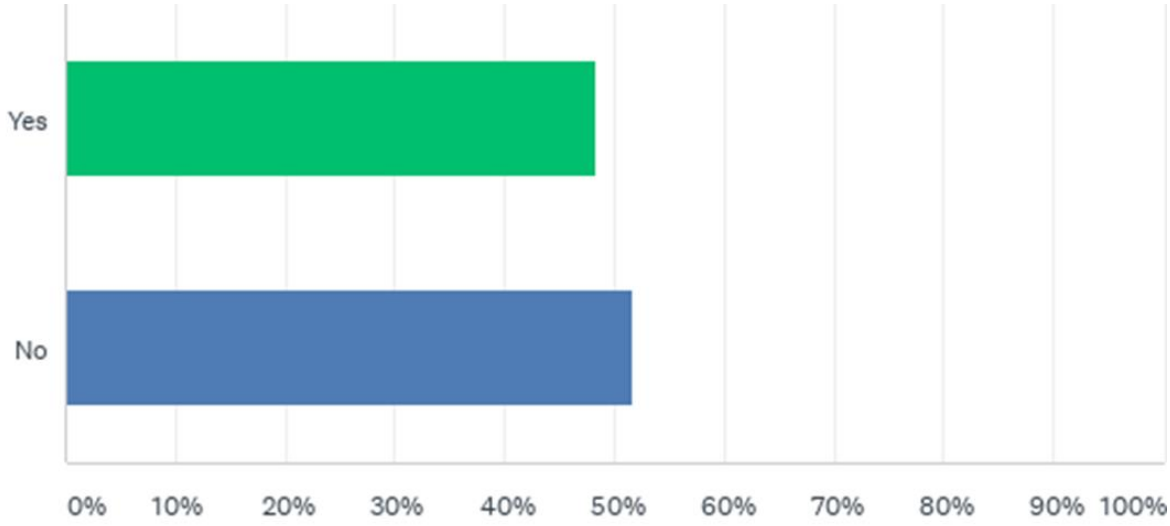

Figure 2: Division of participation of SMEs/non-SMEs

Out of 108 respondents, 53% applied for funding in the current Horizon 2020 programme. 50,48% of 105 respondents indicated they received funding in the current Horizon 2020 programme.

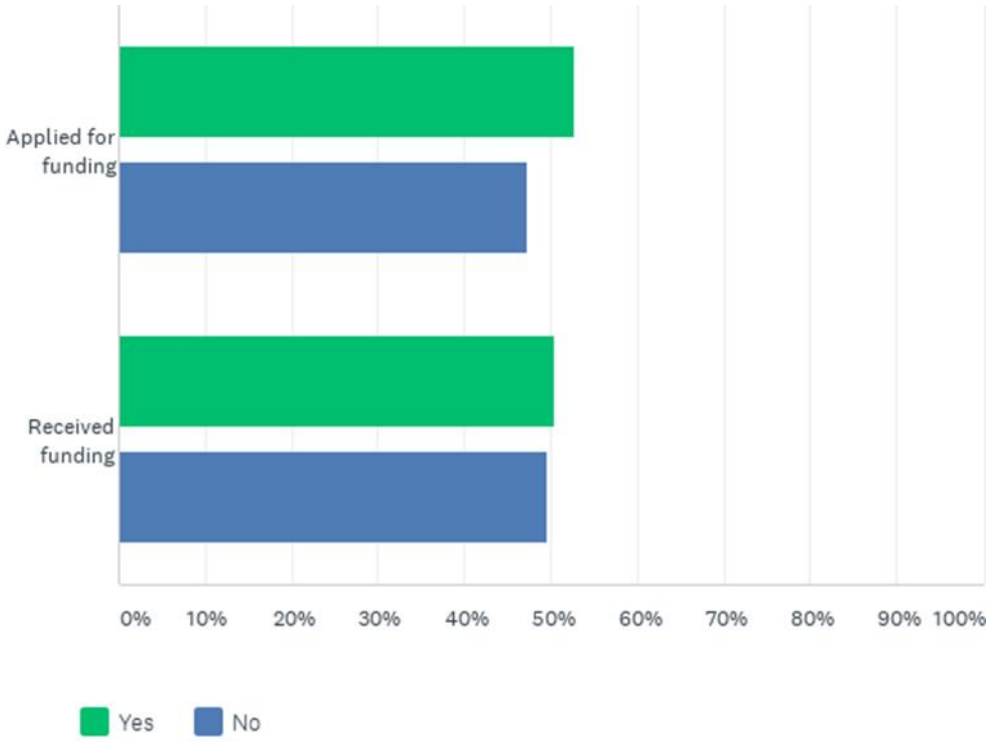

Figure 3: Percentage of respondents which applied for, and received funding in Horizon 2020

1.2 Activities of the Partnership

Participants to the Open Consultation were asked whether they agree that the Partnership on zero-emission waterborne transport will focus on the activities to be able to reach its objectives, as described in Chapter 2 of the SRIA.

	FULLY AGREE	SLIGHTLY AGREE	NEUTRAL	SLIGHTLY DISAGREE	FULLY DISAGREE	TOTAL	WEIGHTED AVERAGE
Sustainable Alternative Fuels	80.91% 89	9.09% 10	6.36% 7	0.91% 1	2.73% 3	110	1.35
Electrification	71.82% 79	17.27% 19	7.27% 8	0.91% 1	2.73% 3	110	1.45
Energy Efficiency	84.55% 93	10.00% 11	3.64% 4	0.00% 0	1.82% 2	110	1.25
Design and Retrofitting	74.55% 82	16.36% 18	6.36% 7	0.91% 1	1.82% 2	110	1.39
Digital green	66.06% 72	19.27% 21	11.01% 12	1.83% 2	1.83% 2	109	1.54
Ports	75.45% 83	13.64% 15	7.27% 8	1.82% 2	1.82% 2	110	1.41

Table 2: statistical analysis of the relevance of the activities proposed

The statistical analysis shows that in general, all activities proposed by the Partnership are ranked as relevant, where some receive more priority than others. Respondents, which selected “slightly/fully disagree” for a certain activity, were given the possibility to provide additional information. Table 3 on the following page provides an overview of the input received, as well as an indication if the input has been taken into account in the final version of the SRIA, and if yes, how.

Respondent	Input	Incorporation in the SRIA
Pacaud, Pierre, French Ministry of National Education, Higher Education, Research and Innovation, France	Sustainable Alternative Fuels are important for reducing polluting emission; we must focus work on the use of hydrogen and hydrogen-derived fuels in a fuel cell (FC technology is to develop at the right scale), an essential path for electrification and a massive decarbonisation. The issues linked to the qualities of fuels and /or biofuels are more linked to capacity of supply by the energy sector; and improvements in combustion in internal combustion engines must be only transient solutions (moderate effort in the cPP). In addition, digital aspects are clearly underrepresented, only in the short term (2021-2022) on 1 issue, very broad and poorly defined. Digital solutions, even with the aim of reducing energy consumption or pollutant emissions, can be used more widely (navigation aid, operations aid, etc.).	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as on-board storage and use of alternative fuels on board. The issues linked to the fuel quality are indeed not included in the Partnership, however synergies with other relevant Partnerships are ensured. Regarding digitalisation, the scope of the Partnership has been laid down in the Partnership Proposal, as co-designed with the relevant Commission Services, and covers 'digital green' aspects. The text has been further clarified in this respect, taking into account your suggestions. Broader digitalisation topics, which are not directly linked to greening are expected to be covered by the collaborative research under Horizon Europe. The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The work programme for sequential years will be developed in a later stage.
Boezio, Claudio, Utopia Navalis, Germany	I have some reservations about the development of so-called alternative fuels, design and retrofitting and comments for the other activities. I will send you a separate document.	No separate document has been received.
Boulat, Jean-Charles, Naval Group, France	Development of sustainable alternative fuels (SAF) is common to the several transportation sectors (aeronautical, road transport) and takes here a disproportionated priority considering a 0 emission waterborne impossible with SAF. On its side, electrification is a route to achieve massive decarbonization (50% in 2050). The fuel issue is an	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as on-board storage and use of alternative fuels on board. The issues linked to the supply of fuels are indeed not included in the Partnership, however synergies with other relevant Partnerships are ensured.

	energy issue which is common to the transport sector but whose impact on on-board technologies is limited. The synergies and common effort with other partnerships is necessary to achieve the 0 emission objective. On the contrary, digital development of maritime industry is clearly underprioritized in the current SRIA (1 issue vs 5 specific issues on SAF)	Regarding digitalisation, the scope of the Partnership has been laid down in the Partnership Proposal, as co-designed with the relevant Commission Services, and covers 'digital green' aspects. The text has been further clarified in this respect, taking into account your suggestions. Broader digitalisation topics, which are not directly linked to greening are expected to be covered by the collaborative research under Horizon Europe. The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The work programme for sequential years will be developed in a later stage.
Laaksonen, Jere, VTT SenseWay, Finland	Electrification will play major role especially with small support vessels and tugs. This is important on port areas. Digital green is crucial to digitize infrastructure that will provide support for actors at sea. Ports will of course develop their data sharing and that way make operations more efficient.	Electrification is indeed an important activity to facilitate the transition to zero-emission waterborne transport, which is highlighted by the fact that it is one of the 6 activities. Following the decision in the Shadow Programme Committee Horizon Europe, the scope of the Partnership is limited to solutions on board vessels, the operation of the vessel, and the interaction between vessels and the shore. In addition, synergies and cooperation with the Batteries Partnership are ensured. Digitalisation is included in the scope, as long as it contributes to the final objective.
Van Bekkum, Jan, RH Marine, the Netherlands	Starting with Ports, this is the point where electrification must start based on mandatory shore-power (technical view) and creating a level playing field for the innovation of fleets (political view). Smart and connecting systems (digital green) can accelerate the targets above like electrification and energy efficiency.	The Partnership will be limited to Research, Development and Innovation Activities, however, where relevant, input will be provided to the development of policies and regulations. Policies and regulations are key to support implementation, and therefore input to various initiatives will continuously be discussed during the lifetime of the Partnership.

Lurkin, Nick, Royal Association of Netherlands Shipowners, the Netherlands	All options given in the previous question are relevant to shipowners. There's no silver bullet and we need to look at newbuilds but certainly to existing vessels as well!	Indeed, the SRIA has been developed taking into account that there is no silver bullet and that the transition to zero-emission waterborne transport will require different solutions for different kind of ships. For this reason, new technologies are considered in the Partnership both for newbuilding as well as for retrofitting.
Harmsen, Jorrit, TNO, the Netherlands	We consider the subjects listed in the SRIA important topics for enabling the maritime energy transition. In order to make this happen a wide range of alternative options need to be researched.	The Partnership indeed envisages to develop a wide range of alternative options, linked to the diversification of the waterborne transport sector, and the specificities of each sub-segment.
De Schepper, Karin, Inland Navigation Europe, Belgium	We find it important that inland waterway transport is well incorporated in the SRIA. We would like to see the exploration of synergies between climate change mitigation and adaptation. Climate change adaptation is an issue which needs to be addressed in an integrated way focusing on fleet, infrastructure and logistics.	Since the waterborne transport sector consists of both maritime and inland waterway transport, and are consisting of different sub-segments, dedicated solutions for inland waterway transport are indeed envisaged. Since the scope of the Partnership, as laid down in the Proposal, focusses on the vessel and the interaction with the shore, inland waterway infrastructure is not included in the scope of the Partnership. However, there might be issues related to logistics when it concerns digital green. Nevertheless, infrastructure RD&I will be subject to collaborative research under Horizon Europe.
Kilkis, Birol, Polar Project and Technologies, Turkey	Electrification must be very well defined in scope and aim. For example if electricity is used for a heat pump on board or chiller it is not rational compared to a cogeneration system with PVT modules and also used for absorption cooling. This example shows that the Second Law of Thermodynamics plays an important role in defining and aiming electrification. More care and well defined electrification is needed.	Electrification is one of the key areas of the Partnership. It concerns the development of ships with high-power energy storage systems and new DC distribution grids optimized for efficiency and operational profiles, new high performances, high efficiency variable speed electric generators and power trains. Ships with high energy demand of course may not count on electrification only but needs to rely also on a fuel sift towards Sustainable Alternative Fuels. In this context, energy flows, including thermal ones, need to be optimized and improved to maximize energy efficiency and energy harvesting onboard.

Roux, Laure, Central Commission for the Navigation of the Rhine, France	Comments will be provided in a separate document	Separate document has been received, and the analysis is available in chapter 1.6.
Nebrera, José, ACS SCE, Spain	Electrification, understood as supplying the energy required for the propulsion from batteries, doesn't seem to be a reasonable solution for the vast majority of the waterborne transport decarbonization challenge, unless a really breakthrough technology is developed (what could be another gamechanger, and can't be anticipated; present action shouldn't be based on this type of assumptions)	Indeed, various solutions are needed for the various sub-segments of the European waterborne transport sector. As indicated in the SRIA, due to the total power needed on ships, it is foreseen that using batteries or other electricity storage only cannot be the main power source for long-distance shipping. But, this will be a solution for shorter ranges, say up to 150 to 200 nautical miles. For longer ranges, it is foreseen that electrification will be used as an auxiliary power source, increasing the efficiency of the use of alternative fuels, for example, by supplying a portion of the electrical loads on board. The Partnership is an RD&I initiative, aiming for groundbreaking developments. The development of breakthrough technologies for batteries are included in the Battery Partnership, and cooperation with this relevant Partnership are ensured, so to streamline developments needed.
Anonymous	Ports seems to be the weakest part of the SRIA. It is not convincing what research needs to be prepared	The Partnership is focused on the transition of both maritime as well as inland waterway transport to a zero-emission mode of transport as well as the relevant infrastructure. Being part of the latter, ports are included as for the development of safe technologies and procedures for bunkering of sustainable fuels at inland and maritime ports and for the supply of electricity to vessels.
Rafael, Robert, Pro Danube International, Austria	Important strength of Danube waterborne transport is that large distances (1000+ rkm) can be travelled without the need for stopping for bunkering. Currently there are no realistic solutions in the	Indeed, various solutions are needed for the various sub-segments of the European waterborne transport sector. As indicated in the SRIA, various options applicable to inland

	pipeline which could offer the same flexibility with electrification without losing significant space from the cargo space.	waterway transport will be studied, taking into account the effect of new business models as well.
Van Coillie, Antoon, Zulu Associates, Belgium	Retrofitting is not efficient as the existing vessels are not designed to be energy efficient and their concept of operation does not further zero-emission transport	It will indeed require significant RD&I to develop solutions to be able to cost-efficiently retrofit the current fleet. It is foreseen, that replacing 50,000 vessels in maritime transport and 12,000 vessels in inland waterway transport will be impossible timely to achieve the objective, specifically taking into account the medium and long-term economic consequences of the current COVID-pandemic.
Anonymous	Digital green in itself does not contribute to the elimination of emissions and air/water pollution. Even as enabler the relation to emission reduction is indirect. Apart from that, ship owners are usually very reluctant to share any of their operational data.	Digital green has a broad definition, and it entails a broad envelope of activities. It is correct to state that Digital Green will not fully decarbonize the waterborne transport sector, but at the same time it is an enabler that together with other enablers (e.g. energy harvesting, energy efficiency, load reduction, etc…) will pave the way for an earlier introduction of disruptive technologies based on Sustainable Alternative Fuels and electrification. The RD&I activities in the context of the Partnership are limited to the broadest use of digitalisation to improve efficiency and reduce emissions through monitoring and big data collection, the development of a secure and IPR-compatible Digital Twin and Zero-Emission Energy Decision Support Systems. The development of a Zero-Emission Energy Decision Support System has been supported by shipowners, which indicated that these type of systems have a potential for significant reduction of emissions.
Anonymous	Even though Electrification will be the way for the future, for the ship's sector it does not seem of immediate application. In this sense, I would consider such a priority a little behind the others	Indeed, various solutions are needed for the various sub-segments of the European waterborne transport sector. As indicated in the SRIA, due to the total power needed on ships, it is foreseen that using batteries or other electricity storage cannot

		be the main power source for long-distance shipping. But, this will be a solution for shorter ranges, say up to 150 to 200 nautical miles. For longer ranges, it is foreseen that electrification will be used as an auxiliary power source, increasing the efficiency of the use of alternative fuels, for example, by supplying a portion of the electrical loads on board.
Anonymous	Electrification and ports should not be as separate - rather the use of shore connections to eliminate onboard power sources is a very effective way to eliminate emissions in ports from shipping.	Indeed, activities related to electrification are included in several parts of the SRIA. This concerns both the use of electrification as power source when sailing, and secondly the development of on shore charging solutions. They would need to be developed in parallel.
Anonymous	Depends on the definition of fuel, but considering fuel with particle emissions I fully disagree. The focus should be on a sustainable an green energy storage from green power	Acknowledging the broad definition of fuels, the SRIA indicated that the activities related to alternative fuels are focused on sustainable alternative fuels. The Partnership will focus on bunkering, on-board storage and use of the sustainable alternative fuels on board while development of the fuels will be addressed by other Partnerships.
Jaegers, Gunther, Chemgas Shipping B.V., Netherlands	Batteries on inland barges are too heavy; they are not sustainable	Indeed, various solutions are needed for the various sub-segments of the European waterborne transport sector. As indicated in the SRIA, due to the total power needed on ships, it is foreseen that using batteries or other electricity storage cannot be the main power source for long-distances. At the same time it will represent a feasible a solution for shorter ranges, say up to 150 to 200 nautical miles, and thereby for specific segments of the inland waterway transport sector. For longer ranges, it is foreseen that electrification will be used as an auxiliary power source, increasing the efficiency of the use of alternative fuels, for example, by supplying a portion of the electrical loads on board. This requires significant RD&I to have these solutions ready before 2030.

De Vos, Peter, Delft University of Technology, the Netherlands	The TCO of ships is typically dictated by fuel costs; which is a clear indicator that a lot of fuel is needed and consumed by ships. Correspondingly, ships emit a lot of harmful substances to the air (not only the ones that are known and now regulated through IMO, EU or otherwise), but also unregulated ones like methane (worse than CO2 in GWP) and carcinogenic unburnt hydrocarbons. Using ammonia as an alternative fuel is the only feasible pathway to get to zero-emission waterborne transport for large, ocean-going ships that travel long distances. These ships have the highest contribution to air pollution by shipping. Ammonia is however a low TRL solution and significant funds should be allocated to radically re-think and innovate ship power plants that use ammonia as a fuel.	Indeed, various solutions are needed for the various sub-segments of the European waterborne transport sector. Ammonia is one of the solutions which will require RD&I activities foreseen in the SRIA, and the first topic for a dedicated call in the framework of Horizon Europe is included in the SRIA.

Table 3: Comments why certain activities as proposed in the SRIA would be less relevant.

Besides the comments provided in table 3, some additional comments were provided, but without a direct impact on the content of the SRIA. One of these "I believe that a change in the current organisation of the shipping industry is necessary to achieve the objectives. Ships shall be more and more efficient and be propelled by zero-emission fuels counting well to wake! Ports infrastructure shall be increased to allow more flexibility in the transit times of the ships as well: for instance to account for the weather for wind-propelled ships" is perfectly related to the objectives and scope of the Partnership.

Missing activities

Participants were given the opportunity to identify any important areas missing in the Strategic Research and Innovation Agenda. Table 4 provides an overview of the input received, as well as an indication if the input has been taken into account in the final version of the SRIA, and if yes, how.

Respondent	Input	Incorporation in the SRIA
Pacaud, Pierre, French Ministry of National Education, Higher Education, Research and Innovation, France	Digital issues, on the one side, and both electric and hydrogen powered devices aspects, on the other side, must be strengthened, by specifying the essential locks (to be tackled) in relation to skills and European competitiveness (current strengths, growth potential). Likewise, the fields of application should focus on European forces. Some technologies are still European because they are more advanced. Priority must be given to R&I in these areas in accordance with electric power and fuels cells which represent, at this stage, the promising solutions for maritime transport. In addition, it will be necessary to ensure that European skills remain European, and are not "sold off" to non-European competitors. Specific attention should be paid to this point.	The technologies that are mentioned are already included in the SRIA. We acknowledge the fact that prioritization should be given when deciding what technologies to develop first and most. This discussion will be developed in the co-design phase between the Partnership, the European Commission Services and Member States when the Partnership will be established and budget will be known. Indeed, electrification and sustainable alternative fuels (amongst others hydrogen) are key for the transition to zero-emission waterborne transport. Skills, both of the human element in the maritime technology sector as well as in the waterborne transport sector are key, however not included in the framework of the Partnership. However, the Partnership will provide advise for incorporation of elements related to skills development for other programmes. The Partnership will be key for the competitiveness of the European waterborne transport sector (including the maritime technology sector). It is expected to provide the shipyards and maritime equipment manufacturers with a competitive advantage compared to other regions in the world. Protection of IPR is an important issue, and the legal framework of Horizon Europe is providing the guidance on IPR protection, as well as cooperation with third countries. In addition, the Waterborne TP

		will initiate a discussion on how competitiveness of the European waterborne transport sector can be further increased by means of the Partnership.
Anonymous	It is now generally accepted that ship design efficiency requirements, while potentially having an important impact on future emissions growth, will fall well short of what is needed. Further operational efficiency measures will be important to immediately peak energy consumption and emissions, but it will be insufficient to decarbonise the sector or reduce its growing energy needs. For this reason in order to achieve a zero-emission waterborne transport we have to focus as well on Ship Design Efficiency.	Technologies (like Sustainable Alternative Fuels or electrification) or enabling factors (like energy efficiency, optimization, etc…) must go together to identify a decarbonisation path for waterborne transport applications. Operational efficiency measures, ship design efficiency solutions, retrofitting of existing ships are important aspects that will address and reduce peak emissions, paving the way for the transition towards zero-emission waterborne transport.
Boezio, Claudio, Utopia Navalis, Germany	I believe that clean powered vessels are possible, however I think that innovation is needed in areas beyond technology. Among these I see: - the role of Classification Societies in technological advancement and innovation - shipping finance & economics - maritime law. On the technical side I would like to see more activity for wind propulsion technology.	The transition to zero-emission waterborne transport will indeed consist of a broad range of measures. The Partnership in the framework of Horizon Europe is focussed on Research, Development and Innovation, although it will provide input to relevant related initiatives to facilitate the transition. Wind assisted propulsion is a key element of the SRIA and technologies will be developed to support long distance shipping.
Boulat, Jean-Charles, Naval Group, France	Digital and electrification must be strengthened in the SRIA to develop the potential to contribute significantly to achieve climate neutrality for waterborne transport through optimization and efficiency gain both on the ships themselves and the operations associated with them. The roadmap on the technology development and business	Regarding digitalisation, the scope of the Partnership has been laid down in the Partnership Proposal, as co-designed with the relevant Commission Services, and covers 'digital green' aspects. The text has been further clarified in this respect, taking into account your suggestions. Broader digitalisation topics, which are not directly linked to greening are expected to be covered by the collaborative research under Horizon Europe.

	opportunity should be better described in the SRIA to capture opportunities in relation to EU skills and competitiveness. The fuel issue for maritime industry is an energy issue which is common to the transport sector. The synergies and common effort with other partnerships are necessary to achieve the 0 emission objective. The SRIA should reinforce the link with the other partnership and details the specific requirements of the ships and ports (such as storage solutions, hybrid system, refueling, etc)	The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The Work Programme for sequential years will be developed in a later stage. Indeed, electrification and sustainable alternative fuels (amongst others hydrogen) are key for the transition to zero-emission waterborne transport. Skills, both of the human element in the maritime technology sector as well as in the waterborne transport sector are key, however not included in the framework of the Partnership. The Partnership will provide advise for incorporation of elements related to skills development for other programmes. The Partnership will be key for the competitiveness of the European waterborne transport sector (including the maritime technology sector). It is expected to provide the shipyards and maritime equipment manufacturers with a competitive advantage compared to other regions in the world. Protection of IPR is an important issue, and the legal framework of Horizon Europe is providing the guidance on IPR protection, as well as cooperation with third countries. In addition, the Waterborne TP will initiate a discussion on how competitiveness of the European waterborne transport sector can be further increased by means of the Partnership. Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will

		be key to develop solutions for the bunkering, as well as on-board storage and use of alternative fuels on board. The issues linked to the supply of fuels are indeed not included in the Partnership, however synergies with relevant Partnerships (in particular Hydrogen and Batteries) are ensured.
De Wit, Thierry, Dutch Ministry of Infrastructure and Watermanagement, the Netherlands	Link/relation with production of hydrogen: sufficient scale/volume is essential for successful application of hydrogen in waterborne transport. Likewise relationship with battery technology (research/excellence centres). Role of large clients/purchasers of logistic services/transport, like industries, supermarkets etc in making longer term commitments (5-10 years) to green transport.	Indeed, Sustainable Alternative Fuels and Batteries are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as storage and use of alternative fuels and batteries on board. The issues linked to the supply of fuels and the proper development of Battery technologies are indeed not included in the Partnership, because they will be developed by other Partnerships, notably Battery Value Chain and Clean Hydrogen for Europe. Synergies with relevant Partnerships have already been established and are therefore ensured. The transition to zero-emission waterborne transport will indeed consist of a toolbox of measures to be implemented in a complementary way, facilitating and stimulating the transition to zero-emission waterborne transport. The Partnership in the framework of Horizon Europe is focussed on Research, Development and Innovation, although it will provide input to relevant related initiatives to facilitate the transition.
Le Grand, Guillaume, TransOceanic Wind Transport, France	As fuel TOWT hears the wind - which can move massive amounts of cargo over long distances - as a primary fuel. It can also make shipping more resilient in the sense that Mr Olaf Merk puts it in his June 26, 2020 article published on https://transportpolicymatters.org or as Ms Nicola Cutcher puts it in her recent article "Winds of	Indeed, wind assisted propulsion has significant potential for various sub-segments of the waterborne transport sector. For this reason, renewable and free energy solutions are included in the Activity regarding Energy Efficiency.

	Trade: Passage to Zero-Emission Shipping" published in the American Journal of Economics and Sociology. In fact, wind is the ONLY primary decarbonised source of energy and it is now largely predictable. Wind can also fuel an alternative way of consuming goods.	
Laaksonen, Jere, VTT SenseWay, Finland	Digitization of existing sea areas; all actors, sea marks, fairways, leisure boats, work boats, commercial liners --> shared situational awareness.	Digital green is an Activity included in the SRIA, as long as it contributes to reducing emissions, and falls in the scope as defined in the Partnership Proposal. Situational awareness is not directly addressing reduction of emissions, therefore it will most likely be addressed by Waterborne as a priority for so-called collaborative research in the framework of Horizon Europe.
Rouxel-Duval, Laurent, Chantiers de l'Atlantique, France	The ZEWT Partnership is a key instrument to achieve climate neutrality for waterborne transport. But it should pay also very much attention to strengthen European competitiveness. Therefore, the fields of application should focus first on current European products, and the market uptakes of technologies and know-how developed through the ZEWT Partnership should be carried out by the European shipyards and equipment suppliers together for other markets (especially merchant vessels and even ferries that are now build mainly in Asia). Proper project consortium constraints should be set up to insure no technology transfer and sale out to non-European competitors. The ZEWT Partnership should carry specific attention to these issues in its implementation and operating phases to reinforce the competitiveness of European waterborne stakeholders, in order to	Indeed, the Partnership, in the framework of Horizon Europe, is a key instrument regarding Research, Development and Innovation needed to achieve climate neutrality for waterborne transport. It is expected that the Partnership will provide the waterborne transport sector (including the maritime technology sector) with a competitive advantage compared to other regions in the world. Protection of IPR is an important issue, and the legal framework of Horizon Europe is providing the guidance on IPR protection, as well as cooperation with third countries. The Partnership will provide input for defining the topics of the working programmes, the implementation of the calls will follow the regular procedure of Horizon Europe, in accordance with the legal framework as established. In addition, the Waterborne TP will initiate a discussion on how competitiveness of the European waterborne transport sector can be further increased by means of the Partnership.

	provide to Europe the full benefit of the co-financing of this partnership.	We acknowledge the importance of establishing relations with other Partnership; we are in the process of finalising these relations to maximise the synergies with the objectives of this Partnership.
Van Bekkum, Jan, RH Marine, the Netherlands	Look at the main purpose of ships (cargo is just one of them) like special vessels and look at the complete value chain when looking at off-shore wind (installing, maintenance and replacement)	The SRIA addresses different ship types in the Implement Pathways. The transition to zero-emission waterborne transport is particularly complex and can only be achieved with the participation of all stakeholders concerned, including all different stakeholders of the value chain.
Lurkin, Nick, Royal Association of Netherlands Shipowners, the Netherlands	Carbon Capture and Storage (CCS).	Carbon Capture and Storage is included in the SRIA, in the Activity regarding Sustainable Alternative Fuels.
Dumon, Jean-Marie, GICAN, France	Digital and electrification must be strengthened in the SRIA to develop the potential to contribute significantly to achieve climate neutrality for waterborne transport through optimization and efficiency gain both on the ships themselves and the operations associated with them. The roadmap on the technology development and business opportunity should be better described in the SRIA to capture opportunities in relation to European skills and competitiveness. The fuel issue for maritime industry is an energy issue which is common to the transport sector. The synergies and common effort with other partnerships are necessary to achieve the 0 emission objective. The SRIA should reinforce the link with the other partnership and details the specific requirements of	Regarding digitalisation, the scope of the Partnership has been laid down in the Partnership Proposal, as co-designed with the relevant Commission Services, and covers 'digital green' aspects. The text has been further clarified in this respect, taking into account your suggestions. Broader digitalisation topics, which are not directly linked to greening are expected to be covered by the collaborative research under Horizon Europe. The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The work programme for sequential years will be developed in a later stage. Indeed, electrification together with sustainable alternative fuels (amongst others hydrogen) are key for the transition to zero-emission waterborne transport.

	the ships and ports (such as storage solutions, hybrid system, refueling, etc)	And, the Partnership will be key for the competitiveness of the European waterborne transport sector (including the maritime technology sector). It will provide the shipyards and maritime equipment manufacturers with a competitive advantage compared to other regions in the world. Protection of IPR is an important issue, and the legal framework of Horizon Europe is providing the guidance on IPR protection, as well as cooperation with third countries. In addition, the Waterborne TP will initiate a discussion on how competitiveness of the European waterborne transport sector can be further increased by means of the Partnership. The Partnership will be key to develop solutions for the bunkering, as well as on-board storage and use of alternative fuels on board. The issues linked to the supply of fuels are indeed not included in the Partnership, however synergies with relevant Partnerships are ensured.
Allwright, Gavin, International Windship Association (ISWA), United Kingdom	- Wind Propulsion - as a separate and defined category. The inclusion of wind propulsion solely as a form of energy efficiency misses the critical role that wind propulsion can play as a transitional/transformational energy provider and primary propulsion solution. Briefly, there are five key areas that wind propulsion systems play an integral role and these should all be explored and their impact on existing operations and the potential for paradigm shift be duly analysed. These include both wind-assist and primary wind propulsion - as retrofit, modular retrofit, optimised wind-assist newbuilds, primary new build vessels	We acknowledge the importance of wind assisted propulsion technologies and have more prominently included this important aspect in the SRIA. The topic is indeed included in the SRIA and we understand that – in certain applications – it may play a primary propulsion role, backed by more traditional fuel-based power solutions. For this reason, it has a primary role in one of the first three Activities of the Partnership. We are open to expand the wind assisted propulsion part in the Activity Plan. Design solutions for new build or retrofit are addressed in the "Design and Retrofitting" Activity where wind assisted technological solutions may be studied as well.

	delivering well over 50% of propulsive power from wind and primary wind propulsion vessels with the capability to generate onboard fuel. Wind propulsion is already quite advanced (in comparison with most alternative fuels). There will be 12-14 large commercial vessels operating with wind propulsion systems worldwide by the end of 2020. This number excludes the 20+ smaller commercial sail cargo vessels and small cruise vessels outfitted with traditional soft sail systems. These large vessels are in almost all major vessel segments – tankers, bulker, cruise/ferry, roro, general cargo and sizes range from 3,000dwt – 300,000dwt. We forecast that this number will be 45+ by the end of 2022. - Crew Training and Activity as a Key Stakeholder – there seems to be little focus on the crew training and motivation to deliver more efficient vessels and operations. Vessel design consultation, cultural training, technical training, maintenance standards, efficiency bonuses etc. could lead to extensive savings in emissions and improved uptake and efficiency of new technologies and operations.	Skills related to new technologies and concepts are of utmost importance. Since Horizon Europe focusses only on Research, Development and Innovation, projects, where relevant, will come up with conclusions and advice on how to include new developments in education and training programmes. However, the uptake of this advice will be facilitated by other programmes (dedicated to education and training) or other initiatives.
Citores, Antidia, Surfrider Foundation Europe, France/Spain	Other parameter could be follow in a pathway to decarb shipping like: eco-design, routage, sea-motorways, sobriety in energy usage and good practices on board. All this need also to be accompany by a trainee program.	We acknowledge the importance of the topics indicated. Design and retrofitting as well as operational measures to improve energy-efficiency are included in the activities of the SRIA. Skills related to new technologies and concepts are of utmost importance. Since Horizon Europe focusses only on Research,

		Development and Innovation, projects, where relevant, will come up with conclusions and advice on how to include new developments in education and training programmes. However, the uptake of this advice will be facilitated by other programmes (dedicated to education and training) or other initiatives.
Marivoet, Sofie, De Vlaamse Waterweg NV, Belgium	Funding, innovation in general and development of infrastructure for alternative fuels (multipurpose energy hubs,...)	The transition to zero-emission waterborne transport will indeed consist of a toolbox of measures to be implemented in a complementary way, facilitating and stimulating the transition to zero-emission waterborne transport. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related initiatives to facilitate the transition. RD&I in bunkering of sustainable alternative fuels is also covered but development of these fuels is going to be addressed by other relevant Partnerships. Synergies and cooperation with these Partnerships are ensured.
Vlaminckx, Yvan, Fast Lines Belgium	Autonomous or remote sailing in short sea market can improve energy efficiency	Regarding digitalisation, including autonomous and remote sailing, the scope of the Partnership has been agreed upon in the Shadow Programme Committee Horizon Europe, and, laid down in the Partnership Proposal and is limited to 'digital green'. The Proposal has been co-designed with the relevant Commission Services. The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The work programme for sequential years will be developed in a later stage, and that might lead to an increase of topics related to digitalisation, although they are also partially taken up in collaborative research.

Anonymous	-Intermodality (links to zero-emission modes) -Policy issues -Marketing & business opportunities for zero-emission waterborne transport	The Partnership on Zero-Emission waterborne transport is dedicated to solutions to transform the waterborne transport sector to a zero-emission mode of transport, although links will be established with related initiatives. Innovative technologies will enable new business models and require new or adapted regulatory frameworks. The transition to zero-emission waterborne transport will indeed consist of a toolbox of measures. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related initiatives to facilitate the transition.
Kilkis, Birol, Polar Project and Technologies, Turkey	Exergy analysis of onboard renewables for rational applications and maximum rationality of the energy utilization of renewables on board. Renewables must also include onboard waste management and biogas production.	Holistic ship's energy analysis is a key element for the full understanding of onboard energy flows before any optimization is implemented. The Partnership will propose specific research activities in this area, which will also include an analysis of waste management and the feasibility of biogas production from both the technical point of view as well as the related business models.
Giordamlis, Christos, Prisma Electronics, Greece	Operations and Support	Operational measures and support systems are included in the SRIA in the "Digital Green" Activity.
Anonymous	Operational and Maintenance improvement, i.e. logistics studies to improve the ship's operational performance and preventive maintenance, with real-time data and analysis to support the commander's decision for speed, route or warnings about possible (future) problems, e.g. using A.I. or twin digital.	The Partnership is dedicated to solutions related to onboard technologies as well as interaction with the shore, as long as technologies and operations contribute to the transition towards zero-emission waterborne transport. The development of a secure and IPR-compatible Digital Twin and Zero-Emission Energy Decision Support Systems is foreseen in the Activity Digital Green.

Suarez de la Fuente, Santiago, University College London, Mexico	As an important and relevant aspect of alternative and sustainable fuels, it is important to look into land-base systems which could potentially reduce the burden of investment in renewable technologies and infrastructure.	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as on-board storage and use of alternative fuels on board. The issues linked to the supply of fuels are indeed not included in the Partnership, however synergies with relevant Partnerships are ensured.
Roux, Laure, Central Commission for the Navigation of the Rhine, France	Comments will be provided in a separate document	Separate document has been received, and the analysis is available in paragraph 1.6.
Anonymous	I suggest to reinforce the need to include renewable energy generators on the boats in the chapter devoted to "electrification"	Renewables as a power source are indeed an important element of the transition to zero-emission waterborne transport, and the Partnership will develop solutions for different segments of the waterborne transport sector. Renewables have been included in the Activity “Energy Efficiency”.
De Kat, Jan Otto, American Bureau of Shipping, the Netherlands	Operational measures aimed at GHG reduction during service	Operational measures aimed at GHG reduction are indeed of importance, and included in the SRIA in the “Digital Green” Activity. In addition, technologies based e.g. on Electrification, and on the use of Sustainable Alternative Fuels will also significantly contribute to the reduction of GHG during operations.
Nebrera, José, ACS SCE, Spain	Refueling stations for long distance sea freight could be installed out of ports, with the new fuel (i.e., ammonia) being manufactured and stored in "ad hoc" floating or bottom based platforms, fed with green electricity from offshore resources. This attractive possibility should be included among the objectives of the Innovation activity in the field	The Partnership is dedicated to solutions related to onboard technologies as well as interaction with the shore, as long as these technologies contribute to the transition towards zero-emission waterborne transport. The development of refueling stations at sea for long distance waterborne transport is indeed an interesting development, but it is outside the scope of the Partnership, although it might be included in other elements of Horizon Europe.

Anonymous	Focus on Energy Efficiency and Retrofitting are crucial. EE will be a crucial enabler for new fuels and electrification. Retrofitting is the only way the get ZE technology into the fleet.	Energy Efficiency and Retrofitting are indeed crucial and for this reason Energy Efficiency is a dedicated activity, where RD&I for retrofitting solutions are included throughout the SRIA.
Karaca, Selin, Elif Global, Turkey	Alternative ways for transportation	The Partnership on Zero-Emission waterborne transport is dedicated for solutions to transform the waterborne transport sector to a zero-emission mode of transport. Alternative ways of transportation are indeed of importance to achieve the objectives of the European Green Deal, and therefore links will be established with related initiatives.
Anonymous	Hydroelectric plants and dams can be also included as an important area.	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions regarding electrification. The issues linked to power generation are indeed not included in the Partnership, however synergies with relevant Partnerships are ensured.
Anonymous	The use of new fuels will affect seafarers and crewmembers in the waterborne sectors to the extent that they will need to have the right skills to handle new, complex hybrid and zero emission machineries/systems. Any gaps in this area could pose a serious health and safety risk and would hamper the energy transition. An ongoing, compulsory, programme of training and periodic refresher training or life-long learning programme, to ensure the continued competence of seafarers and crewmembers, should be put in place.	Indeed, skills related to new technologies and concepts are of utmost importance. Since Horizon Europe focusses only on Research, Development and Innovation, projects will come up with advice and conclusions on how to include new developments in education and training programmes. However, the uptake of these conclusions will be facilitated by other programmes (dedicated to education and training) or other initiatives.
Graeter, Armin, BMW, Germany	if not included in green and digital, automation should be researched	Regarding digitalisation, including automation, the scope of the Partnership has been agreed upon in the Shadow Programme Committee Horizon Europe, and, laid down in the Partnership

		Proposal and is limited to “digital green”. The Proposal has been co-designed with the relevant Commission Services. The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The work programme for sequential years will be developed in a later stage, and that might lead to an increase of topics related to digitalization and automation, although they are also partially taken up in collaborative research.
Anonymous	1. new building processes of ships (as retrofitting only covers already existing vessels) 2. new and smart materials (as those can help reducing weight, hydrodynamic resistance, leading to reduced emissions as well)	New building processes for ships and the use of smart materials in ship production are indeed of importance. Both topics are addressed in the Activity Design and Retrofitting, for as far as it is linked to the objective and scope of the Partnership as laid down in the Proposal.
Anonymous	I think the most relevant topics are well covered. Maybe the relevancy of safety for the new developments could be more highlighted. This is especially important for more electrical propulsion or hydrogen powered waterborne platforms.	Safety issues will be addressed together with the development of innovative solutions. Where relevant, the Partnership will provide input to regulatory developments.
Anonymous	Safety requirements for electric motors in recreation boats must be defined in order to enable electric motor usage in recreational crafts in accordance with 2013/53/EE and EN ISO 16315:2016	Safety issues will be addressed in parallel to the development of solutions. Where relevant, the Partnership will provide input to regulatory developments, to facilitate the implementation of these new technologies and concepts.
Anonymous	Dismantling of ships with circular economy concept	The Partnership is dedicated to solutions related to onboard technologies as well as interaction with the shore, as long as these technologies contribute to the transition towards zero-emission waterborne transport. Dismantling ships with a circular economy concept is indeed an interesting and important development, but it is outside the scope of the Partnership,

		although it might be included in other elements of Horizon Europe.
Sansoglou, Paris, European Dredging Association (EuDA), Belgium	Waterborne transport is facilitated by activities, such as dredging, that use energy to both sail and work. All the offshore services supply ships similarly sail and work. It is important to find breakthrough solutions for shipping but it is equally important to find solutions applicable to these ships too.	Indeed, offshore services are an important segment of the European waterborne transport sector, and for this reason offshore vessels (including dredgers) are defined as one of the implementation pathways of the Partnership.
Rafael Robert, Pro Danube International, Austria	Climate neutrality can also be enhanced by reduction of administrative barriers with which waiting times can be reduced, thus emissions can be decreased. Offering 24 hours service in more ports than currently, would also enable more efficient use of the infrastructure, less waiting times, less unnecessary speeding etc.	The Partnership is dedicated to research, development and innovation regarding solutions related to onboard technologies as well as interaction with the shore, as long as these technologies contribute to the transition towards zero-emission waterborne transport. The development of a secure and IPR-compatible Digital Twin and Zero-Emission Energy Decision Support Systems is foreseen in the Activity Digital Green. These technologies may support business model changes and the Partnership will facilitate the discussion among stakeholders of the value chain.
Anonymous	CO2 and methane/emission abatement technologies as well as CO2 trading/hedging schemes could be added. Those are additional tools to combat climate change in shipping.	We acknowledge the importance of emissions reduction by abating technologies. These aspects are covered in the “Design and Retrofitting” Activity. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related policy initiatives to facilitate the transition to zero-emission waterborne transport.
Van Coillie, Antoon, Zulu Associates, Belgium	Autonomous vessels are the key to zero-emission transport & therefore should be included	Regarding digitalisation, including autonomous vessels, the scope of the Partnership has been agreed upon in the Shadow Programme Committee Horizon Europe, and, laid down in the Partnership Proposal. The Proposal has been co-designed with

		the relevant Commission Services. The Work Programme for 2021 and 2022 is currently being drafted, following discussion with the members of the Waterborne TP and the European Commission Services. The work programme for sequential years will be developed in a later stage, and that might lead to an increase of topics related to digitalisation, although they are also partially taken up in collaborative research.
Anonymous	You can complete the first area like "sustainable alternative fuels and propulsion systems" to show, that we are not only talking about the fuel perspective, but also about alternative energy conversion systems on board (like multi-fuel engines, electric and hybrid-electric systems, on-shore power supply, fuel cells, wind propulsion systems, ...)	The scope of the Activity on “Sustainable Alternative Fuels” is indeed the “Use of Sustainable Alternative Fuels”. The text in the SRIA has been adopted to “Use of Sustainable Alternative Fuels”.
Dragomir, Maria Cristina, Constanta Maritime University, Romania	Involving and motivating communities and industry stakeholders to accept change for climate neutrality	As such, this is not part of the Strategic Research and Innovation Agenda, but an important element of the execution of the Partnership. More specifically, involving citizens in the activities of the Partnership is of added value and will be implemented by means of the governance of the Partnership.
Anonymous	Laws, regulation and taxes: EU shall force shipping companies for the change. The world has been used to 5000 years of sailing. How long is necessary to put the sail back into shipping?	The transition to zero-emission waterborne transport will indeed consist of different strategies according to ship types, routes and availability of technologies and fuels. Wind assisted applications will play a significant role in specific applications and the Partnership will maximize the potential impact on business applications. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it is expected to provide input to relevant related policy initiatives to facilitate the transition.

Anonymous	Not only bunkering infrastructure, but also the infrastructure for clean fuel production and distribution are relevant	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as storage and use of alternative fuels on board. The issues linked to the supply of fuels are indeed not included in the Partnership, since they are out of the scope of the Partnership itself, however synergies with other relevant Partnerships are ensured.
Gilpin, Diane, Smart Green Shipping, United Kingdom	Focus on primary renewables as potential power solutions rather than in 'energy efficiency'. Direct thrust from wind has been shown to provide up to 50% power on smaller (up to 25000dwt) vessels. This reduces demand for more costly alt-fuels, reduces overall emissions from whole global fleet (reducing scale of the decarb challenge), lessens the need for port infrastructure upgrade and improves economics for Waterborne assets. Consider power as part of an integrated system design that includes circular economy and new green maritime financing supported by digital systems.	We acknowledge the importance of the topics mentioned and the text of the SRIA has been adopted regarding the potential of renewables has been . The transition to zero-emission waterborne transport will indeed consist of different strategies according to ship types, routes and availability of technologies and fuels. Power applications based on renewables will play a significant role in specific applications and will need to be complemented by enabling factors as optimal design integration and higher level of digitalization while aiming at fuel replacement with sustainable alternative ones.
Anonymous	We would suggest considering to include recreational boating and its infrastructure as an important area of maritime activities and infrastructure. Despite not addressing maritime transport and some differences in technology and usage, it is an important activity of the blue economy with overlap and common priorities towards climate neutrality.	The scope of the Partnership will focus on achieving large impact on decarbonisation and elimination of other emissions for which mostly larger ships are responsible. There will be a separate Partnership concerning the Blue Economy, and synergies with this Partnership will be ensured.
Brewster, Paul, Irish Maritime Development Office, Ireland	We consider that working on different low-emission solutions for vessels at ports and on the real-time monitoring of emissions at ports (among	In the Activity regarding Ports, reducing emissions at port is one of the key activities, including monitoring emissions if research,

	other topics) should be two key points to be included in this partnership.	development and innovation is still needed beyond the state-of-the-art.
Schaberg, Peter, Royal BLN-Schuttevaer, the Netherlands	Funding of the Greening/EU support. (See our national Green Deal Inland shipping)	The transition to zero-emission waterborne transport will indeed consist of a broad range of measures needeed. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related (policy) initiatives to facilitate the transition including the possibilities of funding, but equally import, financing for deployment.
Tapaninen, Ulla, University of Turku, Finland	Aspects of icebreaking New passenger vessel innovations (composite catamarans)	Although ice navigation is certainly an interesting development, this is not an activity specifically contributing to the objective of zero-emission waterborne transport. Indeed, the use of certain materials is included in the Activity Design and Retrofitting
Anonymous	Big challenge is not new ships but existing ships - large proportion of ships built between now and 2030 will be still existing in 2050. So there is an early need to prepare ships built in the next 10 years to be zero-emission in 2050. The focus on future 2030 zero emission vessels is a good ambition but is it a smart objective? 2030 is too late and it could delay preparatory work to decarbonise those ships entering service in the next 10 years. In addition we are already in a transition pathway to the 2050 goals but need to better understand where we are now on that pathway to define the steps to 2030 and beyond.	Indeed, retrofitting is one of the key angles of the Partnership on zero-emission waterborne transport We acknowledge the comment and share the fact that in developing technologies for waterborne transport applications we need to focus both on zero emission solutions for new builds as well as retrofitting solutions for the existing fleet. The partnership is committed to anticipate as much as possible the transition path towards zero-emission waterborne transport; to this extent the dialogue established at the Partnership level will ensure key stakeholders align their actions towards a common strategic view.
Mauro, Salvatore, CNR-INM (Italian National Research	Underwater radiated noise would be in a while one of the most upcoming environmental constraints to face and comply with. The fulfillment of the MSFD	Eliminating underwater noise is indeed of utmost importance. One of the specific objectives of the Partnership is to develop

Council - Institute of Marine Engineering), Italy	by all the European countries could drive the European shipping clusters towards new technical approaches oriented to the mitigation and limitation of the shipping/anthropogenic radiated noise. Physical tests carried out in low background underwater noise area are of paramount importance both to validate CFD computations and to develop robust and reliable measurements methodologies.	and demonstrate solutions to eliminate pollution to water (including harmful underwater noise) from ships, by 2030.
Anonymous	Regulatory measures worldwide are mandatory (at IMO level) and not at regional (ex: European Union level), because, if not, the desired effect will not be fulfilled and can generate an unequal level playing field and/or competition distortions	The transition to zero-emission waterborne transport will indeed consist of a broad range of measures needed. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related (policy) initiatives (both IMO and EU level) to facilitate the transition towards zero-emission waterborne transport
Koho, Karoliina, Bonus EEIG, Finland	Development of new fuels: are development of risk strategies included? The behavior of new fuels in seawater is not understood and if an accident occurs a strategy is needed to recover the fuel to avoid negative environmental consequences. The current approaches used for oil recovery are not compatible with new fuels. Detection and monitoring of (air) pollution from ships is briefly mentioned in the SRIA (p. 62), however, it is not clear if it is in the scope of the Partnership to develop monitoring methods and standards. Fast and targeted tools and monitoring approaches are critically needed to enforce international regulations on air pollution from ships. If these topics are not included the	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as storage and use of alternative fuels on board. One of the specific objectives of the Partnership is to develop and demonstrate solutions to eliminate pollution to water (including harmful underwater noise) from ships, by 2030. When progress can be beyond the current state-of-the-art, innovative on-board monitoring, use of (automated) drones, vessels and other detection methods will be used to enforce emission limits applying to waterborne transport.

	SRIA are you intending to collaborate on this with an another Partnership/funding programme?	
MacLaine, Madadh, Zero Emissions Ship Technology Association, United Kingdom	Renewable Energy and in particular Ocean Renewable Energy underpin the energy transition. We hear figures like 85% of the investment will be land-based infrastructure. If the energy is being used at sea, we need to look at capturing it at sea. The decarbonization of shipping will require decarbonized fuel, the energy source for decarbonized fuel will come from Renewable Energy. For shipping to have any control whatsoever over our decarbonization pathway, we need to engage in the transition of our fuel source.	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as storage and use of alternative fuels on board. The issues linked to the production and supply of fuels are indeed not included in the Partnership, however synergies with relevant Partnerships are ensured.
Adams, Michael, Ocean Assets Institute, Switzerland	Not missing but clean fuel supply chains require 80% of the total funding needs for shipping decarbonisation. So the list is not one of equal funding priorities	Indeed, Sustainable Alternative Fuels are key for the transition to zero-emission waterborne transport, and the Partnership will be key to develop solutions for the bunkering, as well as storage and use of alternative fuels on board. The issues linked to the supply of fuels are indeed not included in the Partnership, however synergies with relevant Partnerships are ensured.
Anonymous	Wind Propulsion	We acknowledge the importance of Wind Assisted Propulsion. Different disruptive technologies, onboard integration and operational solutions will pave the way to zero-emission waterborne transport. The topic is included in the Activity regarding Energy Efficiency.
Degroote, Dirk, Cognaushipp, the Netherlands	Sustainable business models: There is a lot of focus on technical solutions, however to be successful, these solutions are to be implemented in business models. If business models continue to be focused on economic factors and multiple business splits in the entire chain, sub optimization will remain and	We acknowledge the importance of defining new business models throughout the course of the Partnership. The identification of new business models enabled by disruptive innovations, new operational measures and the integration of different systems onboard will be included in the various

	economic influences will keep prevailing over sustainable solutions. The competitive target will be hard to meet and take (too) long. Breaking business barriers and replacing them with (new/disruptive) sustainable business models could have an impact comparable or even higher than a good technical solution.	research, development and innovation activities which will be executed.
Anonymous	Energy storage and Energy management (or is this digital green?)	Energy storage is part of the activity dedicated to Electrification (considering ground-breaking solutions for battery systems, among others), while Energy management is the core of Energy efficiency activity.
Anonymous	None, though there could be more attention to the social-economic-technical interaction.	Social-economic impact of technical solutions will be considered, as part of feasibility studies. More advanced analysis will be conducted within other initiatives, being outside the scope of this Partnership, however, the Partnership might provide advice and conclusions from projects as input to these related initiatives.
Possin, Philip, Getzner Werkstoffe GmbH, Germany	Reduction of noise emissions	We acknowledge the importance of eliminating underwater-radiated noise. Indeed, one of the specific objectives of the Partnership is to develop and demonstrate solutions to eliminate pollution to water (including harmful underwater noise) from ships, by 2030.
Putz, Lisa-Maria, University of Applied Sciences Upper Austria, Austria	Please keep on emphasizing inland waterway transport & that it is different from maritime and has other needs.	Indeed, inland waterway transport is one of the various sub-segments of the waterborne transport sector. The partnership will ensure that all RD&I activities may find application to the largest number of waterborne transport segments.
Ghaemi, M. Hossein, Gdańsk University of Technology, Poland	Control systems, particularly the propulsion control system and integration of different existing control systems on the shipboard	We acknowledge that the optimization of control systems may play a role in the overall efficiency of the ship. Whilst the topic is very specific and to be detailed at the level of the SRIA, it is indeed included and embedded in the development of the zero-

		emission integrated Decision Support System within the Action "Digital Green". This latter will envisage control systems management, by the use of both sensors and the related Digital Twin.
Capretti, Daniel, Generix AS, Norway	Port emissions	The issue of ship's emission in port areas is an important aspect that will be addressed by the Partnership. When progress can be beyond the current state-of-the-art, innovative on-board monitoring, use of (automated) drones, vessels and other detection methods will be used to enforce emission limits applying to waterborne transport.

Table 4: Contributions on potential missing areas of attention.

Besides the comments provided in table 4, some additional comments were provided, but without a direct impact on the content of the SRIA. One of these "Water, all living things throughout their lives triplex is an indispensable resource. Water is just a biological requirement for man not only economically, socially, but also rural life itself. But this resource, which is of biological importance, unfortunately limited choice on earth. Accordingly, the increasing world population and economic developments, on the one hand, threatening water reserves. Current water resources, increasing population, global warming, agriculture, industrialization and threatened by elements such as urbanization. Initially caused by industrialization and urbanization The water supply becomes unusable due to contamination. This situation is water is for an effective management in their services. Sound Evaluation Water management has started to occur. Activity and citing problems such as efficiency, in the direction of the necessity of water services demands are expressed more often. The purpose of this study is indispensable for all living things a unique thing is how water turns into a crisis for global warming and climate change, and to analyse what kind of suggestions are presented to overcome this crisis." is perfectly related to the objectives and scope of the Partnership.

1.3 Governance of the Co-Programmed Partnership

Participants to the Open Consultation received the question whether it would be the right approach to incorporate the Partnership in the existing structure of the Waterborne Technology Platform. 88.89% of the respondents considered this approach as appropriate, the remainder either proposed a different alternative, either had some remarks on the incorporation of certain sub-segments of the waterborne transport sector in the Partnership.

ANSWER CHOICES	RESPONSES	
Yes	88.89%	96
No	0.93%	1
If not, which argument(s) do you have in favor of a different (separate) structure?	10.19%	11
TOTAL		108

Table 5: Percentage of respondents considering the incorporation of the Partnership in the Waterborne TP as appropriate or not appropriate.

The participants which did not consider the incorporation of the Partnership in the Waterborne TP as appropriate, were requested to provide arguments in favour of a different (separate structure). Table 6 provides an overview of the input received, as well as an indication if the input has been taken into account in the final version of the SRIA, and if yes, how.

Respondent	**Input**	**Incorporation in the SRIA**
Pacaud, Pierre, French Ministry of National Education, Higher Education, Research and Innovation, France	Several elements call for an independent structuring of the partnership, admittedly in full cooperation with the platform, but separate: - Clearly identified long-term objectives and corresponding roadmap & R&D topics ;	A number of key requirements for the Governance of the Co-Programmed Partnership are listed, which will be included in the MoU to be signed with the Waterborne TP. These key requirements can both be met while incorporating the Partnership in the Waterborne TP as by means of a separate legal entity. In the

	- Formalized governance model with clear definition of the rules ; - Clear & separated liabilities for participants of the Waterborne TP and/or cPP structure (for WATP members and non-members); - Formalized industrial advisory board, w/ non WATP members; - Established Partnership Board, with transparent rules for procedure allowing confidentiality, transparency and avoidance of conflicts of interest; - 2 member types : stakeholder members & Member States/Commission officials; - Transparency of all management processes (consultation, decision, reporting to EC…), confidentiality, control of the content, openness to non WATP members EC financing & partner co-financing for cPPP to be well monitored & reported; - Create a methodology for Key Performance Indicators; - synergy w/other instruments.	end, the decision on the governance of the Partnership boils down to strategic decision making by the members of the Waterborne TP, taking into account all inputs received from stakeholders, like the input received from your side. Consequently, the final decision on the Governance will be linked to a proper organisational structure as well as mechanisms to be put in place.
Boulat, Jean-Charles, Naval Group, France	An open, transparent and clear organisation must be designed to run the Partnership. It should represent a fair balance of stakeholders, with respect to their level of commitment and prevent non cPP stakeholders to have a say in the Partnership. At the same time, the WAT TP must	A number of key requirements for the Governance of the Co-Programmed Partnership are listed, which will be included in the MoU to be signed with the Waterborne TP. These key requirements can both be met while incorporating the Partnership in the Waterborne

	continue to exist, in order to represent non-cPP fields and sectors. The integration of the cPP within the current TP could be envision if there is a legal possibility to create an autonomous sub structure with a full and strong separation of activities necessary to achieving its objective and enable the TP to continue focusing on other fields and sectors (Ports & Logistic, Digitalisation, Blue Growth, etc.). If the Partnership is run within the existent organisation without the aforementioned criteria, there is a risk of unfair representation and/or unclear separation of mandates. A separate and independent entity, in full cooperation with the existing platform, would make it easier to get a clear and transparent scope:- Clearly identified long-term objectives and corresponding roadmap & R&D topics ; - Formalized governance model with clear definition of the rules ; Clear & separated liabilities for participants of the Waterborne TP and/or cPP structure (for ZEWT members and non-members) ; Formalized industrial advisory board, w/ non WATP members- Established Partnership Board, with transparent rules for procedure allowing confidentiality, transparency and avoidance of conflicts of interest ; 2 member types : stakeholder members & Member States/Commission officials- Transparency of all management processes (consultation,	TP as by means of a separate legal entity. In the end, the decision on the governance of the Partnership boils down to strategic decision making by the members of the Waterborne TP, taking into account all inputs received from stakeholders, like the input received from your side. Consequently, the final decision on the Governance will be linked to a proper organisational structure as well as mechanisms to be put in place.

	decision, reporting to EC…), confidentiality, control of the content, openness to non WATP members, EC financing & partner co-financing for cPPP to be well monitored & reported ; Create a methodology for Key Performance Indicators ; synergy w/other instruments.	
Rouxel-Duval, Laurent, Chantiers de l'Atlantique, France	Due to the current definition of the draft MoU with the European Commission, there are legal questions raised by the Partnership being integrated in the existing structure of the Waterborne Technology Platform, that may not enable to do so. Moreover a separate structure will help to have a clear focus on the Zero-Emission scope (technical developments, membership, industrial involvements) as well as insuring the proper transparency, openness and limiting conflicts of interest.	Indeed, a number of key requirements for the Governance of the Co-Programmed Partnership are included in the draft MoU to be signed with the Waterborne TP. These key requirements can both be met while incorporating the Partnership in the Waterborne TP as by means of a separate legal entity. In the end, the decision on the governance of the Partnership boils down to strategic decision making by the members of the Waterborne TP, taking into account all inputs received from stakeholders, like the input received from your side. Consequently, the final decision on the Governance will be linked to a proper organisational structure as well as mechanisms to be put in place.
Guglia, Paolo, Fincantieri S.p.A., Italy	Waterborne is a Technology Platform which has a broader scope when compared to the focused scope of the ZEWT partnership. At the same time, the ZEWT, as a policy instrument, needs to comply with more formal processes, thus requiring a dedicated structure. Therefore we think that the Partnership should be organized with a separation in structure and processes,	Indeed, a number of key requirements for the Governance of the Co-Programmed Partnership are included in the draft MoU to be signed with the Waterborne TP. These key requirements can both be met while incorporating the Partnership in the Waterborne TP as by means of a separate legal entity. In the end, the decision on the governance of the Partnership boils down to strategic decision making by the members of the

	while ensuring connection between the two associations.	Waterborne TP, taking into account all inputs received from stakeholders, like the input received from your side. That will also boil down to an appropriate organisational structure and mechanism to be installed, to be able to comply with the criteria laid down to properly execute a Partnership.
Anonymous	It is not clear whether the non-members of the WTP and small size stakeholders who cannot afford to pay full membership still will have an equal opportunity to participate in the Partnership's R&I projects.	The format of co-programmed partnerships means that the calls for proposals are included in the regular Work Programs of Horizon Europe, which are open to everyone, not restricted to members. Membership of the Partnership provides the opportunity of co-programming these calls. As indicated in the SRIA, it is well understood that many stakeholders in the waterborne transport sector are small companies far away from Brussels. Whilst travel to and from Brussels may hinder participation, interaction with European Commission Services and Member State representatives is done mostly in Brussels. The Partnership will therefore organise outreach events to specific maritime and inland navigation regions (such as Bulgaria, Romania, Ireland) to allow a balanced participation from all Member States. The structure of the membership fees for the Partnership will be discussed in the coming period, and might take into account different categories of fees.

Roux, Laure, Central Commission for Navigation of the Rhine, France	It is not that I am opposed to the Partnership being incorporated in the Waterborne TP structure, however, I would suggest that every time the Partnership is dealt with, sufficient IWT actors are also consulted and involved. I am saying this because at present there are more maritime actors involved (and not only via their representative organisation but also directly) in the Waterborne TP compared to IWT actors.	Inland waterway transport is one of the many sub-segments of the waterborne transport sector. The maritime transport sector consists of various sub-segments as well. Indeed, it is of utmost importance that the various sub-segments are properly represented in the Partnership, and thereby it would be beneficial that a number of actors of the inland waterway transport sector joins the Partnership. In addition, open consultations are foreseen throughout the duration of the Partnership.
Anonymous	The Waterborne Technology Platform is a private initiative, an industry-lead body which doesn't include as far as we understand trade union organisations for instance. In our view, there remains some ambiguity as to its governance structure, responsibility and public accountability in its operation and results.	The Partnership is a public-private Partnership, defining jointly the way to reaching zero-emission waterborne transport, and both investing significantly in research, development and innovation. Membership is open to all relevant stakeholders of the waterborne transport sector, including trade union organisations. In addition, it could be envisaged to exchange views regarding skills developments related to RD&I on a frequent basis.
Spaniol, Matthew, Aarhus University, USA	I do not know	-
Graeter, Armin, BMW, Germany	I don´t know the Platform, so, no position to that point	-
Rafael, Robert, Pro Danube International, Austria	In principle, incorporation into Waterborne TP is OK, whereas the proper representation of IWT in this framework shall be ensured. (Selecting "Yes" and placing a comment at the same time was not feasible.)	Inland waterway transport is one of the many sub-segments of the waterborne transport sector. The maritime transport sector consists of various sub-segments as well. Indeed, it is of utmost importance that the various sub-segments are properly represented in the Partnership, and

		thereby it would be beneficial that a number of actors of the inland waterway transport sector joins the Partnership. In addition, open consultations are foreseen throughout the duration of the Partnership.
MacLaine, Madadh, Zero Emissions Ship Technology Association, United Kingdom	A separate structure will be less impeded and more able to take rapid and decisive action	The decision making process will have to follow the same hierarchy in the organization, both when it concerns the Waterborne TP or another legal entity.

Table 6: Reasons for the incorporation of the Partnership in a different structure than the Waterborne TP

1.4 Involvement in the Partnership on zero-emission waterborne transport

Participants to the Open Consultation were requested whether their organisation would like to become actively involved in the Partnership on zero-emission waterborne transport, and, if yes, what role and commitments the organisations would be prepared to take. 87% of the respondents replied in a positive way, and the Waterborne Technology Platform is in close contact with these respondents to further detail envisaged roles and/or commitment.

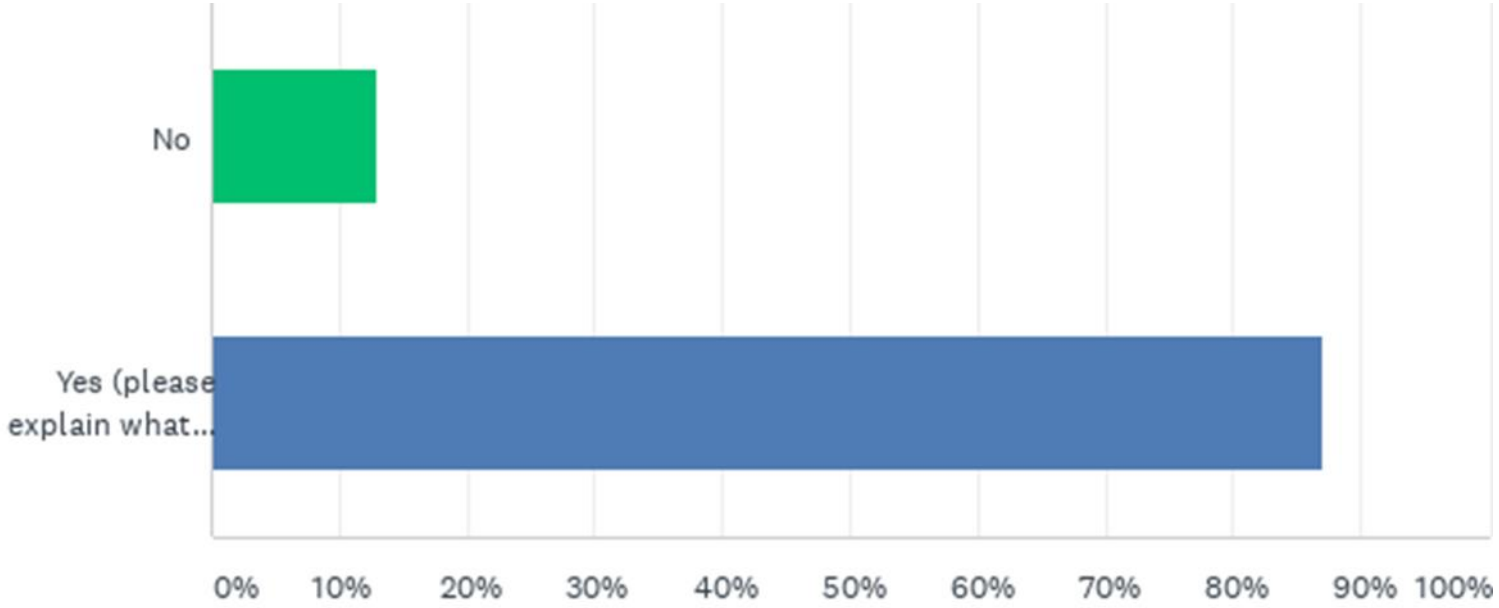

Figure 4: Indication of respondents whether their organisation would like to become involved in the activities of the Partnership.

1.5 Additional Comments

Participants were given the opportunity to provide additional comments. Some of these comments were already included in feedback provided to other questions, but some comments were entailing new elements as well. Table 7 provides an overview of the input received (in case not included in earlier feedback), as well as an indication if the input has been taken into account in the final version of the SRIA, and if yes, how.

Respondent	**Input**	**Incorporation in the SRIA**
De Wit, Thierry, Dutch Ministry of Infrastructure and Watermanagement, the Netherlands	Important to pay attention to the link of this partnership with the CEF programme. Seamless opportunities to apply for CEF funding in scale up projects, after the Horizon Europe partnership phase. In general: also pay attention to scale up financing tools/strategies, which is often bottleneck for new technologies after successful start-up.	Synergies with other programs, like CEF and regional funds are very important to stimulate deployment of the developed solutions. Horizon Europe regulation underlines the role of synergies between different Union programmes which will be highly encouraged and enhanced through the strategic planning process, which will act as a reference framework for R&I support across the Union's budget. Effective and operational synergies will thus be ensured with other Union programmes, notably to develop a more effective science-policy interface and address policy needs, as well as promote faster dissemination and uptake of research and innovation results and to enable the pursuit of common objectives and common areas for activities (such as partnership areas or mission areas). These programmes would include, among others, the common agricultural policy (CAP); the European Regional Development Fund (ERDF); the European Social Fund (ESF+); the European Space Programme; the Single Market Programme; the Programme for Environment & Climate Action (LIFE); the Connecting Europe Facility (CEF); the Digital Europe Programme (DEP); the Erasmus

		Programme; the InvestEU Fund; and the external action instruments (Neighbourhood, Development and International Cooperation Instrument (NDICI) and Instrument for Pre-accession Assistance (IPA III)). Particular attention will be paid to links with the European Semester and the Reform Delivery Tool, including via the Policy Support Facility.
Le Grand, Guillaume, TransOceanic Wind Transport, France	Maritime transport is key to the world's economy. 90% of the world's trade is carried by sea. But it emits 940 M tonnes of CO2 annually and is responsible for 2.5% of global greenhouse gas emissions, and could increase between 50% and 250% by 2050. As part of the EU Green Deal, the EC aims to propose raising GHG cutting target to at least 50% below 1990 levels by 2030, and aims to be globally climate-neutral by 2050. Technical measures are explored in the shipping domain, but it is doubtful they can reach 40 or 55% of CO2 emission reduction. Another option is to greatly limit CO2 emissions levels compared to conventional modes of transport through the use of wind energy. But there is currently no competitive transport by sail offer. TOWT is developing a sailing transport solution for intensive commercial use and for a 90% reduction in CO2 emissions thanks in particular to an innovative rigging. The Smart Sailing Cargo Ship is the result of the experience of sailing transport acquired by TOWT since 2011 with the use of old rigs to carry out the proof of concept, and the technical studies initiated in 2016 with funding from the French environmental and	The transition to zero-emission waterborne transport will indeed consist of a broad range of measures required. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related (policy) initiatives regarding funding and financing to facilitate the transition to zero-emission waterborne transport.

	energy management agency ADEME. The Smart Sailing Cargo Ship will consist of a simple, reliable, inexpensive ship, with a larger tonnage. Given Ms von der Leyen maritime part of her Strasburg opening speech, it seems that "Green Shipping" faces challenges that TOWT's experience may humbly contribute to think through. Our intention is to propose and contribute common thinking regarding leverages to support future public action bearing positive and impacting companies and projects regarding shipping decarbonation and public awareness-raising. It seems Ms von der LEYEN's voice might remain unheard unless incentives for decarbonised shipping initiatives (carbon financing, investment backing, specific tenders) are efficiently implemented. The current health context shows us that the UE both meets a challenge and an opportunity to found itself again, and the Green Shipping Expert Group could fully play its role in its revival, and TOWT is keen to participate within the GSEG.	
Wagner, Jonas, Verband für Schiffbau und Meerestechnik e.V. (VSM)	The SRIA is very elaborated and covers all relevant RDI-topics regarding zero-emission waterborne transport. The R&I strategy is well developed and enables the Partnership to reach its objectives. While it is preferable to incorporate the Partnership into the WTP, it might be helpful - in case there are legal issues that make this option impossible - to prepare to run the Partnership from a dedicated legal entity.	The decision on the governance of the Partnership boils down to strategic decision making by the members of the Waterborne TP, taking into account all inputs received from stakeholders, like the input received from your side. That will also boil down to an appropriate organisational structure and mechanism to be installed, to be able to comply with the criteria laid down to properly execute a Partnership. In the meantime, a decision making regarding the Governance of the Partnership has been prepared for

		the extraordinary General Assembly of the Waterborne TP scheduled for 1 September 2020.
Anonymous	Public and industry outreach needs to be emphasised and the Partnership should strive for a role in policy and regulatory setting at both EU and IMO level. As policy and regulations will be developed concurrently from now on - on this aspect. Simple and readily understandable outreach messaging on decarbonisation of shipping is desperately needed	The transition to zero-emission waterborne transport will indeed consist of a broad range of measures required. The Partnership in the framework of Horizon Europe is focused on Research, Development and Innovation, although it will provide input to relevant related (policy) initiatives to facilitate the transition to zero-emission waterborne transport. In addition, communication and dissemination will indeed be key activities of the Partnership.

Table 7: Additional Comments received

In addition to the comments in table 7, some additional comments were provided highlighting the need for a Partnership on Zero-Emission Waterborne Transport, e.g.:

- "We welcome the SRIA on Zero Emission Waterborne Transport which proposes to radically transform waterborne transport by giving new impetus to European leadership in high value added ships. This will enable the definition of new business models aimed at supporting sustainable growth in the shipping industry and the integration of goods and passenger transport into a seamless solution for shipping, ports and related logistics. In this context, innovation is a key element for the European shipbuilding industry to continue to maintain a global leadership position, demonstrating that it is fully able to handle the greatest technological and environmental challenges of our time";
- "We find it very important that sufficient budget is allocated to this Partnership. The Partnership is key to ensure the success of greening shipping. It will allow the EU to be a world leader in this matter, boost EU jobs and highly benefit society and environment within and beyond the EU";
- "Well-timed project with a tight schedule. We need to find feasible solutions and incentives this decade in order to decarbonise shipping on time";
- "The success of this Partnership is essential for the acceleration of the maritime CO2 and other pollutants reduction";
- "FEPORT fully supports the content and scope of the Waterborne Partnership and considers it appropriate to incorporate the Partnership in the existing structure of the Waterborne Technology Platform. This platform already has an adequate organizational structure in place, and, through its membership, access to a vast network of experts relevant for the decarbonization of waterborne transport, coming from e.g. maritime technology, (maritime) logistics, ports, shipping and inland waterway transport".

1.6 Additional Documents

Participants to the survey were given the opportunity to provide additional documentation, if relevant in view of the finalisation of the first version of the Strategic Research and Innovation Agenda. 15 respondents indicated that they would sent additional documentation, however only 6 additional documents have been received. This document summarizes the content of the documents received, where relevant for the finalisation of the SRIA, as well as the potential update of the SRIA following the comments received.

1.6.1. Secretariat Central Commission for the Navigation of the Rhine (CCNR)

Firstly, the CCNR is conducting a study regarding financing of the energy transition in inland waterway transport, and will continue to look for synergies with the Partnership activities, in order to identify how such results can feed into such activities. Part 4 of the SRIA has been updated, taking into account the relevant activities of the CCNR.

Secondly, the CCNR is developing a roadmap towards largely eliminating emissions from inland navigation by 2050. This roadmap and related initiatives have been referred to in the SRIA, although the targets in the SRIA are slightly different than the ones indicated in the Mannheim Declaration. The same counts for the objectives of the International Maritime Organisation regarding GHG emissions from maritime shipping. This is caused by the fact, that both the Mannheim Declaration as well the initial strategy of the IMO were launched before the European Green Deal, which is the starting point of the Partnership. The Partnership is a key tool to develop solutions to be able to achieve the objectives of the European Green Deal, the overarching policy objective of the current European Commission. That does however not exclude, that solutions will be developed which will contribute to the implementation of the objectives of the Mannheim Declaration.

Thirdly, the CCNR Secretariat calls for different intermediate emission reduction objectives for inland waterway transport and maritime transport, due to different emission baselines. Although this might be relevant for development of a policies, the aim of the Partnership is to execute Research, Development and Innovation to be able to deliver solutions for zero-emission waterborne transport before 2030. Indeed, some of the objectives of the Partnership entail concrete emission reduction objectives, which have been agreed upon between the European Commission Services and the Waterborne Technology Platform when developing the Final Draft Proposal.

Fourthly, the CCNR Secretariat emphasizes the need for synergies between the maritime and the inland waterway transport sectors while remaining aware of the differences between the two modes. This is indeed fully relevant, and has been the starting point for the development of the Partnership, and ultimately has led to the fact that the name "waterborne transport" is commonly used nowadays. The differences will indeed be taken into account where relevant. This is emphasized by the fact that the Partnership entails the following specific objective: "To develop solutions for clean and climate-neutral, climate-resilient **inland waterway vessels before 2030"**.

Finally, the CCNR Secretariat stresses the fact that Inland Waterway Transport could be further included in the part regarding the international character of the waterborne transport sector, which has been taken into account in Part 1.

1.6.2. Royal Association of Netherlands Shipowners (KVNR)

In general, KVNR provides a number of supporting statements for the need of a Partnership, and highlights a number of key aspects. Besides, a number of remarks made have been included in this paragraph.

Firstly, KVNR emphasizes the need for a broad range of measures needed to facilitate the transition to zero-emission waterborne transport. Beside the urgent need for Research, Development and Innovation, the need for government policies and (financial) incentives is underlined.

Finally, regarding the Implementation Pathways, KVNR highlights that in case the OPEX goes down due to the initial investment (CAPEX) that might be a better business case with a better fit for the environment. This has been included in Part 2.

1.6.3. Background documents received

In addition to the two aforementioned contributions, a number of background documents have been received, which provide useful information for the execution of the Partnership:

- European Boating Industry, Position Paper “Environmental sustainability of recreational boating industry”;
- International Windship Association, detailed analysis of the added value of wind propulsion issues;
- French Ministry of National Education, Higher Education, Research and Innovation, “Contrat Stratégique de Filière Industriels de la Mer;
- Koninklijke BLN – Schuttevaer, the national (Dutch) “Green Deal Inland Shipping”