Dissemination and exploitation plan 1st version

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Approved by Peer reviewer	**CTI – Chrysostomos Stylios**	**31.03.2017**

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Date (dd.mm.yyyy)	Revision version	Author	Comments
16.03.2017	**V1**	**Lucia Ramundo**	**Initial Table of Content (ToC) and document structure, Dissemination plan**
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1. Introduction and scope of the deliverable

1.1. Scope

This deliverable is part of LINCOLN WP6 "Dissemination and Exploitation". The main objective of WP6 is to disseminate the project results to raise awareness of the initiative among stakeholders and to exploit the project results in the academic, research environments and in the technological and maritime markets.
The objectives of the dissemination are to find and use appropriate means to disseminate LINCOLN results to both scientific and industrial communities and to promote and disseminate LINCOLN results during the entire project, both in terms of RTD results and of design community awareness. The promotion will be focused on informing the scientific and industrial users in the most progressive and advanced approaches and technologies of the potential possibilities and benefits from LINCOLN.
Traditional channels, such as publishing articles in scientific journals and visiting conferences, will be utilized to share the LINCOLN results, but also popular fairs and exhibitions in the field of marine sector are valuable multipliers, as well as significant dissemination platforms and community events. Through a suitable dissemination channel large, medium, and small companies can be addressed and enrich their knowledge and practices.

LINCOLN project addresses societal challenges and industrial problems through innovative solutions.
Through this exploitation plan, the consortium expects to exploit all the results, technologies, knowledge and best practices acquired through the implementation of the project.
The exploitation activities are divided into:

- Natural exploitation: Development of individual exploitation plans to be implemented by multiple partners supporting each other in order to maximize efficiency and success.
- Proactive exploitation: definition of the key innovative solutions expected to be developed in LINCOLN.

1.1.1. Natural exploitation

The new knowledge developed in LINCOLN is meant to be used, first of all, by the involved partners in their own business or to do consultancies to third parties, while the involved universities will use the developed concepts within their courses, allowing their diffusion among the new generations.
This knowledge will be gathered in a professional skills and vocational training development plan with the aim to increase the professional skills of workers and the capability of European industry and in particular SMEs within the marine and maritime sectors to develop and commercialise specialised vessels and related technology. This plan will be developed following the conclusions and achievements of the project. It will identify the training needs in the sector and will gather together all information necessary for SMEs and workers to implement new data and concepts. It will be available online and each partner will share it with the interested members of its business network.
The **Exploitation Manager** (CTN) has been identified among the partners for its experience in managing and supporting partners exploiting results in the maritime sector. In order to better address the exploitation of the technological solutions, created during LINCOLN activity, in their markets, the consortium has decided to appoint, beside the Exploitation Manager, an Innovation Manager, better described in section 3.2.2. Based on the expected outputs, the partners already elaborated initial exploitation plans as well as individual business plans, on how to exploit the results of the project. These plans have to be elaborated in more detail, refined and updated in the course of the project, even if it is possible to identify at this stage some general issues:

• **The industrial partners** will get a novel specialized concept vessel in a pre-commercial stage and they will count on new innovation driven design and production processes that will allow for customised

and knowledge-intensive products based on lean methodology. This will give them a clear competitive edge in the market.

• **The technological providers** will get new digital solutions and IoT tools to be re-used after the project, based on the models, tools and platforms to be developed in LINCOLN.

• **The research institutions** will get new knowledge which will be exploited not only to their benefit themselves but also for the benefit of other stakeholders, such as their customers or members of their consortia, and finally of the whole society.

1.1.2. Proactive exploitation

This stepwise approach will be based on several coordinated activities that will span throughout the duration of the project. The main idea is that LINCOLN's outcomes will materialize in new standard, methods, tools, management practices and systems, which can be called Innovative Exploitable Assets (IEA), and that each IEA could be seen as a "product" to be launched on the market. Hence, the proactive exploitation activities will be:

- Business and management practices situational assessment.
- Identification of the innovative exploitable assets of the project, whether these are technological components or business services.
- Conduction of a thorough market analysis (which will comprise of an initial and a final analysis) which will aim at the identification of the market towards which LINCOLN is targeted, its segmentation, the positioning of current competitors and all corresponding emerging trends.
- Documentation of an analytical IPR management strategy based on the principles outlined in the project which will guide the joint and individual exploitation capabilities of the project partners.
- Analytical definition of all possible commercial and non-commercial exploitation models.
- Analytical definition and evaluation of the sustainability and viability of possible business models and alternative solutions that may be followed for the provision of the project solution and services to the identified stakeholders, including licensing schemes, pricing, etc.
- Validation of the aforementioned exploitation activities through the LINCOLN demonstrators and showcases.

These proactive exploitation activities will force the partners to anticipate the final exploitation of LINCOLN's outcomes in a very early phase, to focus on the most innovative and value creating assets that will be developed, and to define a specific exploitation strategy for each one. Each strategy will then reinforce the individual exploitation plans of the partners.

1.2. Objectives

The main objective of this deliverable "Dissemination and exploitation plan 1st version" is to describe the planned dissemination and exploitation activities to ensure that:

- various target groups are aware of the LINCOLN project: create public awareness and generation of scientific interest;
- industry and other experts in the field across Europe are consulted and interested stakeholders are informed about the LINCOLN project;
- various target groups are aware of the activities and results of the LINCOLN project;
- benefits are promoted and their exploitation is fostered in order to maximise the impacts of the project on all stakeholders.

To this aim, LINCOLN will be presented at various relevant events, such as conferences, trade fairs and seminars, and will set up standard dissemination channels, such as papers on scientific and technical journals and conferences.

2. Definition of the Dissemination and Exploitation plan

2.1. Objectives of the Dissemination and Exploitation plan

- ***Dissemination***

The main objective of the dissemination plan is to ensure that relevant target groups, end users and the general public are informed about the project outputs and that exploitation of the results and market uptake can be initiated. The main activities include standard dissemination activities to raise awareness of the initiative among key actors and specific target groups on different levels in the sector and at a broader European level.

The Dissemination plan will:

- define the dissemination activities to be carried out;
- define objectives of dissemination activities;
- identify and define target groups;
- define dissemination tools and elaborate about their usage;
- exemplify dissemination work plans and provide the backbone for partner-specific work plan on a more detailed level.

Although POLIMI is responsible for the dissemination task, and CTN is responsible for the exploitation task, support from all project partners is necessary. All consortium members have a role in dissemination and interaction with stakeholders and media through their forums at regional/national/international level, at relevant seminars, trade fairs, exhibitions, conferences etc., and it is the task of WP6 to coordinate these activities. All project partners will be responsible to provide POLIMI with technical information input when requested and to keep POLIMI informed about the progress of the project. All partners will keep a track record of the dissemination activities that have been carried out by them at regional level during the project.

The promotion will be focused on informing the research, scientific, industrial audience and general public in the most progressive and advanced approaches and technologies of LINCOLN. The nature and the range of applicability of the LINCOLN results will be considered during dissemination, since the different audiences targeted will be approached accordingly to their characteristics and needs.

Next sections will give a brief overview of the key target segments for dissemination activities, as well as the key messages and key methods and tools to be applied.

- ***Exploitation***

A first iteration of the LINCOLN Exploitation plan has been developed and implemented. This plan will be further developed throughout project implementation, with the second iteration on M18 of the LINCOLN Project (Deliverable D6.4 Dissemination and exploitation plan 2nd version) until the final version is presented on M36 (Deliverable D6.5 Dissemination and exploitation final report).

The first step of the LINCOLN Exploitation carried out was to **appoint an exploitation responsible for each partner**, which resulted in the table shown below. By defining a responsible person for each partner, a better coordination was achieved. Later on, partners were **asked by the Exploitation Manager to involve the responsible of the marketing area** of their organization, in case both exploitation responsible and marketing responsible were not the same person, in order to accomplish a more realistic and market oriented exploitation of the results.

Partner	Exploitation responsible
POLIMI	**Lucia Ramundo**
CTN	**Noelia Ortega**
HUBSTRACT	**Alessandra Silvestri**
TECHNOPRO	**Gonzalo Rodriguez**

Partner	Exploitation responsible
BIBA	**Moritz von Stietencron**
HOLONIX	**Dena Arabsolgar**
SINTEF	**Carl C. Røstad**
CINECA	**Claudio Arlandini**
HYDROLIFT	**Chris Haarbye**
Super Toys	**Vasilis Mentogiannis**
INVENTAS	**Torgeir Bratane**
TOI	**Gabriele Montelisciani**
CTI	**Chrysostomos Stylios**
BALANCE	**Markus Lehne**
ARESA	**Oriol Lpez**
CETRI	**Souzanna Sofou**

Table 1: Individual exploitation responsible

The following step was to revise the expected exploitable results defined by the partners on the Grant Agreement and the previous suggested strategy, to later develop the full exploitation strategy and plan of the project results.
At the same time, in order **to identify the expected results**, it was necessary to review every mention to potential products and services on the Grant Agreement and the current work and documents generated by the consortium on WP2 and the exploitation questionnaires passed by the partners. This thorough study resulted in the elaboration of the tables on section 4 of this document, which comprises every potential product or service, the partner responsible or owner of the result, and potential customers.

Currently, the **Exploitation Manager is carrying out an exploitation questionnaire**, which aims to support the joint exploitation activities. Each partner must fill in the questionnaire to identify initial exploitable results. As mentioned previously, the results of the questionnaires are included in Section 4 of this document.
The **questionnaire will be accompanied with a one-to-one meeting** between the partner and the Exploitation manager **if requested,** in order to complete any missing information.
Furthermore, **meetings are organized between CTN (Exploitation Manager) and HOLONIX (Innovation Manager) with the objective to review and further define the different strategies** concerning the exploitation of the LINCOLN results. During the meeting, some important issues regarding the exploitation strategy must be addressed, such as:

- IPR aspects from consortium agreement (set an IRP management strategy based on the principles outlined in the project which will guide the joint and individual exploitation capabilities of the project partners)
- Exploitation plan intention of each partner
- Analytical definition of all possible commercial and non-commercial exploitation models
- Development of both the consortium and individual business plans (set guidelines, define objectives)

Moreover, **Exploitation Manager will coordinate all partners to further develop and consolidate the consortium and individual business model and business plan.**

The Exploitation Manager will take into account the constraints from previous exploitation plans of projects which were funded by the EU, such as BOMA and High Sea Fortissimo, in order to implement a successful exploitation plan.
Other activities have to be addressed at the same time, such as the analytical definition of all possible commercial and non-commercial exploitation models and the analytical definition and evaluation of the sustainability and viability of possible business models and alternative solutions that may be followed for

the provision of the project solutions and services to the identified stakeholders, including licensing schemes, pricing, etc.

2.2. Target audience

To adequately plan the dissemination activities, the main target groups and end users have to be identified. Once the groups have been identified, for each of them their specific requirements, background and fields of interest and expectations concerning the outputs of LINCOLN have to be defined. This also means that there is no "one-fits-all" solution, in terms of dissemination modes. To select an appropriate mix of dissemination modes and efforts, a stakeholder analysis is planned.
It is possible to cluster the audience in 4 main groups: (i) industry community; (ii) research and academia community; (iii) policy makers and (iv) public at large and NGOs.

2.3. Analysis of the LINCOLN results market sectors

A thoughtful analysis of the market sectors for the LINCOLN results will be carried out in order to prove the potential marketability of each product and service. The **market analysis** found on this draft deliverable is a **first version**. A further market analysis will be developed for the 2nd version of Dissemination and exploitation plan due on M18.

i. Multi-platform catamaran

From market point of view, the Technopro vessel proposal is justified by the following numbers in the target sectors:

Ocean energy market.

In the Ocean energy sector, wind farms have a very high growth perspective. This is proved by the previsions to increment the power installed, as reported by Lloyd's Register of Shipping analysis[1]. We can foresee that the demand of vessels assisting these installations will rise. Despite the name "Off Shore", the majority of vessels that operate this kind of installations are coastal. A proof of this is the average distance from the coast to these installations and the depth of the sea, at the points where the platforms are.

Aquaculture market.

Different reports show the strength of the growth of the aquaculture production at worldwide level. According to the "The future of European aquaculture" - 114º Plenary session of the days 12th, 13th and 14th of October of the year 2015 "*70% of the fish and shellfish consumed in the EU are imported. As a consequence of this, aquaculture is meant to be the answer to the rising of the global demand of fish and shellfish*".

The growth perspectives of the sector, reported by FAO[2], show a strong growth of the aquaculture sector for the next years also in Europe.

ii. Module based high speed patrol boat platform

The Hydrolift case in LINCOLN is focusing on how to build on the experiences from the Hydrolift RS11 concept for Rescue and Salvage boat (a R&D project financed by the Norwegian Research Council) and create an advanced adaptive platform for four specific market segments (Patrol vessels, rescue vessels, pleasure boats and daughter crafts) enabling customization in the ranges 8-15 meters boats.

[1] Shipbuilding in Specialised Markets: Global Trends&Future Outlook. 21st May 2015. Mark D R Darley – VP and South Asia Area Manager

[2] FISH TO 2030 - Prospects for Fisheries and Aquaculture, WORLD BANK REPORT NUMBER 83177-GLB

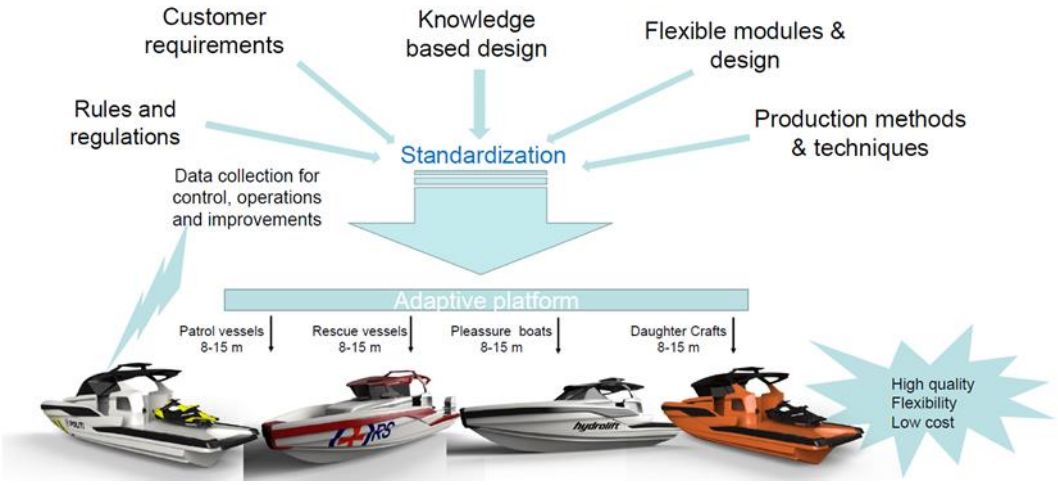


Figure 1 The four market areas of adaptive platform with technologies and support systems

This case affects both the range that can be offered, but also have wide **impacts on after-sales service**. As for the range, the service offerings are dependent on LINCOLN developed technical solutions.

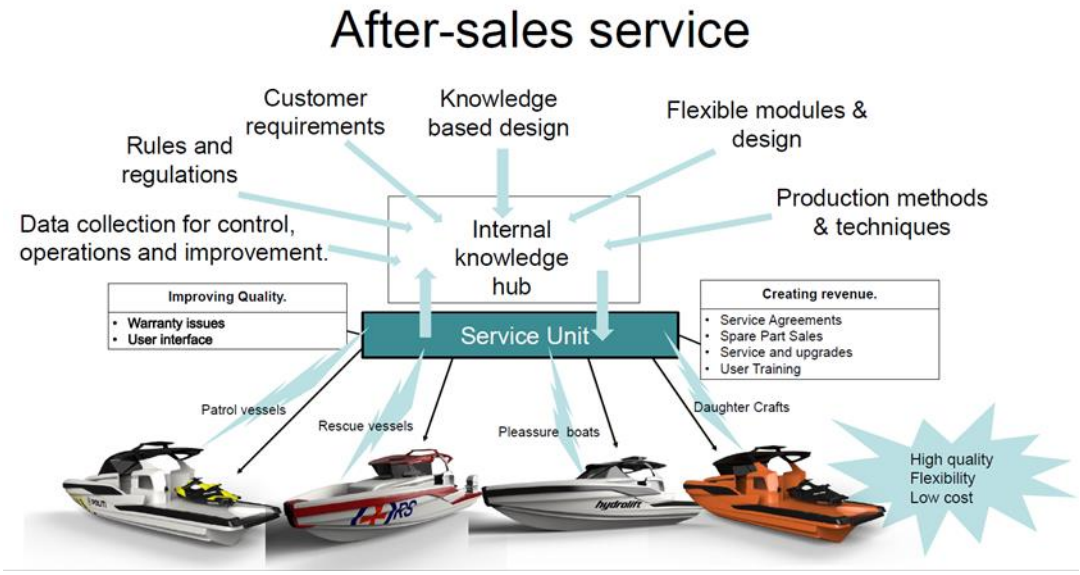


Figure 2 The adaptive platform with LINCOLN developed technologies focusing on Vessel as a service-concept

The latter are focusing on **being first in the market to offer "Vessel as a service"** that includes cost, maintenance and a full lifecycle service agreement. Customer value examples for e.g. the 20 different police boats around the Oslofjord that represent an acquisition value of 50 million NOK shows that total annual fleet cost results in a NOK 3000 per hour cost for each vessel of operations. The vessel as a service-concept shows that for delivering the same capabilities, the resulting cost is 1850 NOK per hour of operation. I.e., just for the coastal operations for the police in the Oslofjord, we are looking at **40% savings in operation costs**.

Hydrolift estimates the market of the proposed solution to be as follow:

- Norwegian annually market of new patrol vessels of 8 –15 meters of length: 20 pcs. = NOK 120 million

- Nordic annually marked of new patrol vessels of 8 –15 meters of length: 80 pcs. = NOK 420 million
- Worldwide annually market of new patrol vessels of 8 –15 meters of length: 500 pcs. = NOK 3 000 million

Hydrolift defined targets are:

- Norwegian annually market of new patrol vessels of 8 –15 meters of length: 5 pcs. = NOK 30 million(25%)
- Nordic annually market of new patrol vessels of 8 –15 meters of length: 10 pcs. = NOK 52,5 million(10%)
- Worldwide annually market of new patrol vessels of 8 –15 meters of length: 15 pcs. = NOK 90 million(3%)

The cash flow diagram and a preliminary project gantt are also reported here, showing a full compatibility with the LINCOLN project time schedule.

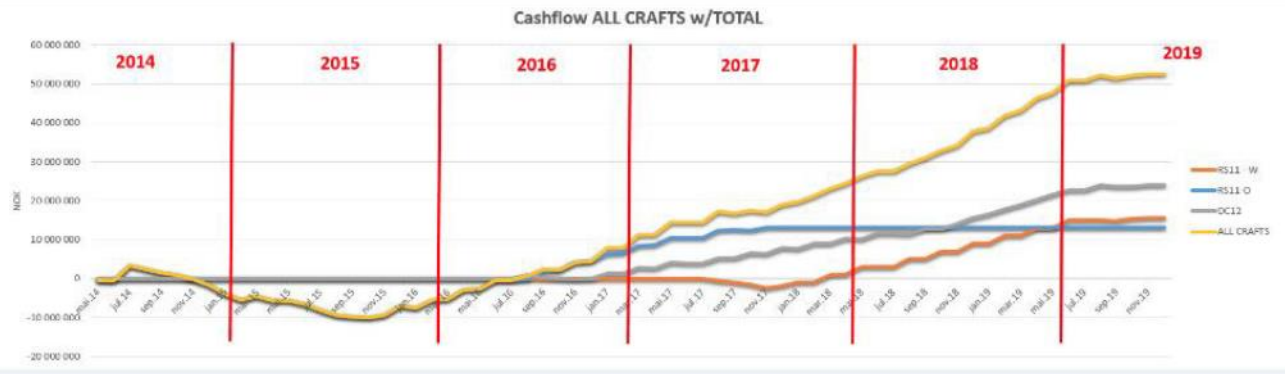
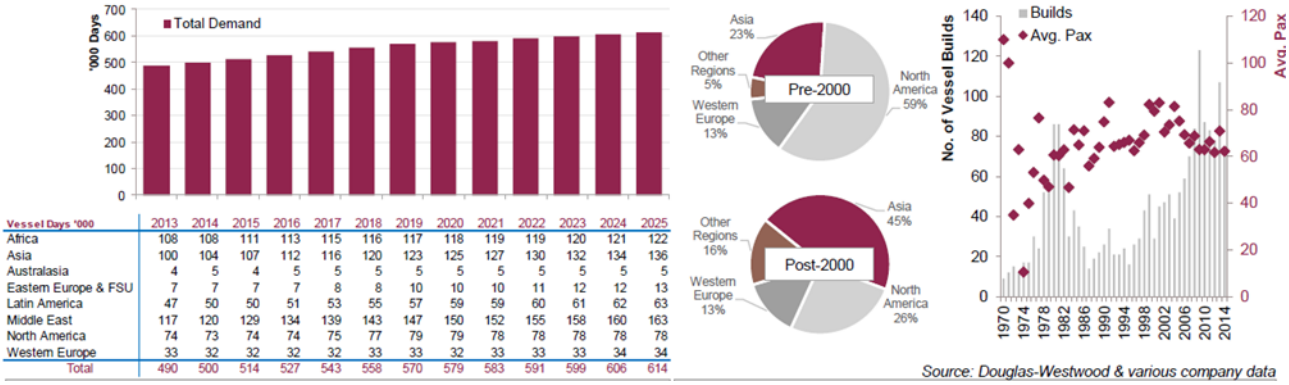


Figure 3 Cash flow of the Module based high speed patrol boat platform

iii. EERV (Emergency Response and Rescue Vessel) vessels series

Compared to the previous cases' markets, the crew boat/ERRV (Emergency Response and Rescue Vessel) market is less subject to industry cyclicality given the greater exposure to longer term life of field contracts with an average age of the operational fleet of 15.7 years and a relatively consolidated supply chain. Main customers are in fact Coast Guards and other military corps.

The market is then more traditional and more interested in technological innovation rather than new business model implementation. Anyway, because of the socio-political situation in the Mediterranean Sea and immigrants flows, there is currently a higher need for new and innovative ERRV boats.



Vessel Days '000	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Africa	108	108	111	113	115	116	117	118	119	119	120	121	122
Asia	100	104	107	112	116	120	123	125	127	130	132	134	136
Australasia	4	5	4	5	5	5	5	5	5	5	5	5	5
Eastern Europe & FSU	7	7	7	7	8	8	10	10	10	11	12	12	13
Latin America	47	50	50	51	53	55	57	59	59	60	61	62	63
Middle East	117	120	129	134	139	143	147	150	152	155	158	160	163
North America	74	73	74	74	75	77	79	79	78	78	78	78	78
Western Europe	33	32	32	32	32	33	33	32	33	33	33	34	34
Total	490	500	514	527	543	558	570	579	583	591	599	606	614

Figure 4 Market for EERV vessel series

Moreover, if we look at the global market situation, with the exception of the largest vessels, the majority of the construction activity is highly localized, due to relatively high mobilisation expenses as a proportion

of total cost. As showed in Figure 4, pre-2000 North America accounted for 59% of crew boats, workboats and ERRV new builds, but Asia has since taken an increasing share of construction with 45%. Luckily, Europe has maintained its share of 13% of the market pre- and after-2000, but it has to be aware of the Chinese competition and face it.
Even if this category of ERRVs is expected to show a lower growth profile comparing to previous presented sectors (due to its exposure to the life of field market), the demand for crew boats / EERVs globally is expected to increase by 23% over 2014-2025[1].

iv. IT solutions

Due to the complexity of the IT systems involved and developed in LINCOLN Project, a more exhaustive market study is necessary; for this reason, for this first iteration of the dissemination and exploitation plan, IT solutions market study cannot be evaluated yet. A first version of the IT solutions market study will be included in the 2nd version of the Dissemination and exploitation plan [M18].

3. Planned partners dissemination activities

In this Section, all the **individual dissemination** activities proposed **by LINCOLN partners**, for the first 18 months (from October 2016 to March 2018) are reported, except for Hubstract, whose role and expertise is to manage the communication of the project, thus without direct interest in the dissemination activity. Each paragraph is referred to a partner, and in parenthesis the target audience is identified.

[1] [5] Offshore Vessel, Mobile Offshore Drilling Unit & Floating Production Unit Market Review, December 2014

3.1. ARESA dissemination plan (Vessel producers)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition/Fair	ARESA - Oriol Lopez	Sea Work Exhibition	http://www.seawork.com/	June 2017	Southampton, UK
Conference	ARESA - Oriol Lopez	Wind Farm Support Vessels 2017 conference	https://www.rina.org.uk/WFSV_2017.html	29-30 March 2017	London, UK
Exhibition/Fair	ARESA - Oriol Lopez	Oceanology international 2018 exhibition	http://www.oceanologyinternational.com/	13-15 March 2018	London, UK
Exhibition/Fair	ARESA - Oriol Lopez	NOR-FISHING	http://www.nor-fishing.no/?lang=en	21. - 24. August 2018	Trondheim, Norway

3.2. Balance dissemination plan (Consultancy)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Own homepage	BAL - Stephan Wurst	Short description of the LINCOLN project with an emphasis on the BAL contribution	http://www.bal.eu	31/03/2017	

3.3. BIBA dissemination plan (Research Centre)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Participation in a conference	BIBA - Moritz von Stietencron	APMS 2017	http://www.apms-conference.org/	set-17	Hamburg
Participation in a conference	BIBA - Moritz von Stietencron	APMS 2018	http://www.apms-conference.org/	2018	
Participation in a conference	BIBA - Moritz von Stietencron	PLM 2017	http://www.plm-conference.org/	lug-17	Sevilla
Participation in a conference	BIBA - Moritz von Stietencron	PLM 2018	http://www.plm-conference.org/	2018	
Participation in a workshop	BIBA - Moritz von Stietencron	METS 2017	https://community.metstrade.com/	nov-17	Amsterdam
Participation in a workshop	BIBA - Moritz von Stietencron	METS 2018	https://community.metstrade.com/	2018	Amsterdam
Exhibition	BIBA - Moritz von Stietencron	BOOT 2017	http://www.boat-duesseldorf.com/	gen-17	Dusseldorf
Exhibition	BIBA - Moritz von Stietencron	BOOT 2018	http://www.boat-duesseldorf.com/	gen-18	Dusseldorf

3.4. CETRI dissemination plan (IT Developer)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/ Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
own homepage	CETRI -Dr Souzanna Sofou		http://www.cetri.net/rd/projects/		
other (Innovation forum/ exhibition area)	CETRI -Dr Souzanna Sofou	Hellenic Innovation Forum	http://hif.ethosevents.eu/homepage	1st and 2nd of March 2017	Athens, Greece
Participation in a conference	CETRI -Dr Apostolis Chondronasios	ICMDE 2018 : 20th International Conference on Marine Design Engineering	https://www.waset.org/conference/2018/01/paris/ICMDE/home	25-26 January 2018	Paris, France
Participation in a conference	CETRI -Dr Apostolis Chondronasios	ICMT 2018 : 20th International Conference on Maritime Transport	https://waset.org/conference/2018/11/venice/ICMT/home	12-13 November 2018	Venice, Italy

3.5. CINECA dissemination plan (Research Centre)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Participation in a conference	CINECA / Raffaele Ponzini	CAE Conference	http://www.caeconference.com/	20-21/11/2017	Vicenza (Italy)
Organisation of a workshop	CINECA /Claudio Arlandini	PRACE HPC Methods for Engineering Applications	https://events.prace-ri.eu/event/587/	19-21/6/2017	Milan (Italy)

3.6. CTI dissemination plan (Research Centre)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Own homepage	CTI-Chrysostomos Stylios		http://www.westgate.gr/		
Regional Exhibition	CTI-Chrysostomos Stylios	Patras IQ	http://www.patrasiq.gr/index.php	7-9 April 2017	Patras
International Conference	CTI-Chrysostomos Stylios	60th MTS/IEEE Oceans'17 : A VISION FOR SUSTAINING OUR MARINE FUTURES	http://www.oceans17mtsieeeaberdeen.org	19-22 June 2017	Aberdeen, UK
International Conference	CTI-Chrysostomos Stylios	18th Working Conference on Virtual Enterprises	http://www.pro-ve.org	18-20 September 2017	Vicenza, Italy

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
International Conference	CTI-Chrysostomos Stylios	2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC2017)	http://www.smc2017.org	Octob 5-7, 2017	Banff, Canada
International Conference	CTI-Chrysostomos Stylios	ICMSE 2018 : 20th International Conference on Marine Science and Engineering	https://www.waset.org/conference/2018/06/london/ICMSE/home	Jun 28-29, 2018	London
Regional Exhibition	CTI-Chrysostomos Stylios	Patras IQ	http://www.patrasiq.gr/index.php	April 2018	Patras

3.7. CTN dissemination plan (Research Centre)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition/Fair	CTN - Jordi Solé/ Mª Ángeles Garcia	Oceanology international 2018 exhibition	http://www.oceanologyinternational.com/	13-15 March 2018	London
Conference	CTN - Jordi Solé/ Mª Ángeles Garcia	Wind Farm Support Vessels 2018 conference	https://www.rina.org.uk/WFSV_2017.html	1st trimester 2018	London
Exhibition/Fair	CTN - Jordi Solé/ Mª Ángeles Garcia	Sea Work Exhibition	http://www.seawork.com/	June 2017	Southampton

3.8. Holonix dissemination plan (IoT developers)

GENERAL INFORMATION					
TYPE [1]	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition/fair	HOLONIX	METS 2017	http://www.metstrade.com/mets/	2018	Amsterdam
Exhibition/fair	HOLONIX	METS2018	http://www.metstrade.com/mets/	2018	Amsterdam
Exhibition/fair	HOLONIX	BOOT2018	http://www.boat-duesseldorf.com/	January 2018	Duesseldorf
Exhibition/fair	HOLONIX	Salone nautico di Genova	http://salonenautico.com	21-26 September 2017	Genova
Conference: Presentation of a white paper	HOLONIX	UCINA - SATEC2017	www.ucina.it, www.ucina.net/it/servizi-ai-soci/eventi/satec	around june 2017	Genova

3.9. Hydrolift dissemination plan (Vessel Producers)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition	Hydrolift	Sjøen for alle 2017	http://sjoenforalle.no/	22-26 March 2017	Oslo
Exhibition	Hydrolift	Sjøen for alle 2018	http://sjoenforalle.no/	March 2018	Oslo
Exhibition	Hydrolift	BOOT 2018	http://www.boat-duesseldorf.com/	January 20-28	Dusseldorf
Exhibition	Hydrolift	METS 2017	http://www.metstrade.com/mets/	November 14-16	Amsterdam
Exhibition	Hydrolift	METS 2018	http://www.metstrade.com/mets/	N.A. (November)	Amsterdam
Conference	Hydrolift	HSBO 2018	http://hsbo.org/hsbo-2016/	N.A. (May)	Gothenburg
Exhibition	Hydrolift	Seawork Int. 2017	http://www.seawork.com/	June 13-15	Southampton

Exhibition	Hydrolift	Seawork Int. 2018	http://www.seawork.com/	N.A. (June)	Southampton
Exhibition/Conference	Hydrolift	Norshipping	http://www.nor-shipping.com/	May-June 30-02	Oslo

3.10. Inventas dissemination plan (Vessel Designers)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition	Inventas, Torgeir Bråtane	METS 2017	http://www.metstrade.com/mets/	14-16.11.17	Amsterdam

3.11. Polimi dissemination plan (Academia)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Conference	Polimi - Monica Rossi	PLM2017	http://www.plm-conference.org/	9-12 July 2017	Seville, Spain
Conference	Polimi - Monica Rossi	CIRP Design 2018		May 2018	TBA
Conference	Polimi - Rossella Luglietti	CIRP LCE 2018		TBA	Copenhagen, Denmark
Conference	Polimi - Monica Rossi	Design Society 2018	http://www.designconference.org/	21-24 May 2018	Dubrovnik, Croatia
Conference	Polimi - Brendan Sullivan & Monica Rossi	PLM2018	http://www.plm-conference.org/	TBA	TBA
Workshop	Polimi - Brendan Sullivan	PhD on the Go	http://phdonthego.unisa.it/	4-5 May 2017	Salerno, Italy
Workshop	Polimi -Brendan Sullivan	Summer School F. Turco - Industrial Systems Engineering	http://www.summerschool-aidi.it/	13-15 September 2017	Mondello, Palermo, Italy

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Conference	Polimi - Brendan Sullivan	25th INTERNATIONAL CONFERENCE ON SYSTEMS ENGINEERING	http://www.icseng.com/	22-24 August, 2017	Las Vegas, NV USA
Conference	Polimi - Brendan Sullivan & Monica Rossi	IISE 2018	http://www.iise.org/Annual2/	TBA	TBA
Conference	Polimi - Brendan Sullivan	INCOSE International Conference 2018	http://www.incose.org/symp2018	7-12 July, 2018	Washington D.C. USA
Conference	Polimi – Lucia Ramundo	METS 2017	https://community.metstrade.com/	Nov 14-16 2017	Amsterdam
Conference	Polimi – Lucia Ramundo	METS 2018	https://community.metstrade.com/	N.A. 2018	Amsterdam
Conference	Polimi – Lucia Ramundo	TRA2018	http://www.traconference.eu/	16-19 April, 2018	Vienna
Conference	Polimi – Lucia Ramundo	IMAM2017	http://www.imamhomepage.org/	Conference	Polimi – Lucia Ramundo

3.12. Sintef dissemination plan (Research Centre)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Participation in a conference	SINTEF-Bjørnar Henriksen	APMS 2017	http://www.apms-conference.org/	Sept 3-7th, 2017	Hamburg
Participation in a conference	SINTEF-Bjørnar Henriksen	APMS 2018	http://www.apms-conference.org/	N.A. 2018	N.A.
Participation in a conference	SINTEF-Bjørnar Henriksen	PLM 2017	http://www.plm-conference.org/	July 9-12, 2017	Sevilla

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Participation in a conference	SINTEF-Bjørnar Henriksen	PLM 2018	http://www.plm-conference.org/	N.A. 2018	N.A.
Participation in a workshop	SINTEF-Bjørnar Henriksen	METS 2017	https://community.metstrade.com/	Nov 14-16 2017	Amsterdam
Participation in a workshop	SINTEF-Bjørnar Henriksen	METS 2018	https://community.metstrade.com/	N.A. 2018	Amsterdam
Exhibition	SINTEF-Bjørnar Henriksen	BOOT 2018	http://www.boat-duesseldorf.com/	Jan 20.-28 2018	Dusseldorf
Exhibition	SINTEF-Bjørnar Henriksen	Sjøen for alle 2017	http://sjoenforalle.no/	May 22-26 2017	Lillestrøm
Exhibition	SINTEF-Bjørnar Henriksen	Sjøen for alle 2018	http://sjoenforalle.no/	N.A. 2018	Lillestrøm
Participation in a conference	SINTEF-Bjørnar Henriksen	Vareproduksjonsdagene 2018	http://www.forskningsradet.no/prognett-bia/Forside/1226993636050	Jan 2018	Sundvolden

3.13. Supertoys dissemination plan (Vessel Producers)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
EXHIBITION	SUPER TOYS - VASILIS MENTOGIANNIS	Boat Duesseldorf	http://www.boatduesseldorf.com	20-28/1/2018	Duesseldorf
EXHIBITION	SUPER TOYS - VASILIS MENTOGIANNI	Posidonia	www.posidonia-events.com.	4-8/6/2018	ATHENS

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
EXHIBITION	SUPER TOYS - VASILIS MENTOGIANNI	Athens International Boat Show	www.athensboatshow.gr	30-4/11/2017	ATHENS
PRESENTATION-CONFERENCE	SUPER TOYS - VASILIS MENTOGIANNI	Hellenic Coast Guard Headquarters'	http://www.hcg.gr	not yet ready	PIRAEUS
PRESENTATION-CONFERENCE	SUPER TOYS - VASILIS MENTOGIANNI	Ministry of National Defense	http://www.mod.mil.gr/mod/en/	not yet ready	ATHENS

3.14. TPH dissemination plan (Vessel Designers)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Fair	TECHNO PRO - Gonzalo Rodríguez Bustelo	SeaWork 2017	http://www.seawork.com/	13-15 June 2017	Southampton, UK

3.15. TOI dissemination plan (IT developers)

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition	TOI	Embedded World	https://www.embedded-world.de/en	14-16/ 03/2017	Nuremberg (DE)
Exhibition	TOI	IoT Tech Expo Europe	https://www.iottechexpo.com/europe/	1-2 June 2017	Berlin

GENERAL INFORMATION					
TYPE	**Responsible (Partner/Responsible people)**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition	TOI	World Maker Faire New York	http://makerfaire.com/new-york/	23-24/ 09/2017	New York (US)
webpage	TOI	Dedicated Webpage for description of LINCOLN-project Zerynth application	www.zerynth.com	M12	www.zerynth.com
Social Media	TOI	Webpage promotion via Linkedin, FB, Twitter	Social Channels	M12-M13	Social Channels
Conference	TOI	Embedded System Conference	http://escsiliconvalley.com/	6-7/12/2017	San Jose (CA, USA)
Exhibition	TOI	IoT Tech Expo North America	https://www.iottechexpo.com/northamerica/	29-30/11/2017	Santa Clara (CA, USA)
non-scientific non-peer reviewed publication	TOI	White paper about Zerynth on a IoT nautical monitoring device	www.zerynth.com	M18	www.zerynth.com
IoT-related academic conference	TOI	To be Defined	To be Defined	Expected by M18	To be Defined
Exhibition	TOI	Embedded World	https://www.embedded-world.de/en	M18	Nuremberg (DE)

3.16. Joint dissemination plan

The following table resumes the events where several partners will participate.

GENERAL INFORMATION					
TYPE	**Participant partners**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**
Exhibition/Fair	BIBA/ Hydrolift/ Inventas/ Sintef/Holonix	METS 2017	https://community.metstrade.com/	01/11/2017	Amsterdam
Exhibition/Fair	BIBA/ Hydrolift /Sintef	METS 2018	https://community.metstrade.com/	2018	Amsterdam
Exhibition/Fair	BIBA/ Hydrolift/Sintef/Super Toys	BOOT 2018	http://www.boat-duesseldorf.com/	January 2018	Dusseldorf
Conference	BIBA/POLIMI/SINTEF	PLM 17	http://www.plm-conference.org/	July 2017	Sevilla
Conference	BIBA/POLIMI/SINTEF	PLM 18	http://www.plm-conference.org/	2018	
Conference	BIBA/SINTEF	APMS 2017	http://www.apms-conference.org/	September 2017	Hamburg
Conference	BIBA/SINTEF	APMS 2018	http://www.apms-conference.org/	2018	
Exhibition/Fair	CTN/TPH	SEAWORK 2017	http://www.seawork.com/	June 2017	Southampton
Conference	Polimi – Lucia Ramundo	TRA2018	http://www.traconference.eu/	16-19 April, 2018	Vienna

The LINCOLN partners are willing to organize a dedicated stand and a project workshop at METS2018 in Amsterdam to present the project initial and mid term results. For this purpose POLIMI has reserved an amount of 8000€ from its budget, as written in the grant agreement. Eventual additional expenses will

be shared among the 16 partners in equal parts. HOLONIX has been appointed as single point of contact with the METS organization committee for both the stand and the workshop. POLIMI and SINTEF will help with the organization of the workshop. All the partners will help with their physical presence to carry on activities at the stand and they can present a topic to the workshop. The consortium consider an ½ day length at maximum for the workshop, but those details will be discussed later on.

The project will be also presented by the coordinator at the TRA2018. The consortium agree to have a stand inside the EU stand site, if this will be available and offered to the project for free.

GENERAL INFORMATION						
TYPE	**Responsible partner**	**Name of the event**	**WEBLINK**	**DATE**	**LOCATION**	**Activity**
Exhibition/Fair	Holonix/Sintef/ POLIMI/ALL	METS 2018	https://community.metstrade.com/	2018	Amsterdam	Stand + Workshop
Conference	POLIMI	TRA2018	http://www.traconference.eu/	16-19 April, 2018	Vienna	Project presentation + Stand at EU site, if available

4. Planned partners exploitation activities

The first approach to identify LINCOLN Exploitable results leads to the task of gathering the previous exploitation foresight as found on the LINCOLN Grant Agreement, in order to understand the expected results. *Table 8 [LINCOLN Grant Agreement, Part B, page 53-55]* of the LINCOLN memoir summarizes the main expectancies from the partners in terms of LINCOLN individual exploitation plans. *Table 2 [LINCOLN Grant Agreement, Part B, page 24-27]* further gives a hint on the expected results for LINCOLN Exploitation activities. It aims to list the TRL (Technology readiness level) of the different products and competences with which each partner will contribute to the LINCOLN Project. These products and competences form the backbone of the LINCOLN exploitable results.

LINCOLN Exploitation plan will consider lessons learnt, obstacles and constraints arisen at previous exploitation plans of projects, which were funded by the EU such as BOMA and High Sea Fortissimo, so that some of the developments to be integrated on LINCOLN Project.

Finally, once expected results from the partners are understood, and products and services involved in LINCOLN Project are identified, an **individual questionnaire** about the exploitable results of each partner can be addressed in order to be able to elaborate an individual exploitation plan. The following paragraphs gather a **first approach for the exploitable results**, **as identified from the questionnaires passed by each partner**. Hubstract, whose role and expertise is to manage the communication of the project, will not take direct part in the exploitation activity:

4.1. ARESA (Vessel producers)

GENERAL INFORMATION	
ARESA	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	Series Constructive Engineering methodology improvement
2. OWNER/CO-OWNERS	ARESA
3. DESCRIPTION	• Shorter Delivery product time. • Cost production reduction. • Structural improvements on machinery fitting.
4. WHO WILL USE IT	Engineering Companies
5. BENEFITS	Time Production Saving Production Reduction Cost (Lower PVP price) Easy Machinery maintenance operations.
6. COMPETITORS	Each shipyard uses is own system, always complying with engineering calculations, but our system avoid water filtration on hull and superstructure.
7. ADVANTAGES OVER COMPETITORS	N/A
8. UNIQUE SELLING POINTS	Shorter Delivery Time
9. CURRENT TRL	TRL 9, because we apply already that system in all our boats from 15 years ago.
10. EXPECTED TRL	TRL9 but with improvements on it.
11. INTELLECTUAL PROPERTY RESULTS	IT will be considered before launching all information.
12. EXPLOITATION PLAN	Not at the moment.

4.2. Balance (Consultancy)

GENERAL INFORMATION	
BALANCE	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	LCC - Life Cycle Costing and BALance Lifecycle Performance Assessment Tool (BAL.LCPA)
2. OWNER/CO-OWNERS	BALance
3. DESCRIPTION	The LCPA software serves as a tool to assess products and processes in terms of economic and environmental Key Performance Indicators (KPI). It aims a comparing different designs or process chains against each other to identify the best of several options or to evaluate the success of an innovative solution compared to original one (the reference). An arbitrary number of solutions may be defined and compared. The software covers the entire life cycle from the design phase over the operation to end of life phase. Models might be developed iteratively as in early project phase the available input data is typically brief and becomes more comprehensive as the project evolves. Major tool extensions in the Lincoln project will be the interfaces to existing LCA tools and a more end-user orientated user interface to enable staff without extensive modelling skills to run evaluation on pre-defined but customizable LCPA models.
4. WHO WILL USE IT	Company types: • Shipyards, Suppliers (Producers) • Design Offices • Investors • Authorities Functions in companies: • Designers • Sales personnel • Decision makers
5. BENEFITS	Accelerated Decision support by providing an easy way of comparing deign alternatives against each other. Quality improvements by identifying solutions that have weaknesses in terms of economic or environmental performance

GENERAL INFORMATION	
BALANCE	
QUESTIONS	**PRODUCT 1**
	Extended product and process assessment by calculating the Net Present Value, the Global Warming Potential, the Cumulative Energy Demand and further environmental indicators.
6. COMPETITORS	No comparable software tools are on the market which provide an easy-to-use analysis base upon early project data that might be iteratively extended by better data or input from external software.
7. ADVANTAGES OVER COMPETITORS	The LCPA tool offers a unique approach to combine LCA and LCC. It further supports the implementation of customized KPIs for product and process specific challenges.
8. UNIQUE SELLING POINTS	The software provides transparency in modelling and assessing design alternatives by comprehensive documentation of all input values and algorithms. It offers the possibility to model future trends by defining own case-specific predictions.
9. CURRENT TRL	Currently, the LCPA tool is at TRL5. The technology is available, tests in real-life are under preparation
10. EXPECTED TRL	It is expected that at the end of LINCOLN the software will be at TRL 6-7.
11. INTELLECTUAL PROPERTY RESULTS	BALance holds the IPR for code and method, no patentable results are currently available.
12. EXPLOITATION PLAN	Support of our own consulting activities (modelling and calculation as service), LCPA tool licenses to be offered to interested companies inside and outside the maritime industry, user groups for universities and research organisations (non-commercial use only)

4.3. BIBA (Research Centre)

GENERAL INFORMATION		
BIBA		
QUESTIONS	**UMG**	**KBEml**
1. EXPLOITABLE RESULT	Universal Marine Gateway – Sensor Data Acquisition Unit	Knowledge Based Engineering Modelling Language
2. OWNER/CO-OWNERS	BIBA	BIBA
3. DESCRIPTION	The UMG is a universal, networked CPS module for the equipment of products and resources with sensors. It was developed in the FP7 SME project BOMA and extensively tested in various industrial use cases.	SysML extension to represent KBE & KBM related knowledge. The formalisation is aligned to MBSE and enables an application independent exchange of formalized knowledge between different applications.
4. WHO WILL USE IT	Engineers, Product / Prototype Developers	Engineers, Product / Prototype Developers
5. BENEFITS	Automated sensor data gathering from product protoypes	Modelling of knowledge based engineering processes
6. COMPETITORS	e.g. Digital Yacht iKommunicate	N/A
7. ADVANTAGES OVER COMPETITORS	Sensor flexibility, on-board analysis, flexibility in connecting cloud systems and other local CPS	N/A
8. UNIQUE SELLING POINTS	High flexibility, high customizability	N/A
9. CURRENT TRL	TRL 5	TRL 3
10. EXPECTED TRL	TRL 6-7	TRL 4-5
11. INTELLECTUAL PROPERTY RESULTS	N/A	N/A
12. EXPLOITATION PLAN	BIBA, as a highly networked academic partner, will exploit the achieved results on multiple levels. BIBA not only provides courses and workshops addressed to students of the domain of engineering and computer science, but also to regional and national industry. Those exploitation activities will take place e.g. in form of: • consulting for product developers in applying LINCOLN methods and tools to their specific design processes, in particular when developing complex products.	

GENERAL INFORMATION		
BIBA		
QUESTIONS	UMG	KBEml
	• consulting for technology companies willing to integrate LINCOLN modules or methods into their product portfolio.	

4.4. CETRI (IT Developer)

GENERAL INFORMATION	
CETRI	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	Algorithms using as input data Collection from Sea Trials and having as output predictions, depending on the end users' requirements.
2. OWNER/CO-OWNERS	CETRI (owner)
3. DESCRIPTION	-Provide insight for vessel design -Provide predictive information to vessels with i-Captain -Determine suitability of vessel for each individual sea trip
4. WHO WILL USE IT	-Designer -ICT personnel
5. BENEFITS	-Still undefined, we will know after we finalize the end users' requirements for each case.
6. COMPETITORS	-Similar applications are still under testing conditions. The particular LINCOLN functionalities are, to our best knowledge, not currently available in the market.
7. ADVANTAGES OVER COMPETITORS	-Highly configurable -Safety as the most important design criterion
8. UNIQUE SELLING POINTS	-Low cost implementation -Taylor made software customized to end user requirements
9. CURRENT TRL	In other applications we have reached TRL 6-7. We are currently at TRL 3 with respect to our LINCOLN Results.
10. EXPECTED TRL	TRL 6-7
11. INTELLECTUAL PROPERTY RESULTS	We will probably keep the algorithms as a trade secret.
12. EXPLOITATION PLAN	We are thinking of a taylor-made product, according to the clients needs

4.5. CINECA (Research Centre)

GENERAL INFORMATION	
CINECA	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	HPC simulation (High Performance Computing solutions) – HPCaaS (HPC as a Service) - vBN (Virtual Naval Basin)
2. OWNER/CO-OWNERS	Cineca
3. DESCRIPTION	The usual practice for boat designers is to perform real-world model tests using scale models of the ships. This is the long and costly process which can't even always provide reliable results: instrumental and systematic errors in measurements of model properties as well as scale effects in the basin do not allow to properly capture specifics and obtain all the necessary characteristics of the full-scale ship. Numerical methods for solving hydrodynamic problems (Navier-Stokes equations for 2 degree of freedom two-phase with free-surface problem) are a new viable alternative for developing hull form and studying ship hydrodynamics performances.
4. WHO WILL USE IT	Depending on the R&D process design structure within the industry the profiles that might get information from our results are: - the CFD methodologist - the designer - the technical manager
5. BENEFITS	• Cost reductions: a towing tank test on a specific hull design configuration may cost up to 25.000-30.000 EUR, considering that 15.000 EUR might be required just for prototype building depending on the scaling factor selected. A virtual test will run on cloud for less than 1.000. That means a more then 95% reduction in cost for a single test. • Time savings: a towing tank test may require a minimum of 2 weeks in order to be performed, due to the time to build the hull prototype, the tight schedule of these facilities and the required physical setup. A virtual campaign on several configurations may be performed in one week. • Quality improvements: no need for scaled models, both Froude number and Reynolds number will be respected thanks to the full-scale CFD model. Moreover very simple management of controlled single-parameter study can be performed.
6. COMPETITORS	Yes, similar services are provided as consulting packages by some commercial ISVs.

GENERAL INFORMATION	
CINECA	
QUESTIONS	**PRODUCT 1**
7. ADVANTAGES OVER COMPETITORS	The proposed service will run on open-source software and may be used by an expert user in complete autonomy. This allow a cost reduction with respect to the existing solutions up to 90%. Moreover thanks to HPC infrastructure and to no license-locked number of runs also extremely highly concurrent analysis can be performed. The only limit will be the investment on hardware.
8. UNIQUE SELLING POINTS	We offer a viable alternative to the physical towing tank testing in the prediction of hydrodynamic performance of ships, in particular the speed-power relationship, at the design stage. Also the aim is the application of the methods in dedicated optimisation process. Furthermore we address specific problems that cannot be dealt with model basins such as roll damping predictions, large amplitude and non linear motions, slamming / whipping, flooding, sloshing. And all this will be offered as a pay-per-use Cloud-service based on open-source software, allowing this service to be the most cost-effective solution on the market.
9. CURRENT TRL	TRL6. A prototype is ready, a set if specific modules for planning hulls need to be fine-tuned and validated against experimental results. To improve usability also the active feedback from industrial users is required.
10. EXPECTED TRL	TRL8
11. INTELLECTUAL PROPERTY RESULTS	The solution is a workflow produced by Cineca based on open-source software. The Cineca IP lies in the workflow development and the open-source software setup customized for the considered use case.
12. EXPLOITATION PLAN	The plan is to provide it as SaaS package, with a pay-per-use business model.

4.6. CTI (Research Centre)

GENERAL INFORMATION	
CTI	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	Automated application for real-time based monitoring and short-range forecasting of the weather conditions focused on the extreme weather
2. OWNER/CO-OWNERS	CTI
3. DESCRIPTION	The main exploitable result refers to an automated system, which will use in real-time basis, measurements from a meteorological sensors established on board (at a pilot rescue-boat) in order to provide as final product, alerts and short-range forecasts about extreme weather conditions on-site of the rescue boat location along with visualization of current weather.
4. WHO WILL USE IT	• Captain of the boat • Coast guard • Port authority • Shipping agents
5. BENEFITS	• Sea-safety • Improve services and the overall efficiency during operations • Decrease environmental impacts of possible sea-accidents • Rescue human lives • Decrease potential economic losses via the timely rescue and protection procedures.
6. COMPETITORS	There are similar services but lack of accuracy, provide coarse resolution products and not on-site information
7. ADVANTAGES OVER COMPETITORS	• The on-site and real time basis information which is provided • The modern computational intelligence methodologies which are used to produce the final information and extract warning.

GENERAL INFORMATION	
CTI	
QUESTIONS	**PRODUCT 1**
	• The real-time access in the informational material through the Internet of Things concept
8. UNIQUE SELLING POINTS	• Improve services and the overall efficiency during rescue operations • Decrease environmental impacts of possible sea-accidents • Rescue human lives
9. CURRENT TRL	TRL >= 3
10. EXPECTED TRL	TRL = 9
11. INTELLECTUAL PROPERTY RESULTS	The platform has not yet been finalised. The consortium will discuss in depth the IP results that are under the property of the corresponding partner and will take measures for the management Intellectual Property Rights.
12. EXPLOITATION PLAN	Results will be published in scientific Journals and International Conference of both basic and applied research so that to improve science and highlight all the innovative results. We have not any concluded idea on how to provide on the market.

4.7. CTN (Research Centre)

GENERAL INFORMATION	
CTN	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	Knowledge and competences acquired throughout the project
2. OWNER/CO-OWNERS	CTN
3. DESCRIPTION	Acquire tacit and tangible knowledge and competencies will be integrated in CTN for its own research activities, especially for production systems simulation/optimization for waterborne assets. Moreover, results will be applied to launch local and European research funded projects in order to support practical objectives of both public organisms and private companies. CTN will integrate LINCOLN results to the development of new technological solutions, consulting and technology transfer activities to local and national maritime and industrial companies.
4. WHO WILL USE IT	Research Scientists, Research Engineers, Designers, etc.
5. BENEFITS	N/A
6. COMPETITORS	N/A
7. ADVANTAGES OVER COMPETITORS	N/A
8. UNIQUE SELLING POINTS	N/A
9. CURRENT TRL	N/A
10. EXPECTED TRL	N/A
11. INTELLECTUAL PROPERTY RESULTS	N/A
12. EXPLOITATION PLAN	N/A

4.8. Holonix (IoT developers)

GENERAL INFORMATION	
HOLONIX	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	i-Captain Professional
2. OWNER/CO-OWNERS	The result should be under Holonix ownership when related only to the iCaptain professional solution. The result should be shared among LINCOLN partners when it will involve other modules (like Simulation, Portweather solution, UMG, etc.).
3. DESCRIPTION	i-Captain Professional allows the maintenance of an updated profile of the boat, fleet management, maintenance activities, checking the movements of the boat, and so on.
4. WHO WILL USE IT	It is going to be focused on the on board engineers as main users.
5. BENEFITS	---
6. COMPETITORS	n.a.
7. ADVANTAGES OVER COMPETITORS	n.a.
8. UNIQUE SELLING POINTS	---
9. CURRENT TRL	We have 9 TRL for iCaptain leisure. And about TRL 4 for the iCaptain professional.
10. EXPECTED TRL	Expected TRL 7 for iCaptain professional.
11. INTELLECTUAL PROPERTY RESULTS	Not expected for now. TO be discussed further.
12. EXPLOITATION PLAN	Our expectation is: Initial installation cost, personalized on the boat characteristics + annual fee for maintenance. Sales via business sectorial fair and direct sales (through direct contact, eventually agents to be discussed, etc.)

4.9. Hydrolift (Vessel Producers)

GENERAL INFORMATION	
HYDROLIFT	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	Module based high-speed patrol boat platform
2. OWNER/CO-OWNERS	Hydrolift
3. DESCRIPTION	Fast and lean sea rescue operations with high safety-factor for the crew.
4. WHO WILL USE IT	Designer and engineer.
5. BENEFITS	• Products performance • Quality Improvements • Time saving • Cost reduction/Investment savings
6. COMPETITORS	Not as we are aware of.
7. ADVANTAGES OVER COMPETITORS	Depends on the results.
8. UNIQUE SELLING POINTS	Predictable performance developed within predictable costs and time.
9. CURRENT TRL	TRL3, waiting for the researching partners to find a solution.
10. EXPECTED TRL	TRL 9
11. INTELLECTUAL PROPERTY RESULTS	Currently N/A
12. EXPLOITATION PLAN	N/A

4.10. Inventas (Vessel Designers)

GENERAL INFORMATION	
INVENTAS	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	CFD analyses of Hydrolift boatplatform
2. OWNER/CO-OWNERS	Competence from the experience of using CFD and structural analyses is Inventas property. The results from the analyses is own by Hydrolift.
3. DESCRIPTION	CFD is useful for virtual testing of hull geometry instead of building an expensive prototype and then testing it.
4. WHO WILL USE IT	The results will be used the boat designer.
5. BENEFITS	The results will be cost reduction and time saving.
6. COMPETITORS	Yes
7. ADVANTAGES OVER COMPETITORS	Fast and easy to use method.
8. UNIQUE SELLING POINTS	Fast and easy to use CFD analysis on low cost software
9. CURRENT TRL	TRL 6-8
10. EXPECTED TRL	TRL 8
11. INTELLECTUAL PROPERTY RESULTS	Not applicable
12. EXPLOITATION PLAN	Not applicable

4.11. Polimi (Academia)

GENERAL INFORMATION	
POLIMI	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	During LINCOLN project POLIMI will define an optimization methodology for design space, linked to SBCE (Set Based Concurrent Engineering) and able to provide transition from functional to technical requirements. The resulting methodology will be named: "**Product Space Road Mapping**" (**PSRM**) methodology.
2. OWNER/CO-OWNERS	POLIMI is the only owner of the PSRM methodology
3. DESCRIPTION	The PSR methodology will provide a Lean oriented method of working in order to reduce the product time to market since the design phases. It will help companies in translating business requirements into technical requirements faster and adaptive to design space framework, to increase the standardized design components, reducing the variety of the design components (and the CAD codes to be managed). The design of the product will result less complex to be managed, improving the speed of the product delivery.
4. WHO WILL USE IT	The PSRM methodology will be suitable for designers, managers, engineers, product managers.
5. BENEFITS	The aim of PSRM methodology is to provide maritime companies performance benefits, like time, cost, quality, customer satisfaction, innovation approach.
6. COMPETITORS	The PSRM methodology is a totally new and innovative product developed by POLIMI research team. There is not this kind of methodology in the academic environment yet.
7. ADVANTAGES OVER COMPETITORS	The PSRM methodology doesn't just define the technical requirements of complex products, but also addresses the design space required to optimize product delivery
8. UNIQUE SELLING POINTS	The PSRM methodology reduces the time needed to define the product requirements at early design stages, front loading to reduce design changes during product development.
9. CURRENT TRL	The PSR methodology is a totally new product and will be developed during LINCOLN project.
10. EXPECTED TRL	At the end of the project the methodology will reach TRL 6
11. INTELLECTUAL PROPERTY RESULTS	There will be the possibility to trademark the approach and name at the end of the project.

GENERAL INFORMATION	
POLIMI	
QUESTIONS	**PRODUCT 1**
12. EXPLOITATION PLAN	The methodology will be exploited through the School of Management educational portfolio, meaning it will be included into post-graduate and advanced professional trainings offered to industrial partners. Moreover, POLIMI will use the methodology during consultancy activities to its industrial customers. Finally, the methodology could be used during POLIMI Observatories activities and workshops. This will provide a wide range of exploitation opportunities to POLIMI to take the methodology into the market.

4.12. Sintef (Research Centre)

GENERAL INFORMATION	
SINTEF	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	Knowledge generated that can be used as background for initiation of new R&D-projects, as SINTEF personnel often co-operate with the Norwegian University of Science and Technology (NTNU), LINCOLN will form a very important basis for extending lectures with cases and technologies.
2. OWNER/CO-OWNERS	Not applicable
3. DESCRIPTION	Knowledge generated that can be used as background for initiation of new R&D-projects, as SINTEF personnel often co-operate with the Norwegian University of Science and Technology (NTNU), LINCOLN will form a very important basis for extending lectures with cases and technologies.
4. WHO WILL USE IT	Research Scientists
5. BENEFITS	Not applicable
6. COMPETITORS	Not applicable
7. ADVANTAGES OVER COMPETITORS	Not applicable
8. UNIQUE SELLING POINTS	Not applicable
9. CURRENT TRL	Not applicable
10. EXPECTED TRL	Not applicable
11. INTELLECTUAL PROPERTY RESULTS	Not applicable
12. EXPLOITATION PLAN	Not applicable

4.13. Supertoys (Vessel Producers)

GENERAL INFORMATION		
SUPERTOYS		
QUESTIONS	**PRODUCT 1**	**PRODUCT 2**
1. EXPLOITABLE RESULT	Super Toys aims in the design, development and construction of three equipped with new features and applications. 3 EERV (Emergency Response and Recovery Vessels) or SAR (Survey and Rescue)	Design, development and installation of HJDP (Integrated Dynamic Position System) by Super Toys and the installation of black box.
2. OWNER/CO-OWNERS	Super Toys' owner Giannis Goulelis	Super Toys' owner Giannis Goulelis
3. DESCRIPTION	The result will be an innovative brand new design SAR boat, with new technologies and applications. The major benefits of these vessels will be the problem solving of nautical data gathering, such as recording and transmitting (black box) and the development of a Dynamic Position System that will be able to keep the position of the boat steady, without anchoring. This type of boat is ideal for different application but will be extremely useful in collecting castaways.	Dynamic Positioning is a complex control system designed to ensure the stability of a ship in a specific position. Super Toys proposes the idea of designing, developing and constructing an innovating compact, light and low cost Dynamic Positioning system, with non-moving mechanical parts (propellers), which will be installed in small vessels and vessels over 6 meters. Black boxes can bring a new concept to commercial boats, by providing the transmission of data in real time and thus giving the ability to the Coast Guard to take decisions at hack!
4. WHO WILL USE IT	The end user will be the Hellennic Coast Guard but the features developed in this program can be adjusted to other Super Toys vessels such as recreational boats, yachts etc.	The end user will be the Hellenic Coast Guard but the features developed in this program can be adjusted to other Super Toys vessels such as recreational boats, yachts etc.
5. BENEFITS	The end-user products will have the following state of the art features:	• The immobilization of the boat will be very easy, regardless the depth, bottom type and mooring failure.

GENERAL INFORMATION		
SUPERTOYS		
QUESTIONS	**PRODUCT 1**	**PRODUCT 2**
	high operational capacity, reaching high speeds, low energy footprint, capable of cruising speeds of over 50 knots under adverse weather conditions and low construction cost.	• The system provides high safety because it does not use moving parts (propellers), consequently it cannot cause any injury, to any person in the sea. • Captain may use this system, in protected areas where it is prohibited to mooring and anchoring. • Great security, as the captain does not have to anchor close to the shore, in order to ensure the lowest possible anchor immersion depth. • For professional vessels, we believe that the system will be characterized as "critical system", for carrying out their operations. • For diving vessels, which remain in the surface in order to collect divers being able to hold its position above a wreck at -150 meters!!!
6. COMPETITORS	They are similar systems but for much larger ships and for different uses. Estimated TRL=2	Yes. TRL 2.
7. ADVANTAGES OVER COMPETITORS	The two basic innovative features are the development and use of black box and Dynamic Position System, adjusted for small vessels. These systems are currently used in large scale vessels and have never, to our knowledge, have been adjusted to smaller ones.	Till today, Dynamic Positioning system is used on vessels implementing underwater operations at great depths or other operations, such as laying submarine cables, during which it is desirable for the ship to stay in a specific position despite the weather conditions. The proposed system will be based on the use of water-jets, without the use of mechanical parts therefore it will be extremely safe i.e. on search and rescue vessels (SAR), where they will be able to stand on any specific position to collect Ship wreckers, while remaining in a stable place without the use of machines. Additionally, captain may use this system, in protected areas where mooring and

GENERAL INFORMATION		
SUPERTOYS		
QUESTIONS	**PRODUCT 1**	**PRODUCT 2**
		anchoring are prohibited, since the use of DP system will stabilize the boat without anchoring.
8. UNIQUE SELLING POINTS	The most important feature developed by Super Toys is expected to be the DP system. If these systems deliver the expected results, i.e. keeping the position steady without anchoring, then it can be properly adjusted in any type of small boat or yacht thus adding a unique functional characteristic.	A system that will provide the ability of Dynamic Positioning at small boats and yachts. This innovative system is expected to make a big difference in the European market since boats equipped with DP systems will have the ability to stop and remain at their position without anchoring, mooring or endangering the swimmers since they will work only with the water jets.
9. CURRENT TRL	TRL3. Super Toys is currently gathering the experts and technical information for the design and development of the DP system.	TRL2 Super Toys is currently gathering the experts and technical information for the design and development of the DP system.
10. EXPECTED TRL	TRL 9	TRL 9
11. INTELLECTUAL PROPERTY RESULTS		
12. EXPLOITATION PLAN	For the moment we are in the stage of development, however the first end user is already set and we expect that with the advertisement of the Hellenic Coast Guard we will have set the bases of the exploitation of our results.	For the moment we are in the stage of development, however the first end user is already set and we expect that with the advertisement of the Hellenic Coast Guard we will have set the bases of the exploitation of our results.

4.14. TPH (Vessel Designers)

GENERAL INFORMATION	
TPH	
QUESTIONS	**PRODUCT 1**
1. EXPLOITABLE RESULT	A multiplatform Reinforced Fiber Glass catamaran to serve as: a) Service crew vessel (Use Case operation activity 1 - and Main Use Case-); b) Multipurpose survey vessel (Use Case operation activity 2).
2. OWNER/CO-OWNERS	Techno Pro Hispania
3. DESCRIPTION	-Wind Farm Crew Transfer Vessel. • Optimum Hull Form Design / Hybrid System / Modular Conception • Integrated systems to Improve Crew transfer Activities. -Multipurpose survey vessel. • Different configuration and distribution of the superstructure during the building phase to achieve Coastal Multi-functionality.
4. WHO WILL USE IT	Shipyards Crew Transfer Vessel Service Companies Wind Farm Owners
5. BENEFITS	Optimum Operation (Low Consumption / Low Emission). High maneuverability capabilities. Safer Operation (Seakeeping / Crew Transfer) Shipbuilding / Production Activities for series.
6. COMPETITORS	This would be the first one with hybrid solution, RFG hull, IoT and other specific systems.
7. ADVANTAGES OVER COMPETITORS	IoT, innovative material for this purpose, hybrid system… Optimum Hull Form Design
8. UNIQUE SELLING POINTS	Target Oriented Multidisciplinary Design
9. CURRENT TRL	TRL 5-6
10. EXPECTED TRL	TRL 5-6

GENERAL INFORMATION	
TPH	
QUESTIONS	**PRODUCT 1**
11. INTELLECTUAL PROPERTY RESULTS	Drawings / Full Forms Structure Calculations Systems Calculations
12. EXPLOITATION PLAN	Technical Articles Technical Fairs Shipyard Visits …

4.15. TOI (IT developers)

GENERAL INFORMATION		
TOI		
QUESTIONS	**PRODUCT 1**	**PRODUCT 2**
1. EXPLOITABLE RESULT	Zerynth-powered Embedded Software application for iCaptain 2.0	Zerynth-powered i-Captain 2.0 hardware prototype
2. OWNER/CO-OWNERS	TOI Srl	N/A
3. DESCRIPTION	The Zerynth-powered embedded software application makes i-Captain 2.0 easy programmable in python language making it configurable and maintainable also by developers not skilled on embedded programming and on real-time Operating System maintenance. The Zerynth-powered embedded software application for i-Captain 2.0 includes also a library for the connection with the LINCOLN cloud infrastructure exposing a set of dedicated API.	The 2.0 version of the iCaptain Black-Box is composed of a set of hardware specifically conceived for the use in monitoring black-boxes for nautical applications. The hardware configuration guarantees the reliability specifications to cope with severe marine conditions and environment. The iCaptain 2.0 will lower the entry gap in monitoring nautical units bringing IoT and Industry 4.0 to the nautical market.
4. WHO WILL USE IT	Designer, Programmer, Software Engineer, Embedded Developer, Computer Scientist	Field application Engineer
5. BENEFITS	Easier and faster configuration of the black-box for the specific monitoring applications.	Easier and faster configuration of the black-box for the specific monitoring applications. Scalability by design will guarantee an extendibility and maintainability of the projects and of the investments
6. COMPETITORS	Yes	Yes
7. ADVANTAGES OVER COMPETITORS	Easy programmability and configurability	Hardware configuration that specifically copes with the maritime application of LINCOLN
8. UNIQUE SELLING POINTS	The Zerynth-powered embedded software application reduces the entry gap and the development effort for the configuration and maintenance of the i-Captain 2.0 black-box, opening its usability to developers not necessarily skilled in embedded software.	A modular hardware configuration that makes iCaptain 2.0 black-box easily configurable and adaptable to different systems of vessels.

9. CURRENT TRL	TRL 6	TRL4. An overall scheme of the hardware architecture has been identified.
10. EXPECTED TRL	TRL 8	TRL 8
11. INTELLECTUAL PROPERTY RESULTS	A scientific paper will be produced	A scientific paper will be produce
12. EXPLOITATION PLAN	Not yet. It depends on Holonix plans on iCaptain 2.0 Exploitation.	Not yet. It depends on Holonix plans on iCaptain 2.0 Exploitation.