

## 1. Identification

Call

Date of submission

C1

25/04/2022

### 1.1. Full name of the project

Shared waters - Same standards. Baltic partnership for future navigation

72 / 250 characters

### 1.2. Short name of the project

Baltic Sea e-Nav

16 / 20 characters

### 1.3. Programme priority

2. Water-smart societies

### 1.4. Programme objective

2.1 Sustainable waters

### 1.6. Project duration

Contracting start

22/09/2022

Contracting end

31/12/2022

Implementation start

01/01/2023

Implementation end

31/12/2025

Duration of implementation phase (months)

36

Closure start

01/01/2026

Closure end

31/03/2026

### 1.7. Project summary

The goal of this project is to introduce the next generation of Electronic Navigational Charts and data services for ship navigation in the Baltic Sea. Adopting advanced navigational information formats and delivery mechanisms globally is central to the development of safe and effective maritime transport according to the International Hydrographic Organisation (IHO).

The challenge involves a harmonised technical leap in multiple countries and requires strong forms of collaboration. Here the EUSBSR, with its long history of facilitating macro-regional collaboration, is a great match to support the development of a digital maritime navigation infrastructure. PA Safe recognises the importance of these efforts in their Action 1 priority and in a letter of support.

The greatest direct benefit and focus of the project lies with the Hydrographic Offices around the Baltic Sea. Through this project these public actors will deliver more advanced navigational information, support IHO in the global roll out and be equipped in terms of operational and governance structures to tackle future informational payloads. The ultimate benefits lie within the shipping industry where increased safety, optimised routes and optimised loading are expected. All of these mean a lower environmental impact and more efficient shipping. The implementation of these new chart products is also a major step towards automated navigation and, in the end, autonomous shipping.

1,464 / 1,500 characters

### 1.8. Summary of the partnership

This project gathers a true triple helix consortium with public, academic and private partners. This includes all Baltic Sea EU countries' Hydrographic Offices and their interest groups as well as some of the most prominent experts on navigational information, data handling and multi-national governance. This expertise supports the project's two main challenges, which consists of the technical leap and its supporting governance structures.

The technical development consists of real-world scenarios, where the Hydrographic Offices' capabilities to deliver the next generation of chart information will evolve. This includes producing the advanced navigational information, refining it through piloting, develop delivery mechanism and operationalise it as electronic navigational chart products. Naturally, the Hydrographic Offices have a central role as the ultimate provider of this digital maritime infrastructure. The academic and institutional partners RISE and SAMK play a key role through their broad knowledge of digitalisation and deep experience with navigation equipment. This includes efficient and secure data handling, scalable architecture and close integration with on-board ship equipment. The Finnish Metrological Institute complements the Hydrographic Offices with advanced models regarding sea surface level, currents and tides, which is required to fully use the potential of accurate water depth information in the charts. In the end, all information must to be displayed to and interpreted by the navigators in their familiar technical environment on the vessel bridges. As a supplier of navigational equipment and certified electronic chart display systems, Furuno has the necessary competence as well as customers to collect end-user sentiments early. Furuno experts also actively contribute to IHO's technical committees working with the development of navigational chart standards.

More advanced multi-layer information and dynamic data services further increase the need for active regional harmonisation and governance. The fact that all Hydrographic Offices around the Baltic Sea including Norway, through PRIMAR, are involved in the project is critical to its success. By collaborating, this group will allow outputs of this project to mature and transfer into operational services. Additionally, the consortium builds upon well-established collaborations between the Hydrographic Offices, which have worked together in a number of similar projects for many years. Together they also form IHO's regional interest group, the Baltic Sea Hydrographic Commission (BSHC). This project will further strengthen the BSHC partnership with new collaborative methods. Governance structures will be established under relevant BSHC working groups, which will ensure that foreseeable future updates can be handled.

2,837 / 3,000 characters

#### 1.11. Project Budget Summary

Financial resources [in EUR]		Preparation costs	Planned project budget
ERDF	ERDF co-financing	0.00	4,476,595.68
	Own contribution ERDF	0.00	1,119,148.92
	<b>ERDF budget</b>	0.00	5,595,744.60
NO	NO co-financing	0.00	0.00
	Own contribution NO	0.00	0.00
	<b>NO budget</b>	0.00	0.00
NDICI	NDICI co-financing	0.00	0.00
	Own contribution NDICI	0.00	0.00
	<b>NDICI budget</b>	0.00	0.00
RU	RU co-financing	0.00	0.00
	Own contribution RU	0.00	0.00
	<b>RU budget</b>	0.00	0.00
<b>TOTAL</b>	<b>Total Programme co-financing</b>	0.00	4,476,595.68
	<b>Total own contribution</b>	0.00	1,119,148.92
	<b>Total budget</b>	0.00	5,595,744.60




## 2. Partnership

### 2.1. Overview: Project Partnership

#### 2.1.1 Project Partners

No.	LP/PP	Organisation (English)	Organisation (Original)	Country	Type of partner	Legal status	Partner budget in the project	Active/inactive	
								Status	from
1	LP	Swedish Maritime Administration	Sjöfartsverket	 SE	National public authority	a)	1,663,266.80 €	Active	22/09/2022
2	PP	RISE Research Institutes of Sweden AB	RISE Research Institutes of Sweden AB	 SE	Higher education and research institution	b)	363,329.20 €	Active	22/09/2022
3	PP	Finnish Transport and Communications Agency Traficom	Liikenne- ja viestintävirasto Traficom	 FI	National public authority	a)	464,010.00 €	Active	22/09/2022
4	PP	Federal Maritime and Hydrographic Agency	Bundesamt für Seeschifffahrt und Hydrographie	 DE	National public authority	a)	781,761.60 €	Active	22/09/2022
5	PP	Finnish Meteorological Institute	Ilmatieteen laitos	 FI	National public authority	a)	89,866.00 €	Active	22/09/2022
6	PP	Republic of Estonia Transport Administration	Transpordiamet	 EE	National public authority	a)	539,400.00 €	Active	22/09/2022
7	PP	Maritime Administration of Latvia	Latvijas Jūras administrācija	 LV	National public authority	a)	222,632.00 €	Active	22/09/2022
8	PP	Danish Geodata Agency	Geodatastyrelsen	 DK	National public authority	a)	466,472.60 €	Active	22/09/2022
9	PP	Furuno Finland	Furuno Finland Oy	 FI	Small and medium enterprise	b)	615,700.00 €	Active	22/09/2022
10	PP	Satakunta University of Applied Sciences	Satakunnan Ammattikorkeakoulu	 FI	Higher education and research institution	a)	389,306.40 €	Active	22/09/2022

#### 2.1.2 Associated Organisations

No.	Organisation (English)	Organisation (Original)	Country	Type of Partner
AO 1	Hydrographic Office of the Polish Navy	Biuro Hydrograficzne Marynarki Wojennej	 PL	National public authority
AO 2	Lithuanian Transport Safety Administration	Lietuvos transporto saugos administracija	 LT	National public authority
AO 3	PRIMAR	PRIMAR	 NO	National public authority
AO 4	IC-ENC	IC-ENC	Other	Small and medium enterprise

#### 2.2 Project Partner Details - Partner 1

LP/PP	Lead Partner		
Partner Status	Active		
	Active from	22/09/2022	Inactive from
Partner name:			
Organisation in original language	Sjöfartsverket <small>14 / 250 characters</small>		
Organisation in English	Swedish Maritime Administration <small>31 / 250 characters</small>		
Department in original language	Affärsavdelningen / Affärsområde Sjögeografi <small>44 / 250 characters</small>		
Department in English	Hydrographic Office <small>19 / 250 characters</small>		

#### Partner location and website:

<b>Address</b>	Östra Promenaden 7 <small>18 / 250 characters</small>	<b>Country</b>	Sweden
<b>Postal Code</b>	60178 <small>5 / 250 characters</small>	<b>NUTS1 code</b>	Östra Sverige
<b>Town</b>	Norrköping <small>10 / 250 characters</small>	<b>NUTS2 code</b>	Östra Mellansverige
<b>Website</b>	www.sjofartsverket.se <small>21 / 100 characters</small>	<b>NUTS3 code</b>	Östergötlands län

#### Partner ID:

<b>Organisation ID type</b>	Organisation number (Organisationsnummer)
<b>Organisation ID</b>	202100-0654
<b>VAT Number Format</b>	SE + 12 digits
<b>VAT Number</b>	N/A <input type="checkbox"/> SE202100065401 <small>14 / 50 characters</small>
<b>PIC</b>	996675583 <small>9 / 9 characters</small>

#### Partner type:

<b>Legal status</b>	a) Public	
<b>Type of partner</b>	National public authority	Ministry, etc.
<b>Sector (NACE)</b>	84.11 - General public administration activities	

#### Partner financial data:

<b>Is your organisation entitled to recover VAT related to the EU funded project activities?</b>		Yes
<b>Financial data</b>	<b>Reference period</b>	01/01/2020 – 31/12/2020
	<b>Staff headcount [in annual work units (AWU)]</b>	1,363.0
	<b>Employees [in AWU]</b>	1,363.0
	<b>Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]</b>	0.0
	<b>Owner-managers [in AWU]</b>	0.0
	<b>Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]</b>	0.0
	<b>Annual turnover [in EUR]</b>	248,330,640.00
	<b>Annual balance sheet total [in EUR]</b>	591,896,760.00
	<b>Operating profit [in EUR]</b>	1,262,040.00

#### Role of the partner organisation in this project:

SMA is Lead Partner and will coordinate the project in order to ensure an efficient implementation of the next generation navigational products in the Baltic Sea region. SMA also holds the Hydrographic Office in Sweden and will in that role strengthen the collaboration with the other Hydrographic Offices around the Baltic Sea. SMA has many years of experience with coordinating and implementing various projects in the field of e-navigation, sea traffic management and hydrographic surveying, with EU funding from different instruments. Sweden represented by SMA also currently chairs the Baltic Sea Hydrographic Commission.

Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

## 2.2 Project Partner Details - Partner 2

LP/PP	Project Partner		
Partner Status	Active		
	Active from	22/09/2022	Inactive from
Partner name:			
Organisation in original language	RISE Research Institutes of Sweden AB		
Organisation in English	RISE Research Institutes of Sweden AB		
Department in original language	Maritim		
Department in English	Maritime		

## Partner location and website:

Address	Box 857	Country	Sweden
Postal Code	501 15	NUTS1 code	Södra Sverige
Town	Borås	NUTS2 code	Västsverige
Website	www.ri.se	NUTS3 code	Västra Götalands län

## Partner ID:

Organisation ID type	Organisation number (Organisationsnummer)		
Organisation ID	556464-6874		
VAT Number Format	SE + 12 digits		
VAT Number	N/A <input type="checkbox"/>	SE556464687401	
PIC	999613422		

## Partner type:

Legal status	b) Private		
Type of partner	Higher education and research instituti	University faculty, college, research institution, RTD facility, research cluster, etc.	
Sector (NACE)	72.19 - Other research and experimental development on natural sciences and engineering		

## Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities?

Yes

<b>Financial data</b>	<b>Reference period</b>	14/04/2022	–	16/04/2022
	<b>Staff headcount [in annual work units (AWU)]</b>			2,124.0
	<b>Employees [in AWU]</b>			2,124.0
	<b>Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]</b>			0.0
	<b>Owner-managers [in AWU]</b>			0.0
	<b>Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]</b>			0.0
	<b>Annual turnover [in EUR]</b>			251,657,123.00
	<b>Annual balance sheet total [in EUR]</b>			217,777,755.00
	<b>Operating profit [in EUR]</b>			-1,065,589.00

#### Role of the partner organisation in this project:

RISE Research Institutes of Sweden will play an instrumental part in the refining of the solutions. First, RISE will participate in the definition and development of the pilot scenarios and evaluation platform within Work Package 1. Afterwards, RISE will take the role of work package leader in Work Package 2: Piloting and Evaluation. Besides the role of work package leader, RISE will contribute with its expertise on the piloting and evaluation work that will guide the refinement process.

495 / 1,000 characters

#### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

#### State aid relevance

For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MAJS for a plausibility check on the State aid relevance. Does the partner want to do this?

☐ Yes ☐ No

#### Justification why the partner's activities are not State aid relevant

RISE will participate in the project in its capacity as a publicly funded research and knowledge dissemination organization. Since our activities will be part of our primary activities, in the form of independent research and development and dissemination, we will participate in our non-economic part which do not receive state aid, in accordance with the Commission's Framework on state aid to RDI (2014/C 198/01). We will perform evaluation activities in the project. We will evaluate the solutions developed by the project partners and present its results as feedback for guiding the refinement of said products. Therefore, RISE will not develop or improve its own products or service offerings.

700 / 3,000 characters

#### 2.2 Project Partner Details - Partner 3

<b>LP/PP</b>	Project Partner
<b>Partner Status</b>	Active
<b>Active from</b>	22/09/2022
<b>Inactive from</b>	

#### Partner name:

<b>Organisation in original language</b>	Liikenne- ja viestintävirasto Traficom	38 / 250 characters
<b>Organisation in English</b>	Finnish Transport and Communications Agency Traficom	52 / 250 characters
<b>Department in original language</b>	Merikartoitus ja vesiväylät	27 / 250 characters
<b>Department in English</b>	Hydrography and Fairways	24 / 250 characters

#### Partner location and website:

<b>Address</b>	<input type="text" value="Dynamicum, Erik Palménin aukio 1"/> <small>32 / 250 characters</small>	<b>Country</b>	<input type="text" value="Finland"/>
<b>Postal Code</b>	<input type="text" value="PO Box 320"/> <small>10 / 250 characters</small>	<b>NUTS1 code</b>	<input type="text" value="Manner-Suomi"/>
<b>Town</b>	<input type="text" value="Helsinki"/> <small>8 / 250 characters</small>	<b>NUTS2 code</b>	<input type="text" value="Helsinki-Uusimaa"/>
<b>Website</b>	<input type="text" value="www.traficom.fi"/> <small>15 / 100 characters</small>	<b>NUTS3 code</b>	<input type="text" value="Helsinki-Uusimaa"/>

#### Partner ID:

<b>Organisation ID type</b>	<input type="text" value="Business Identity Code (Y-tunnus)"/>
<b>Organisation ID</b>	<input type="text" value="2924753-3"/>
<b>VAT Number Format</b>	<input type="text" value="FI + 8 digits"/>
<b>VAT Number</b>	<input type="text" value="N/A"/> <input type="checkbox"/> <input type="text" value="FI29247533"/> <small>10 / 50 characters</small>
<b>PIC</b>	<input type="text" value="n/a"/> <small>3 / 9 characters</small>

#### Partner type:

<b>Legal status</b>	<input type="text" value="a) Public"/>	
<b>Type of partner</b>	<input type="text" value="National public authority"/>	<input type="text" value="Ministry, etc."/>
<b>Sector (NACE)</b>	<input type="text" value="84.11 - General public administration activities"/>	

#### Partner financial data:

<b>Is your organisation entitled to recover VAT related to the EU funded project activities?</b>	<input type="text" value="Yes"/>
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#### Role of the partner organisation in this project:

<input type="text" value="Traficom holds Finland's Hydrographic Office and will in that role strengthen the collaboration with the other Hydrographic Offices around the Baltic Sea in order to ensure an efficient implementation of the next generation hydrographic products. As lead for WP3, Traficom will coordinate the governance aspects of the project and the transfer of the next generation navigational products to the maritime market."/>
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412 / 1,000 characters

#### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

#### 2.2 Project Partner Details - Partner 4

<b>LP/PP</b>	<input type="text" value="Project Partner"/>		
<b>Partner Status</b>	<input type="text" value="Active"/>		
<b>Active from</b>	<input type="text" value="22/09/2022"/>	<b>Inactive from</b>	<input type="text"/>

#### Partner name:



<b>Organisation in original language</b>	Bundesamt für Seeschifffahrt und Hydrographie	45 / 250 characters
<b>Organisation in English</b>	Federal Maritime and Hydrographic Agency	40 / 250 characters
<b>Department in original language</b>	Nautische Hydrographie	22 / 250 characters
<b>Department in English</b>	Nautical Hydrography	20 / 250 characters

**Partner location and website:**

<b>Address</b>	Bernhard-Nocht-Str. 78	23 / 250 characters	<b>Country</b>	Germany
<b>Postal Code</b>	20305	5 / 250 characters	<b>NUTS1 code</b>	Hamburg
<b>Town</b>	Hamburg	7 / 250 characters	<b>NUTS2 code</b>	Hamburg
<b>Website</b>	http://bsh.de	13 / 100 characters	<b>NUTS3 code</b>	Hamburg

**Partner ID:**

<b>Organisation ID type</b>	Tax (identification) number (Steuer(identifikations)nummer)		
<b>Organisation ID</b>	27-111-00124	12 / 50 characters	
<b>VAT Number Format</b>	DE + 9 digits		
<b>VAT Number</b>	N/A <input type="checkbox"/> DE811239341	11 / 50 characters	
<b>PIC</b>	n/a	3 / 9 characters	

**Partner type:**

<b>Legal status</b>	a) Public		
<b>Type of partner</b>	National public authority	Ministry, etc.	
<b>Sector (NACE)</b>	84.11 - General public administration activities		

**Partner financial data:**

<b>Is your organisation entitled to recover VAT related to the EU funded project activities?</b>	No
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<b>Financial data</b>	<b>Reference period</b>	01/01/2021	–	31/12/2021
	<b>Staff headcount [in annual work units (AWU)]</b>			833.7
	<b>Employees [in AWU]</b>			833.7
	<b>Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]</b>			0.0
	<b>Owner-managers [in AWU]</b>			0.0
	<b>Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]</b>			0.0
	<b>Annual turnover [in EUR]</b>			81,475,000.00
	<b>Annual balance sheet total [in EUR]</b>			0.00
	<b>Operating profit [in EUR]</b>			0.00

#### Role of the partner organisation in this project:

BSH holds the German Hydrographic Office and will in that role strengthen the collaboration with the other Hydrographic Offices around the Baltic Sea in order to ensure an efficient implementation of the next generation hydrographic products. As lead for the activities related to high resolution seabed information, BSH will coordinate the development and implementation of these products and contribute to the transferring of the next generation navigational products to the maritime industry.

495 / 1,000 characters

#### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

#### 2.2 Project Partner Details - Partner 5

<b>LP/PP</b>	Project Partner		
<b>Partner Status</b>	Active		
	<b>Active from</b>	22/09/2022	<b>Inactive from</b>
<b>Partner name:</b>			
<b>Organisation in original language</b>	Ilmatieteen laitos		
	18 / 250 characters		
<b>Organisation in English</b>	Finnish Meteorological Institute		
	32 / 250 characters		
<b>Department in original language</b>	Meripalvelut		
	13 / 250 characters		
<b>Department in English</b>	Oceanographic services		
	23 / 250 characters		

#### Partner location and website:

<b>Address</b>	Dynamicum Erik Palménin aukio 1	<b>Country</b>	Finland
	32 / 250 characters		
<b>Postal Code</b>	FI-00560	<b>NUTS1 code</b>	Manner-Suomi
	8 / 250 characters		
<b>Town</b>	Helsinki	<b>NUTS2 code</b>	Helsinki-Uusimaa
	8 / 250 characters		
<b>Website</b>	www.ilmatieteenlaitos.fi	<b>NUTS3 code</b>	Helsinki-Uusimaa
	24 / 100 characters		

## Partner ID:

Organisation ID type	Business Identity Code (Y-tunnus)		
Organisation ID	0244664-7		
VAT Number Format	FI + 8 digits		
VAT Number	N/A <input type="checkbox"/>	FI02446647	10 / 50 characters
PIC	999591306		9 / 9 characters

## Partner type:

Legal status	a) Public		
Type of partner	National public authority	Ministry, etc.	
Sector (NACE)	84.11 - General public administration activities		

## Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities?	No
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## Role of the partner organisation in this project:

FMI is has solid expertise in oceanographic research and services: FMI is operating the sea level stations at the Finnish coasts and is also measuring sea surface currents and operating hydrodynamical NEMO circulation model. FMI will produce the sea surface information services in WP1.3, improve them based on the user feedback in WP2.3 and participate in developing a governance and implementation plan in WP3.3.

414 / 1,000 characters

## Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

## 2.2 Project Partner Details - Partner 6

LP/PP	Project Partner		
Partner Status	Active		
Active from	22/09/2022	Inactive from	

## Partner name:

Organisation in original language	Transpordiamet		
Organisation in English	Republic of Estonia Transport Administration		
Department in original language	Hüdrograafiaosakond		
Department in English	Hydrography Department		

## Partner location and website:

<b>Address</b>	<input type="text" value="Valge 4 street"/> <small>14 / 250 characters</small>	<b>Country</b>	<input type="text" value="Estonia"/>
<b>Postal Code</b>	<input type="text" value="11413"/> <small>5 / 250 characters</small>	<b>NUTS1 code</b>	<input type="text" value="Eesti"/>
<b>Town</b>	<input type="text" value="Tallinn"/> <small>7 / 250 characters</small>	<b>NUTS2 code</b>	<input type="text" value="Eesti"/>
<b>Website</b>	<input type="text" value="www.transpordiamet.ee"/> <small>21 / 100 characters</small>	<b>NUTS3 code</b>	<input type="text" value="Põhja-Eesti"/>

#### Partner ID:

<b>Organisation ID type</b>	<input type="text" value="Registration code (Registrikood)"/>
<b>Organisation ID</b>	<input type="text" value="70001490"/>
<b>VAT Number Format</b>	<input type="text" value="EE + 9 digits"/>
<b>VAT Number</b>	N/A <input type="checkbox"/> <input type="text" value="EE100915493"/> <small>11 / 50 characters</small>
<b>PIC</b>	<input type="text" value="n/a"/> <small>3 / 9 characters</small>

#### Partner type:

<b>Legal status</b>	<input type="text" value="a) Public"/>	
<b>Type of partner</b>	<input type="text" value="National public authority"/>	<input type="text" value="Ministry, etc."/>
<b>Sector (NACE)</b>	<input type="text" value="84.11 - General public administration activities"/>	

#### Partner financial data:

<b>Is your organisation entitled to recover VAT related to the EU funded project activities?</b>	<input type="text" value="No"/>
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#### Role of the partner organisation in this project:

<p>The Estonian Hydrographic Office is organised under the national Transport Administration and will in its role strengthen the collaboration with the other Hydrographic Offices around the Baltic Sea in order to ensure an efficient implementation of the next generation hydrographic products. As national Hydrographic Office they will participate in activities related to the next generation Electronic Navigational Charts as well as high-resolution seabed information products, as part of WP1, WP2 and WP3.</p> <small>503 / 1,000 characters</small>
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#### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

#### 2.2 Project Partner Details - Partner 7

<b>LP/PP</b>	<input type="text" value="Project Partner"/>		
<b>Partner Status</b>	<input type="text" value="Active"/>		
<b>Active from</b>	<input type="text" value="22/09/2022"/>	<b>Inactive from</b>	<input type="text"/>

#### Partner name:

<b>Organisation in original language</b>	<input type="text" value="Latvijas Jūras administrācija"/> <small>29 / 250 characters</small>
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Organisation in English	Maritime Administration of Latvia	33 / 250 characters
Department in original language	Hidrogrāfijas dienests	22 / 250 characters
Department in English	Hydrographic Office	19 / 250 characters

#### Partner location and website:

Address	5, Trijādības	13 / 250 characters	Country	Latvia
Postal Code	LV-1048	7 / 250 characters	NUTS1 code	Latvija
Town	Riga	4 / 250 characters	NUTS2 code	Latvija
Website	http://www.lja.lv	17 / 100 characters	NUTS3 code	Rīga

#### Partner ID:

Organisation ID type	Unified registration number (Vienotais reģistrācijas numurs)
Organisation ID	40003022705
VAT Number Format	LV + 11 digits
VAT Number	N/A <input type="checkbox"/> LV40003022705
PIC	998264831

#### Partner type:

Legal status	a) Public
Type of partner	National public authority Ministry, etc.
Sector (NACE)	84.11 - General public administration activities

#### Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities?	No
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#### Role of the partner organisation in this project:

The Latvian Hydrographic Office is organised under the Maritime Administration of Latvia and will in its role strengthen the collaboration with the other Hydrographic Offices around the Baltic Sea in order to ensure an efficient implementation of the next generation hydrographic products. As national Hydrographic Office they will participate in activities related to the next generation Electronic Navigational Charts as well as high-resolution seabed information products, as part of WP1, WP2 and WP3. The Latvian Hydrographic Office will also contribute to the sea surface information related activities by supplying data.

625 / 1,000 characters

#### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

## 2.2 Project Partner Details - Partner 8

LP/PP	Project Partner		
Partner Status	Active		
	Active from	22/09/2022	Inactive from
Partner name:			
Organisation in original language	Geodatastyrelsen		
	16 / 250 characters		
Organisation in English	Danish Geodata Agency		
	21 / 250 characters		
Department in original language	Søkort og Marine Data		
	21 / 250 characters		
Department in English	Hydrographic Office		
	19 / 250 characters		

## Partner location and website:

Address	Lindholm Brygge 31	Country	Denmark
	18 / 250 characters		
Postal Code	9400	NUTS1 code	Danmark
	5 / 250 characters		
Town	Nørresundby	NUTS2 code	Nordjylland
	11 / 250 characters		
Website	www.gst.dk	NUTS3 code	Nordjylland
	10 / 100 characters		

## Partner ID:

Organisation ID type	Civil registration number (CPR)		
Organisation ID	62965916		
VAT Number Format	DK + 8 digits		
VAT Number	N/A <input type="checkbox"/>	DK62 96 59 16	
		13 / 50 characters	
PIC	953494287		
	9 / 9 characters		

## Partner type:

Legal status	a) Public		
Type of partner	National public authority	Ministry, etc.	
Sector (NACE)	84.11 - General public administration activities		

## Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities?	Yes
-------------------------------------------------------------------------------------------	-----

### Role of the partner organisation in this project:

The Danish Geodata Agency will strengthen the collaboration with the other Hydrographic Offices around the Baltic Sea in order to ensure an efficient implementation of the next generation hydrographic products. As national Hydrographic Office they will participate in activities related to the next generation Electronic Navigational Charts as well as high-resolution seabed information products, as part of WP1, WP2 and WP3.

424 / 1,000 characters

### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

### 2.2 Project Partner Details - Partner 9

<b>LP/PP</b>	Project Partner		
<b>Partner Status</b>	Active		
	<b>Active from</b>	22/09/2022	<b>Inactive from</b>
<b>Partner name:</b>			
<b>Organisation in original language</b>	Furuno Finland Oy		
	17 / 250 characters		
<b>Organisation in English</b>	Furuno Finland		
	14 / 250 characters		
<b>Department in original language</b>	Tuotekehitysosasto		
	18 / 250 characters		
<b>Department in English</b>	Research and Development		
	24 / 250 characters		

### Partner location and website:

<b>Address</b>	Niittyrinne 7, P.O.Box 74	<b>Country</b>	Finland
	25 / 250 characters		
<b>Postal Code</b>	FI-02271	<b>NUTS1 code</b>	Manner-Suomi
	8 / 250 characters		
<b>Town</b>	Espoo	<b>NUTS2 code</b>	Helsinki-Uusimaa
	5 / 250 characters		
<b>Website</b>	www.furuno.fi	<b>NUTS3 code</b>	Helsinki-Uusimaa
	13 / 100 characters		

### Partner ID:

<b>Organisation ID type</b>	Business Identity Code (Y-tunnus)		
<b>Organisation ID</b>	1754660-8		
<b>VAT Number Format</b>	FI + 8 digits		
<b>VAT Number</b>	N/A <input type="checkbox"/>	FI17546608	
		10 / 50 characters	
<b>PIC</b>	995185954		
	9 / 9 characters		

### Partner type:

<b>Legal status</b>	b) Private
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Type of partner	Small and medium enterprise	Micro, small, medium enterprises < 250 employees, ≤ EUR 50 million turnover or ≤ EUR 43 million balance sheet total
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Sector (NACE)	27.90 - Manufacture of other electrical equipment
---------------	---------------------------------------------------

#### Partner financial data:

Is your organisation entitled to recover VAT related to the EU funded project activities?	Yes
-------------------------------------------------------------------------------------------	-----

Financial data	Reference period	01/01/2021	–	31/12/2021
	Staff headcount [in annual work units (AWU)]			44.0
	Employees [in AWU]			44.0
	Persons working for the organisation being subordinated to it and considered to be employees under national law [in AWU]			0.0
	Owner-managers [in AWU]			0.0
	Partners engaged in a regular activity in the organisation and benefiting from financial advantages from the organisation [in AWU]			0.0
	Annual turnover [in EUR]			9,662,008.09
	Annual balance sheet total [in EUR]			10,606,756.73
	Operating profit [in EUR]			310,046.23

#### Role of the partner organisation in this project:

Furuno Finland participates in the project with their technical expertise in developing navigation systems for commercial shipping. The company has long-term experience in implementing international standards and regulations regarding these systems and is an active contributor to the standardization work related to the next generation of electronic navigational data services. As project partner they will contribute the technical infrastructure for piloting the solutions and furthermore strengthen the transfer of the solutions to the end customers.

553 / 1,000 characters

#### Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?

☐ Yes ☐ No

#### 2.2 Project Partner Details - Partner 10

LP/PP	Project Partner
Partner Status	Active
Active from	22/09/2022
Inactive from	

#### Partner name:

Organisation in original language	Satakunnan Ammattikorkeakoulu	29 / 250 characters
Organisation in English	Satakunta University of Applied Sciences	40 / 250 characters
Department in original language	Logistiikka ja meriteknologia	29 / 250 characters
Department in English	Faculty of Logistics and Maritime Technology	44 / 250 characters

#### Partner location and website:

Address	Satakunnankatu 23 / P.O.Box 1001	Country	Finland
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32 / 250 characters



<b>Postal Code</b>	<input type="text" value="28130"/> <small>5 / 250 characters</small>	<b>NUTS1 code</b>	<input type="text" value="Manner-Suomi"/>
<b>Town</b>	<input type="text" value="Pori"/> <small>4 / 250 characters</small>	<b>NUTS2 code</b>	<input type="text" value="Länsi-Suomi"/>
<b>Website</b>	<input type="text" value="www.samk.fi/en"/> <small>14 / 100 characters</small>	<b>NUTS3 code</b>	<input type="text" value="Satakunta"/>

**Partner ID:**

<b>Organisation ID type</b>	<input type="text" value="Business Identity Code (Y-tunnus)"/>
<b>Organisation ID</b>	<input type="text" value="2388924-4"/>
<b>VAT Number Format</b>	<input type="text" value="FI + 8 digits"/>
<b>VAT Number</b>	<input type="text" value="N/A"/> <input type="checkbox"/> <input type="text" value="FI23889244"/> <small>10 / 50 characters</small>
<b>PIC</b>	<input type="text" value="952391882"/> <small>9 / 9 characters</small>

**Partner type:**

<b>Legal status</b>	<input type="text" value="a) Public"/>	
<b>Type of partner</b>	<input type="text" value="Higher education and research instituti"/>	<input type="text" value="University faculty, college, research institution, RTD facility, research cluster, etc."/>
<b>Sector (NACE)</b>	<input type="text" value="85.42 - Tertiary education"/>	

**Partner financial data:**

<b>Is your organisation entitled to recover VAT related to the EU funded project activities?</b>	<input type="text" value="No"/>
--------------------------------------------------------------------------------------------------	---------------------------------

**Role of the partner organisation in this project:**

<input type="text" value="Satakunta University of Applied Sciences (SAMK) will coordinate the work for evaluating the solutions. In active collaboration with RISE, SAMK will provide guidance for the Hydrographic Offices in meeting the end user needs for the developed products and services. SAMK's key activities in the project are, among others: establishing the product related performance indicators, preparing and establishing the testing program, selecting testbed vessels, routes and areas, testing solutions in simulation and in an authentic vessel environment, risk assessment for the product implementation, and finally the analyses and evaluation of the results against the established key performance indicators. These activities are mainly coupled to WP2 and will utilise the maritime simulation testing environment in Rauma, Finland."/>
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820 / 1,000 characters

**Has this organisation ever been a partner in the project(s) implemented in the Interreg Baltic Sea Region Programme?**

☒ Yes ☐ No

**State aid relevance**

**For the partner type selected, the Programme sees a medium to high risk for implementing State aid relevant activities. If the partner is of the opinion that its activities are not State aid relevant, it can ask the MAJS for a plausibility check on the State aid relevance. Does the partner want to do this?**

☒ Yes ☐ No

**Justification why the partner's activities are not State aid relevant**

<input type="text" value="SAMK is a publicly owned university of applied sciences being monitored and primarily funded by the Finnish Ministry of education and culture. According to the Finnish national regulations, the State aid regulation is not applicable with SAMK."/>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

243 / 3,000 characters

## 2.3 Associated Organisation Details - AO 1

### Associated organisation name and type:

Organisation in original language	<input type="text" value="Biuro Hydrograficzne Marynarki Wojennej"/> <small>39 / 250 characters</small>		
Organisation in English	<input type="text" value="Hydrographic Office of the Polish Navy"/> <small>38 / 250 characters</small>		
Department in original language	<input type="text" value="Oddzial Hydrograficzny"/> <small>21 / 250 characters</small>		
Department in English	<input type="text" value="Hydrographic Department"/> <small>23 / 250 characters</small>		
Legal status	<input type="text" value="a) Public"/>		
Type of associated organisation	<input type="text" value="National public authority"/>	<input type="text" value="Ministry, etc."/>	

### Associated organisation location and website:

Address	<input type="text" value="8B JANA Z KOLNA"/> <small>15 / 250 characters</small>	Country	<input type="text" value="Poland"/>
Postal Code	<input type="text" value="81-301"/> <small>6 / 250 characters</small>		
Town	<input type="text" value="Gdynia"/> <small>6 / 250 characters</small>		
Website	<input type="text" value="https://bhmw.gov.pl/en/"/> <small>23 / 100 characters</small>		

### Role of the associated organisation in this project:

The Hydrographic Office of the Polish Navy will participate in the project as an observer and associated partner. The primary goal of their participation is the exchange of information and experiences around the navigational products. Their participation further strengthens the partnership, which encompasses all Hydrographic Offices of the EU Member States around the Baltic Sea.

381 / 1,000 characters

## 2.3 Associated Organisation Details - AO 2

### Associated organisation name and type:

<b>Organisation in original language</b>	Lietuvos transporto saugos administracija			41 / 250 characters
<b>Organisation in English</b>	Lithuanian Transport Safety Administration			42 / 250 characters
<b>Department in original language</b>	Jūrų departamento hidrografijos skyrius			39 / 250 characters
<b>Department in English</b>	Maritime Department's Hydrographic Division			43 / 250 characters
<b>Legal status</b>	a) Public			
<b>Type of associated organisation</b>	National public authority	Ministry, etc.		

### Associated organisation location and website:

<b>Address</b>	Švitrigailos g. 42	<b>Country</b>	Lithuania	18 / 250 characters
<b>Postal Code</b>	LT – 03209			10 / 250 characters
<b>Town</b>	Vilnius			7 / 250 characters
<b>Website</b>	https://ltsa.lrv.lt/			20 / 100 characters

### Role of the associated organisation in this project:

The Lithuanian Hydrographic Office, organised under the Lithuanian Transport Safety Administration, will participate in the project as an observer and associated partner. The primary goal of their participation is the exchange of information and experiences around the navigational products. Their participation further strengthens the partnership, which encompasses all Hydrographic Offices of the EU Member States around the Baltic Sea.

438 / 1,000 characters

## 2.3 Associated Organisation Details - AO 3

### Associated organisation name and type:

Organisation in original language	PRIMAR		
	6 / 250 characters		
Organisation in English	PRIMAR		
	6 / 250 characters		
Department in original language	Kartverket sjødivisjonen		
	24 / 250 characters		
Department in English	Norwegian Hydrographic Service		
	30 / 250 characters		
Legal status	a) Public		
Type of associated organisation	National public authority	Ministry, etc.	

### Associated organisation location and website:

Address	POB 60	Country	Norway
	6 / 250 characters		
Postal Code	4041		
	4 / 250 characters		
Town	Stavanger		
	9 / 250 characters		
Website	https://www.primar.org/		
	23 / 100 characters		

### Role of the associated organisation in this project:

PRIMAR is one of the two European regional ENC coordinating centres (RENCs). A RENC compiles ENCs from national or international hydrographic authorities, validates the data and manages ENC distribution through appointed resellers. Covering the Baltic Sea, PRIMAR distributes the ENCs of the national hydrographic offices of Estonia, Finland, Latvia, Lithuania, Poland and Sweden. PRIMAR's participation in the project as an associated partner provides the consortium with the perspective of data and service distribution from the data producers to their end customers onboard commercial vessels.

596 / 1,000 characters

## 2.3 Associated Organisation Details - AO 4

### Associated organisation name and type:

Organisation in original language	IC-ENC		
	6 / 250 characters		
Organisation in English	IC-ENC		
	6 / 250 characters		
Department in original language	IC-ENC Headquarters		
	19 / 250 characters		
Department in English	IC-ENC Headquarters		
	19 / 250 characters		
Legal status	a) Public		
Type of associated organisation	Small and medium enterprise	Micro, small, medium enterprises < 250 employees, ≤ EUR 50 million turnover or ≤ EUR 43 million balance sheet total	

### Associated organisation location and website:

Address	International Centre for ENCs Admiralty Way	Country	Other
	43 / 250 characters		
Postal Code	TA1 2DN	Please specify	United Kingdom
	7 / 250 characters		14 / 20 characters
Town	Taunton, Somerset		
	17 / 250 characters		
Website	http://www.ic-enc.org/		
	22 / 100 characters		

### Role of the associated organisation in this project:

IC-ENC is one of the two European regional ENC coordinating centres (RENCs). A RENC compiles ENCs from national or international hydrographic authorities, validates the data and manages ENC distribution through appointed resellers. Covering the Baltic Sea, IC-ENC distributes the ENCs of the national hydrographic offices of Denmark and Germany. IC-ENC's participation in the project as an associated partner provides the consortium with the perspective of data and service distribution from the data producers to their end customers onboard commercial vessels.

561 / 1,000 characters

### 3. Relevance

#### 3.1 Context and challenge

During the past decades, based on HELCOM and EU recommendations, the Baltic Sea countries have cooperated to conduct modern hydrographic surveys of the areas in the Baltic Sea that are relevant for shipping traffic. This has led to comprehensive, detailed, quality-assured hydrographic data as basis for updated navigational charts. By utilizing the Baltic Sea as a test bed, the countries will now take the next step and contribute to the development of safe and environmentally sustainable navigation in the Baltic Sea. Improved navigational information will allow new opportunities for route and loading optimisation and thereby more eco-efficient solutions for maritime transport. Additionally, such hands-on digitalisation will be a major step towards automated navigation and autonomous shipping.

Strengthening of the institutional capacity of the Hydrographic Offices around the Baltic Sea is necessary to facilitate an efficient implementation of the next generation navigational chart products and data services, which will be based on new standards developed by the IHO. Testing of the new products is necessary to customize them according to end user requirements. The Baltic Sea will serve as a test bed for development, tests and refinement of these next generation chart products. The results will be benefit relevant actors regionally through BSHC and internationally through IHO.

The new standards for navigation products will be ratified by the IHO and need to be implemented worldwide. This is both an opportunity and a major challenge on the Hydrographic Offices, which are required to produce the new products on top of their current product portfolio (paper charts, traditional electronic navigational charts, notices to mariners) under an extended transition period. Close collaboration with neighboring countries, a dedicated approach with end user needs in focus and not least additional funding are prerequisites to overcome this challenge.

1,968 / 2,000 characters

#### 3.2 Transnational value of the project

Maritime transport is a largely an international industry that require global standards to introduce new functionalities. For many decades, the charts used for navigating ships at sea have been standardised and their use onboard is highly regulated. This holds true for both traditional paper charts as well as Electronic Navigational Charts (ENC). The governing body for the standards of navigational charts is the IHO, which comprises of its member states represented by the respective Hydrographic Office. The use of the navigational charts, as well as the navigation system for this (Electronic Chart Display and Information System, ECDIS), are regulated by the International Maritime Organisation (IMO). This global approach makes the process of developing and provisioning new standards complicated and slow, even though the standards support more safe and environmentally sustainable navigation.

To avoid a lag in adoption of the next generation of navigational chart products, which according to IHO would result in delays to the current roll-out, collaborative efforts are required. Here, the Baltic Sea Region shines. Centuries of collaboration has turned the Baltic Sea region into a global forerunner for adopting common, harmonised technology. With the region's active Hydrographic Offices, the area of developing electronic navigational information is no exception. Instead, with all of the Hydrographic Offices as partners in this project, the region is well equipped to heed the call from IHO to support the transition to the new generation navigational products. By investing in a joint collaborative effort the Baltic Sea region has the opportunity to be at the forefront of this exciting development.

1,722 / 2,000 characters

### 3.3 Target groups

Target group	Sector and geographical coverage	Its role and needs
National public authority	<p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p> <p>497 / 500 characters</p>	<p>The Hydrographic Offices are experts on marine spatial information, sea surveying, navigational charts and digital navigation systems. Furthermore, being part of the IHO, the Hydrographic Offices actively contribute to the development of the S-100 standards for the next generation digital navigational chart information.</p> <p>The Hydrographic Offices have a challenge in building capacity to manage the transfer its operations from traditional navigational charts to the next generation, more dynamic, navigational charts in a harmonised way. Through collaboration and by carrying out joint development and testing, the Hydrographic Offices will be able to implement next generation navigational charts more efficiently, which in turn is needed by the maritime sector and the shipping industry in order to improve safety of navigation and environmental performance of sea traffic in the Baltic Sea.</p> <p>894 / 1,000 characters</p>
Interest group	<p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p> <p>381 / 500 characters</p>	<p>The Baltic Sea Hydrographic Commission and its subordinated working groups, such as the Baltic Sea International Chart Coordination Working Group, are anticipated to become the governance body for issues related to regional coordination of navigational products. Already today, the BSHC fills such role with regard to paper charts and current generation ENCs.</p> <p>During and after this project, BSHC will continue to be the governance body for common regional developments and can task its working groups with relevant work items. BSHC will also continue to play an active role to promote the opportunities given by the next generation of navigational information, spur continued development and encourage adoption in the industry.</p> <p>728 / 1,000 characters</p>

### 3.4 Project objective

#### Your project objective should contribute to:

##### Sustainable waters

Implementing the next generation of electronic navigational charts and data services, based on the newly established IHO S-100 standards, will contribute to the continued digitalization of vessel navigation at sea. By building an improved digital navigation infrastructure at sea, navigation will become more efficient, safer and sustainable. As the Baltic Sea is one of the World's most heavily trafficked sea areas, it is an ideal test bed for deploying the concepts and services enabled by the S-100 standards.

The project will establish relevant test scenarios and areas, where the project partners will produce navigational information according to selected new standards: (1) The next-generation Electronic Navigational Chart as a base layer (S-101), (2) a high-resolution seabed information overlay for increased situational awareness in challenging circumstances (S-102) and (3) real-time and predicted sea surface information in the form of water level and surface current data (S-104/S-111), which is needed for accurate assessments of safety margins around and under the vessel. For these standards, the project will end up with a product portfolio and a governance structure ready to launch full scale production and delivery.

For the data producers, and thereby digital infrastructure providers, the production transition from paper charts and traditional ENCs towards a new, service and data oriented product portfolio is a major paradigm shift. At the same time as the current product portfolio must still be supported and updated for several years of transition time to come, the capacity for producing new products must be built, products must be developed and tested, business models must be adjusted and full scale production must be prepared.

Implementing this project in a close and proven partnership between all relevant actors around the Baltic Sea will lead to better, more regionally harmonized products, which will evolve from a more streamlined and efficient process.

1,998 / 2,000 characters

### 3.5 Project's contribution to the EU Strategy for the Baltic Sea Region

Please indicate whether your project contributes to the implementation of the Action Plan of the EU Strategy for the Baltic Sea Region (EUSBSR).

☒ Yes ☐ No

Please select which Policy Area of the EUSBSR your project contributes to most.

PA Safe

Please list the action of this Policy Area that your project contributes to and explain how.

The policy area on maritime Safety and Security (PA Safe) provides a sound platform for reinforcing maritime safety and security in the Baltic Sea region. PA Safe contributes to the objective "Save the sea" and its sub-objective "Clean and safe shipping". PA Safe will ensure that horizontal aspects, notably addressing climate change and cooperation with non-EU neighbouring countries and organisations, are appropriately integrated into the work of the policy area.

The project Baltic Sea e-Nav addresses Action 1: Providing reliable navigational conditions to the Baltic Sea in the section of PA Safe of the Action Plan of EUSBSR. The aim of action 1 is to improve navigational safety in the Baltic Sea by providing more accurate water depth data, which can be used to create state-of-the-art nautical charts for e-navigation.

Activities of PA Safe include developing new innovations based on more accurate depth data, training of maritime personnel to use navigational systems onboard ships, and promoting the utilization of more accurate depth data in such equipment. The Action 1 priority also aims at facilitating enriching electronic navigational charts with dynamic data and building a digital model of the physical transport infrastructure.

Baltic Sea e-Nav is supported by the Steering Group of PA Safe and will, if granted co-financing, be accepted as a flagship project of PA Safe.

1,398 / 1,500 characters

If applicable, please describe which other Policy Areas of the EUSBSR your project contributes to and how.

Besides PA Safe, the project is also more loosely related to the goals of PA Transport and PA Ship. Both policy areas prioritise digitalisation to improve the efficiency and limit the environmental impact of transport and shipping, which is related to the proposed Baltic Sea e-Nav project.

290 / 1,500 characters

### 3.6 Other political and strategic background of the project

#### Strategic documents

##### IHO Strategic Plan 2021-2026

The International Hydrographic Organization's vision to "advance maritime safety and efficiency" by "provid[ing] adequate, standardized and timely hydrographic data, products and services" globally is directly related to this project's aim. In fact many of the goals and indicators IHO use to measure progress are echoed by this project. These shared goals include production, distribution and adoption of standardised hydrographic data.

467 / 500 characters

##### Motorways of the Sea, Detailed Implementation Plan of the European Coordinator

As prioritised investments needed to realise the strategic plan the document specifically highlights "more reliable information on under-keel clearance ... for security and efficiency reasons". This project will deliver the fundamental components that will allow the next level of surveys to be used for under-keel clearance, among other potential services.

438 / 500 characters

##### The European Green Deal

The transformation and greening of the European economy is depended on digitalisation. In line with the proposed project the Green Deal underscore the importance of accessible and interoperable data for a "... very high precision digital model of the Earth." The results of this project will be a direct contribution to this critical research endeavour by allowing for a standardised and more frequently updated model of the seafloor.

459 / 500 characters

### 3.7 Seed money support

Please indicate whether your project is based on a seed money project implemented in the Interreg Baltic Sea Region Programme 2014-2020.

☐ Yes ☒ No

### 3.8 Other projects: use of results and planned cooperation



Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
<div>FAMOS Freja</div> <div>11 / 200 characters</div>	<div>Connecting Europe Facility</div> <div>26 / 200 characters</div>	<div>The FAMOS Freja project 2014-2016 was a collaboration of several Hydrographic Offices around the Baltic Sea. Helped by co-financing from EU transport infrastructure funds, the project implemented large scale hydrographic surveys in the Baltic Sea and facilitated major improvements in the surveying and chart production capabilities for the partners involved. With this, the project also laid the foundation for the coming next generation of navigational products.</div> <div>464 / 1,000 characters</div>
<div>FAMOS Odin</div> <div>10 / 200 characters</div>	<div>Connecting Europe Facility</div> <div>26 / 200 characters</div>	<div>The FAMOS Odin project 2016-2018 was the continued collaboration of even more Hydrographic Offices around the Baltic Sea. Helped by co-financing from EU transport infrastructure funds, the project continued to implement large scale hydrographic surveys in the Baltic Sea and facilitated major improvements in the surveying and chart production capabilities for the partners involved as well as cutting edge technology development in the field of satellite positioning at sea. With this, the project also laid the foundation for the coming next generation of navigational products and their use.</div> <div>594 / 1,000 characters</div>
<div>ADAPT</div> <div>5 / 200 characters</div>	<div>Interreg Central Baltic</div> <div>23 / 200 characters</div>	<div>The objective of ADAPT was improvements in regards to route planning and find possibilities for reduced fuel consumption for the regular public transportation sector in the archipelagos of Stockholm (SE) and Åland (FI). The result also lead to improved safety of navigation, which was achieved by hydrographic surveys and improved navigational charts.</div> <div>351 / 1,000 characters</div>
<div>Efficient Flow</div> <div>15 / 200 characters</div>	<div>Interreg Central Baltic</div> <div>23 / 200 characters</div>	<div>EfficientFlow projekt aimed at develop traffic management and information sharing for port calls and for safe and efficient maritime traffic in the archipelagos between Sweden and Finland. In the EfficientFlow project, SMA and SAMK initiated a fruitful collaboration, which continues in this project.</div> <div>300 / 1,000 characters</div>

Full name of the project	Funding Source	Use of the project outcomes and/or planned cooperation
STM BALTSAFE	Interreg Baltic Sea	<p>STM BALTSAFE (2019-2021) was a flagship project in PA Safe of the EUSBSR and aimed to contribute to increased safety of navigation in the Baltic Sea by providing Sea Traffic Management (STM) enabled maritime services to the tanker traffic in the Baltic. The project was addressing the recently amended HELCOM recommendations 34 E/2 "Further testing and development of the concept of exchange of voyage plans as well as other e-navigation solutions to enhance safety of navigation and protection of the marine environment in the Baltic Sea region". Tanker ships will be made safer by making them STM compatible hence given the ability to send and receive voyage plans with other ships and with public authorities in Baltic Sea countries. By the STM BALT SAFE project, the institutional capacity of the public sector on supporting and developing safety of navigation services and efficiency of transport was enhanced.</p>
<b>3.10 Horizontal principles</b>		<b>Projects's direct impact</b>
<b>Horizontal principles</b>		
Sustainable development	positive	
Non-discrimination including accessibility	neutral	
Equality between men and women	neutral	

#### 4. Management

Allocated budget

15%

##### 4.1 Project management

☒ Please confirm that the lead partner and all project partners will comply with the rules for the project management as described in the Programme Manual.

If relevant, please indicate any other important aspects of the project management, e.g. external entity supporting the lead partner in the management of the project, advisory board, steering committee, any other relevant working groups, etc.

0 / 500 characters

##### 4.2 Project financial management

☒ Please confirm that the lead partner and all project partners will comply with the rules for the financial management and control as described in the Programme Manual.

If relevant, please indicate any other important aspects of the financial management, e.g. external entity supporting the lead partner, positions planned for financial management, involvement of special financial experts (e.g. for public procurement), etc.

0 / 500 characters

##### 4.3 Input to Programme communication

☒ Please confirm that you are aware of the obligatory inputs to Programme communication that must be submitted along the pre-defined progress reports, as described in the Programme Manual.

If relevant, please describe other important aspects of project communication that you plan to introduce, e.g. a communication plan, opening and closing events, social media channel(s) etc.

0 / 500 characters

##### 4.4 Cooperation criteria

Please select the cooperation criteria that apply to your project. In your project you need to apply at least three cooperation criteria. Joint development and joint implementation are the obligatory ones you need to fulfill in your project.

Cooperation criteria

Joint Development ☒

Joint Implementation ☒

Joint Staffing ☒

Joint Financing ☒

## 5. Work Plan

	Number	Work Package Name												
	1	Preparing solutions												
		<table><tr><th>Number</th><th>Group of Activity Name</th></tr><tr><td>1.1</td><td>Next generation Electronic Navigational Chart product development (S-101 ENC)</td></tr><tr><td>1.2</td><td>High-resolution seabed information product development (S-102 Bathymetric Surface)</td></tr><tr><td>1.3</td><td>Real-time and predicted sea surface information development (S-104/S-111 products)</td></tr><tr><td>1.4</td><td>Identify product harmonization challenges</td></tr><tr><td>1.5</td><td>Develop piloting scenarios and product evaluation platform</td></tr></table>	Number	Group of Activity Name	1.1	Next generation Electronic Navigational Chart product development (S-101 ENC)	1.2	High-resolution seabed information product development (S-102 Bathymetric Surface)	1.3	Real-time and predicted sea surface information development (S-104/S-111 products)	1.4	Identify product harmonization challenges	1.5	Develop piloting scenarios and product evaluation platform
	Number	Group of Activity Name												
	1.1	Next generation Electronic Navigational Chart product development (S-101 ENC)												
	1.2	High-resolution seabed information product development (S-102 Bathymetric Surface)												
	1.3	Real-time and predicted sea surface information development (S-104/S-111 products)												
	1.4	Identify product harmonization challenges												
	1.5	Develop piloting scenarios and product evaluation platform												
	2	WP2 Piloting and evaluating solutions												
		<table><tr><th>Number</th><th>Group of Activity Name</th></tr><tr><td>2.1</td><td>Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)</td></tr><tr><td>2.2</td><td>High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)</td></tr><tr><td>2.3</td><td>Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)</td></tr><tr><td>2.4</td><td>Develop and evaluate product governance</td></tr><tr><td>2.5</td><td>Refinement of the piloting scenarios and evaluation platform</td></tr></table>	Number	Group of Activity Name	2.1	Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)	2.2	High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)	2.3	Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)	2.4	Develop and evaluate product governance	2.5	Refinement of the piloting scenarios and evaluation platform
	Number	Group of Activity Name												
	2.1	Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)												
	2.2	High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)												
	2.3	Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)												
	2.4	Develop and evaluate product governance												
	2.5	Refinement of the piloting scenarios and evaluation platform												
	3	Transferring solutions												
		<table><tr><th>Number</th><th>Group of Activity Name</th></tr><tr><td>3.1</td><td>Operationalize next generation Electronic Navigational Chart product (S-101 ENC)</td></tr><tr><td>3.2</td><td>Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)</td></tr><tr><td>3.3</td><td>Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)</td></tr><tr><td>3.4</td><td>Implement governance structures</td></tr></table>	Number	Group of Activity Name	3.1	Operationalize next generation Electronic Navigational Chart product (S-101 ENC)	3.2	Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)	3.3	Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)	3.4	Implement governance structures		
	Number	Group of Activity Name												
	3.1	Operationalize next generation Electronic Navigational Chart product (S-101 ENC)												
	3.2	Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)												
	3.3	Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)												
3.4	Implement governance structures													

## Work plan overview

Period: 1 2 3 4 5 6							Leader
<b>WP.1: Preparing solutions</b>							<b>PP1</b>
A.1.1: Next generation Electronic Navigational Chart product development (S-101 ENC)							PP1
D.1.1: Next generation ENC - prototype product ready for testing			D				
A.1.2: High-resolution seabed information product development (S-102 Bathymetric Surface)							PP4
D.1.2: High-resolution seabed information product - prototype ready for testing			D				
A.1.3: Real-time and predicted sea surface information development (S-104/S-111 products)							PP1
D.1.3: Prototype product of real-time and predicted dynamic water level and surface currents data			D				
A.1.4: Identify product harmonization challenges							PP3
D.1.4: Regional harmonization guidelines for product development			D				
A.1.5: Develop piloting scenarios and product evaluation platform							PP2
D.1.5: Piloting scenarios and product evaluation platform			D				
<b>WP.2: WP2 Piloting and evaluating solutions</b>							<b>PP2</b>
A.2.1: Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)							PP10
D.2.1: Refined next generation Electronic Navigational Chart (S-101 ENC)				D			
A.2.2: High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)							PP2
D.2.2: Refined high-resolution seabed information product (S-102 Bathymetric Surface)				D			
A.2.3: Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)							PP2
D.2.3: Refined real-time and predicted sea surface information products (S-104/S-111 products)				D			
A.2.4: Develop and evaluate product governance							PP3
D.2.4: Plan for regional governance structure regarding specific S-100 based products and services				D			
A.2.5: Refinement of the piloting scenarios and evaluation platform							PP10
<b>WP.3: Transferring solutions</b>							<b>PP3</b>
A.3.1: Operationalize next generation Electronic Navigational Chart product (S-101 ENC)							PP1
O.3.1: Production ready next generation Electronic Navigational Chart (S-101 ENC)					O		
A.3.2: Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)							PP4
O.3.2: Production ready high-resolution seabed information (S-102 Bathymetric Surface)					O		
A.3.3: Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)							PP1
O.3.3: Proposal for operational real-time and predicted sea surface information service (S-104 / S-111)					O		
A.3.4: Implement governance structures							PP3
O.3.4: Established regional governance structures					O		

#### Outputs and deliverables overview

Code	Title	Description	Contribution to the output	Output/ deliverable contains an investment
D 1.1	Next generation ENC - prototype product ready for testing	The goal of activity 1.1 is to define and develop a prototype next generation Electronic Navigation Chart product compliant with S-101, which is ready to start testing in WP2, under the piloting scenarios developed in activity 1.5. The deliverable will focus on essential functionality and the geographic coverage needed for the pilots, as defined in activity 1.5, with the aim to be refined iteratively during WP2. The activity deliverable will focus on the most important preconditions for this: - Basic regional harmonisation of the data content of S-101 ENCs - Developed strategies for initial data migration from legacy S-57 format ENCs - Technical readiness of the production systems involved - Production of prototype S-101 ENC data for specific areas	O.3.1	
D 1.2	High-resolution seabed information product - prototype ready for testing	The goal of activity 1.2 is to define and develop a prototype high-resolution seabed information product compliant with S-102 (Bathymetric Surface), which is ready to start testing in WP2, under the pilot scenarios developed in activity 1.5. The deliverable will focus on essential functionality and the geographic coverage needed for the pilots, as defined in activity 1.5, with the aim to be refined iteratively during WP2. In order to achieve that, the most important preconditions are: - Basic regional harmonisation of the data content of S-102 products - Developed strategies for producing such products from the surveyed base data - Technical readiness of the production systems involved - Production of prototype S-102 Bathymetric Surface data for specific areas	O.3.2	
D 1.3	Prototype product of real-time and predicted dynamic water level and surface currents data	The goal of activity 1.3 is to define and develop prototype sea surface information products compliant with S-101, ready to start testing in WP2, under the piloting scenarios developed in activity 1.5. The deliverable will focus on essential functionality and the geographic coverage needed for the pilots, as defined in activity 1.5, with the aim to evaluate needed refinements during WP2, to gain an understanding of the requirements for an eventual commercial service. Probably the prototype sea surface products will be of limited use for real world navigation needs, as the underlying data and observations currently being collected (sea surface level and currents) are sparse and not yet tailored towards the navigation needs. The main focus of this project lies with the products that are fully under the control of the Hydrographic Offices. Therefore, the project does not include all the partners and data providers and resources that would be necessary in order to turn the sea surface services into a commercially ready product. Instead, the project will focus on evaluating the initial prototypes in order to gain a solid understanding of how further commercialisation of the sea surface products should proceed and what organisations would need to be involved in future steps.	O.3.3	

D 1.4	Regional harmonization guidelines for product development	Challenges regarding product compatibility, product interoperability and governance structures are well-defined and documented. This concerns the products for themselves, as well as the product stacks S-101 ENC + S-102 seabed information and S-101 ENC + S-102 seabed information + S-104 water level information. The documentation will be utilized for product development and also as input for developing the evaluation scenarios. Later in the project, it will also become the basis for development of suitable long-term governance structures.	O.3.1 O.3.2 O.3.3 O.3.4	
D 1.5	Piloting scenarios and product evaluation platform	This deliverable consists of descriptions of the scenarios to be used in the piloting and evaluation of the S-100 products and the evaluation platform. The descriptions will be the base of the piloting and evaluation work in WP2 and the platform will be used to carrying out a part of the piloting and evaluation work (i.e. risk assessments, usability analyses). The evaluation platform will mainly be developed by Furuno and consist of the technical systems needed to pilot the S-100 based products in relevant settings. This platform could consist of an ECDIS in real world vessels and simulators, as well as decision support software in portable pilot units (i.e. the tablet or PC based navigation systems that marine pilots use for their work) and back bridge chart systems.	O.3.1 O.3.2 O.3.3 O.3.4	
D 2.1	Refined next generation Electronic Navigational Chart (S-101 ENC)	This deliverable is the refined next generation Electronic Navigational Chart product (S-101 ENC), ready to transfer to WP3. These next generation ENCs will be fully functional and relevant products for the end users, but limited geographically to the areas used during evaluation and piloting.	O.3.1	
D 2.2	Refined high-resolution seabed information product (S-102 Bathymetric Surface)	This deliverable is the refined high-resolution seabed information product (S-102 Bathymetric Surface) ready to transfer to WP3. These high-resolution seabed information products will be fully functional and relevant from an end user perspective, but limited geographically to the areas used during evaluation and piloting.	O.3.2	
D 2.3	Refined real-time and predicted sea surface information products (S-104/S-111 products)	This deliverable contains the refined sea surface information products (S-104 Water Level Information and S-111 Surface Currents), ready to transfer to WP3. The main goal here is to gain a solid understanding of the required product characteristics from a usage perspective and how such product can be implemented in a commercial market. A full implementation of the needed refinements is likely outside of the scope of this project and its partnership, which lacks the necessary focus on the oceanographic and meteorological data providers. Instead, the activity 2.3 deliverable will be the basis for a detailed implementation plan to be developed in activity 3.3 and suggestions with regard to a suitable governance structure in activity 3.4.	O.3.3	
D 2.4	Plan for regional governance structure regarding specific S-100 based products and services	The deliverable includes a plan for three separate governance structures, concerning the three products dealt with in this project (S-101 ENC, S-102 Bathymetric Surface and S-104/S-111 sea surface information). According to common BSHC procedures, each will likely consist of Terms of References and Rules of Procedures, as well as additional technical documentation as deemed necessary.	O.3.4	
O 3.1	Production ready next generation Electronic Navigational Chart (S-101 ENC)	Operational Electronic Navigational Charts compliant with the new S-101 format will be available in strategic geographic areas in the Baltic Sea, ready for distribution to end users. Dissemination chains and business models are in place, so that the market, which is mainly the shipping industry, can utilize the new generation of electronic charts.		
O 3.2	Production ready high-resolution seabed information (S-102 Bathymetric Surface)	Operational seabed information products compliant with the new S-102 format will be available in defined bottle neck areas in the Baltic Sea; bottle necks areas to be defined in WP1. This additional product, which will interoperate seamlessly with S-101 compliant Electronic Navigational Charts, is expected to provide the shipping industry with an improved decision support for route and loading optimization, as well as increased safety. The product will be ready for distribution to end users. Dissemination chains and business models are in place.		
O 3.3	Proposal for operational real-time and predicted sea surface information service (S-104 / S-111)	A fully operational commercial real-time and predicted sea surface information service, based on IHO specifications S-104 Water Level Information and S-111 Surface Currents, will likely require the input from, and collaboration with additional data providers, because the responsibilities for collecting weather and ocean observations and forecasting such phenomena lies within other authorities than the Hydrographic Offices. The corresponding national meteorological and oceanographic agencies have a similar track record of international collaboration compared with the hydrographic community. But because of the scope of this project, they are here only present with one partner, the Finnish Meteorological Institute. Based on these preconditions, the output of this activity will encompass a formal proposal on how a fully operational real-time and predicted sea surface information service should be implemented in the Baltic Sea. The proposal will be submitted to the BSHC for approval, further product development and final implementation. Even though the Hydrographic Offices likely will be dependent on other data and service providers, when it comes to using e.g. water level information in the regulatory context of nautical charts, they will be responsible for certifying such products or services for navigation use.		

O 3.4	Established regional governance structures	<p>The output of this activity are well-established regional governance structures under the realms of the relevant Baltic Sea Hydrographic Commission working groups, primarily BSICCWG and CDWG, for the S-100 based product portfolio consisting of the next generation ENC (S-101) and the additional high-resolution seabed information (S-102).</p> <p>This implies that the necessary decisions are taken by the BSHC and regional harmonization guidelines for the products are approved. With regard to the sea surface information products (S-104 water level and S-111 surface currents), full-scale commercial production of such services will likely require the input of and collaboration with additional data providers, because the responsibilities for collecting weather and ocean observations and forecasting such phenomena lies with other authorities than the Hydrographic Offices. With regard to governance, the project will put forward proposals as to how such collaboration could be organised after the end of the project.</p>		
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## Work package 1

### 5.1 Preparing solutions

### 5.2 Aim of the work package

The aim of this work package is to prepare solutions to help address the identified challenge. You can either develop entirely new solutions or adapt existing solutions to the needs of your target groups. Prepare your solutions in a way that you can pilot them in Work Package 2. Consider how you involve your target groups in preparation of the solutions.

Organise your activities in up to five groups of activities to present the actions you plan to implement. Describe the deliverables and outputs as well as present the timeline.

### 5.3 Work package leader

Work package leader 1 PP 1 - Swedish Maritime Administration

Work package leader 2 Please select

### 5.4 Work package budget

Work package budget 40%

### 5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	<p>National public authority</p> <p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p> <p>497 / 500 characters</p>	<p>The target group, hydrographic offices, will carry out work related to the product development of S-100 based products. Furthermore, the hydrographic offices will lay the foundation for a long-term governance structure for S-100 based products, by investigating the technical, regional and collaborative harmonization challenges concerning these products.</p> <p>355 / 1,000 characters</p>
2	<p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p> <p>381 / 500 characters</p>	<p>Through its members, the national hydrographic offices, BSHC and its subordinated working groups will regularly be informed about the developments carried out in WP1.</p> <p>166 / 1,000 characters</p>

### 5.6 Activities, deliverables, outputs and timeline

No.	Name
1.1	Next generation Electronic Navigational Chart product development (S-101 ENC)
1.2	High-resolution seabed information product development (S-102 Bathymetric Surface)
1.3	Real-time and predicted sea surface information development (S-104/S-111 products)
1.4	Identify product harmonization challenges
1.5	Develop piloting scenarios and product evaluation platform



## WP 1 Group of activities 1.1

### 5.6.1 Group of activities leader

Group of activities leader PP 1 - Swedish Maritime Administration

### A 1.1

### 5.6.2 Title of the group of activities

Next generation Electronic Navigational Chart product development (S-101 ENC)

77 / 100 characters

### 5.6.3 Description of the group of activities

The overall goal of this group of activities is to develop the next generation Electronic Navigational Chart (ENC) for the Baltic Sea, based on the IHO S-101 product specification. The ENC product consists of mostly static data, in contrast to the products dealt with in groups of activities 1.2 and 1.3.

Currently, ENCs are distributed in the IHO S-57 standard, which all involved Hydrographic Offices adhere to. Therefore, the databases and technical systems used for the production of S-57 ENCs must be upgraded for S-101 production compatibility. Furthermore, appropriate strategies for the migration of data from S-57 to S-101 format must be developed, based on the individual production prerequisites of the Hydrographic Offices.

This group of activities is structured into activities as follows:

1.1.1: Harmonized regional conceptual product design, e.g.  
- Common regional interpretation and synchronization of the S-101 product specification, e.g. scheming, resolution  
- Conception and prototypical realization of a product catalogue

1.1.2: National and regional adoption of IHO S-101 data model  
- Definition and implementation of assignment rules between old and new product standards  
- Selection and implementation of cross-product identifiers / feature IDs to ensure backward interoperability

1.1.3: Production systems upgrade, e.g.  
- Conception and prototypical realisation of data storage for semantically grouped content

1.1.4: Initial data migration from existing charts (legacy S-57), e.g.  
- Development of techniques to convert resp. transfer S-57 datasets to S-101 datasets  
- Data migration into S-101 compatible database

Findings from WP 2 pilots conducted under A 2.1 will be fed back into the product development done in A 1.1, creating an iterative loop refining the product. Harmonization challenges identified in WP 2 group of activities A 2.4 will be fed into activities 1.1.1 and 1.1.2.

1,919 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 1.1

#### Title of the deliverable

Next generation ENC - prototype product ready for testing

57 / 100 characters

#### Description of the deliverable

The goal of activity 1.1 is to define and develop a prototype next generation Electronic Navigation Chart product compliant with S-101, which is ready to start testing in WP2, under the piloting scenarios developed in activity 1.5. The deliverable will focus on essential functionality and the geographic coverage needed for the pilots, as defined in activity 1.5, with the aim to be refined iteratively during WP2. The activity deliverable will focus on the most important preconditions for this:

- Basic regional harmonisation of the data content of S-101 ENCs
- Developed strategies for initial data migration from legacy S-57 format ENCs
- Technical readiness of the production systems involved
- Production of prototype S-101 ENC data for specific areas

759 / 2,000 characters

#### Which output does this deliverable contribute to?

O.3.1

5 / 100 characters

## 5.6.6 Timeline

Period: 1 2 3 4 5 6

### WP.1: Preparing solutions

A.1.1: Next generation Electronic Navigational Chart product development (S-101 ENC)

D.1.1: Next generation ENC - prototype product ready for testing

## 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 1 Group of activities 1.2

### 5.6.1 Group of activities leader

Group of activities leader PP 4 - Federal Maritime and Hydrographic Agency

## A 1.2

### 5.6.2 Title of the group of activities

High-resolution seabed information product development (S-102 Bathymetric Surface)

82 / 100 characters

### 5.6.3 Description of the group of activities

The overall goal of this group of activities is to develop high-resolution water depth (bathymetry) information products for vessel navigation, based on the IHO S-102 product specification. As the seabed is slowly changing in certain environmental settings, such high-resolution bathymetry information is semi-dynamic and requires regular updates in certain areas, in contrast to the products dealt with in groups of activities 1.1 and 1.3.

This group of activities is structured into activities as follows:

- 1.2.1: Harmonised regional conceptual product design
- 1.2.2: National and regional adoption of IHO S-102 data model
- 1.2.3: Production system implementation
- 1.2.4: Source data production

Findings from WP 2 pilots conducted under A 2.2 will be fed back into the product development done in A 1.2, creating an iterative loop refining the product. Harmonisation challenges identified in WP 2 group of activities A 2.4 will be fed into activities 1.2.1 and 1.2.2.

#### DESCRIPTION OF THE ACTIVITIES

- 1.2.1: Harmonised regional conceptual product design
  - Common regional interpretation and synchronization of S-102 product specification, e.g. scheming, resolution
  - Develop strategy for dealing with moving seabed situations
  - Conceptual design and realisation of an interface for the provision of S-102 source data between different functional departments within an Hydrographic Office
  - \* Consideration of both static and dynamic grid widths, depending on the actual geomorphological structure
  - \* Definition and implementation of storage structures in databases
  - \* Definition and realisation process flows to provide S-102 data to the nautical production system
- 1.2.2: National and regional adoption of IHO S-102 data model
- 1.2.3: Production system implementation
  - Use appropriate interpolation techniques to fill gaps; review, selection and implementation of suitable, structure-preserving interpolation techniques
  - Development of techniques to provide static, regular grids
- 1.2.4: Source data production
  - Preparation and provision of dense, non-structured 3D data representations of sea bottom topography, which is geo-referenced and quality-assured.
  - Provision of quality metrics and further meta data

2,226 / 3,000 characters

#### 5.6.4 This group of activities leads to the development of a deliverable ☒

#### D 1.2

##### Title of the deliverable

High-resolution seabed information product - prototype ready for testing

72 / 100 characters

##### Description of the deliverable

The goal of activity 1.2 is to define and develop a prototype high-resolution seabed information product compliant with S-102 (Bathymetric Surface), which is ready to start testing in WP2, under the pilot scenarios developed in activity 1.5. The deliverable will focus on essential functionality and the geographic coverage needed for the pilots, as defined in activity 1.5, with the aim to be refined iteratively during WP2. In order to achieve that, the most important preconditions are:

- Basic regional harmonisation of the data content of S-102 products
- Developed strategies for producing such products from the surveyed base data
- Technical readiness of the production systems involved
- Production of prototype S-102 Bathymetric Surface data for specific areas

771 / 2,000 characters

##### Which output does this deliverable contribute to?

O.3.2

5 / 100 characters

#### 5.6.6 Timeline

	Period: 1 2 3 4 5 6					
<b>WP.1: Preparing solutions</b>						
A.1.2: High-resolution seabed information product development (S-102 Bathymetric Surface)						
D.1.2: High-resolution seabed information product - prototype ready for testing						

#### 5.6.7 This deliverable/output contains productive or infrastructure investment ☐

## WP 1 Group of activities 1.3

### 5.6.1 Group of activities leader

Group of activities leader PP 1 - Swedish Maritime Administration

### A 1.3

### 5.6.2 Title of the group of activities

Real-time and predicted sea surface information development (S-104/S-111 products)

82 / 100 characters

### 5.6.3 Description of the group of activities

The overall goal of this group of activities is to develop real-time and predicted sea surface level and surface current products for vessel navigation in the Baltic Sea, based on the IHO S-104 and S-111 product specifications. Depending mostly on atmospheric and oceanographic conditions, such water level, information is highly dynamic, in contrast to the products dealt with in activities 1.1 and 1.2. For navigation purposes, both real-time information about the current sea level as well as sea level predictions for the near future are valuable. Actual current sea level can be used to adjust depth information in S-101 ENC's and S-102 bathymetric surface products. Predicted water level could be utilized to maximize cargo load for a planned voyage and predicted surface current could be used for route planning and vessel manoeuvres.

For the Baltic Sea it remains to be investigated if the existing oceanographic modeled data is sufficient and relevant for navigation purposes in areas close to the coast. Furthermore, the production of sea surface information services is highly dependent on data providers from the meteorological and oceanographic communities. How the collaboration between Hydrographic Offices and these communities should be organised also requires further investigations. These investigations are part of this project and will be included in the recommendations in output O.3.3.

This group of activities is structured into activities as follows:

- 1.3.1: Harmonised regional conceptual product design, including studies how to produce S-104 Water Level Information and S-111 Surface Currents products
- 1.3.2: Regional adoption of IHO S-104 and S-111 data model, including preparation of the methods from 1.3.1 and a regional data processing approach for the Baltic Sea
- 1.3.3: Production prototype development, including
  - Development and setup of data workflows for assimilation of oceanographic data from different sources
  - Develop methods for correcting computed ocean model data with real sea level observations, in order to provide continuous areal coverage in S-104 format.
- 1.3.4: Source data analysis and assimilation
  - Convert sea level observations and forecasts from existing ocean models into S-104 time series for point locations in relevant areas as defined under activity 1.5.
  - Convert computed sea surface current data ocean models into S-111 data format.
  - Analyse and validate the initial assimilated S-104 and S-111 products, in order to prepare for further refinement (see activity 2.3)
  - Initial test of distribution chain for S-104 and S-111 products through Regional ENC Coordinating Centres (PRIMAR and IC-ENC)

Findings from WP 2 pilots conducted under activity 2.3 will be fed back into the product development done in activity 1.3, creating a iterative loop refining the product. Harmonization challenges identified in group of activities 1.4 will be fed into activities 1.3.1 and 1.3.2.

2,948 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 1.3

#### Title of the deliverable

Prototype product of real-time and predicted dynamic water level and surface currents data

90 / 100 characters

#### Description of the deliverable

The goal of activity 1.3 is to define and develop prototype sea surface information products compliant with S-101, ready to start testing in WP2, under the piloting scenarios developed in activity 1.5. The deliverable will focus on essential functionality and the geographic coverage needed for the pilots, as defined in activity 1.5, with the aim to evaluate needed refinements during WP2, to gain an understanding of the requirements for an eventual commercial service. Probably the prototype sea surface products will be of limited use for real world navigation needs, as the underlying data and observations currently being collected (sea surface level and currents) are sparse and not yet tailored towards the navigation needs.

The main focus of this project lies with the products that are fully under the control of the Hydrographic Offices. Therefore, the project does not include all the partners and data providers and resources that would be necessary in order to turn the sea surface services into a commercially ready product. Instead, the project will focus on evaluating the initial prototypes in order to gain a solid understanding of how further commercialisation of the sea surface products should proceed and what organisations would need to be involved in future steps.

1,290 / 2,000 characters

#### Which output does this deliverable contribute to?

O.3.3

5 / 100 characters

#### 5.6.6 Timeline

Period: 1 2 3 4 5 6

##### WP.1: Preparing solutions

A.1.3: Real-time and predicted sea surface information development (S-104/S-111 products)

D.1.3: Prototype product of real-time and predicted dynamic water level and surface currents data

#### 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 1 Group of activities 1.4

### 5.6.1 Group of activities leader

**Group of activities leader** PP 3 - Finnish Transport and Communications Agency Traficom

### A 1.4

### 5.6.2 Title of the group of activities

Identify product harmonization challenges

41 / 100 characters

### 5.6.3 Description of the group of activities

Currently, harmonization of navigational products within Baltic Sea are done by Baltic Sea Hydrographic Commission, BSHC and it covers printed INT charts and S-57 ENC's. In the advent of S-101 ENC and S-102 Bathymetric Surface production and dissemination, there is need to study and prepare necessary guidelines for regional harmonization of these new type of navigational products.

This group of activities consist four parts:

- 1.4.1 - Define harmonisation challenges concerning next generation Electronic Navigational Charts (S-101 ENC)
- 1.4.2 - Define harmonisation challenges concerning high-resolution seabed information products (S-102 Bathymetric Surface)
- 1.4.3 - Define harmonisation challenges concerning real-time and predicted sea surface products (S-104 / S-111)
- 1.4.4 - Define harmonisation challenges concerning regional governance

Challenges will also be defined from the perspective of interoperability between S-101, S-102 and S-104 products. This concerns use cases where two or all three of these product types are overlapping and charted depth information in S-101 ENC's can be enhanced significantly through the addition of S-102 seabed information and S-104 water level data. This will be important when planning test scenarios and when developing technical interoperability in EDCIS (activities 1.5 and 2.5).

In the WP1 there will be parallel groups of activities that would benefit some work of this activity group. Therefore it is encouraged to deliver findings or preliminary results of the work as soon as they are available, especially for product design activities and for development of pilots and evaluation scenarios.

Relevant IHO standards, resolutions and high level guidelines need to apply and should be referenced in the deliverable documents as seen appropriate.

1,802 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 1.4

#### Title of the deliverable

Regional harmonization guidelines for product development

57 / 100 characters

#### Description of the deliverable

Challenges regarding product compatibility, product interoperability and governance structures are well-defined and documented. This concerns the products for themselves, as well as the product stacks S-101 ENC + S-102 seabed information and S-101 ENC + S-102 seabed information + S-104 water level information. The documentation will be utilized for product development and also as input for developing the evaluation scenarios. Later in the project, it will also become the basis for development of suitable long-term governance structures.

542 / 2,000 characters

#### Which output does this deliverable contribute to?

O.3.1 O.3.2 O.3.3 O.3.4

23 / 100 characters

### 5.6.6 Timeline

Period:	1	2	3	4	5	6
<b>WP.1: Preparing solutions</b>						
A.1.4: Identify product harmonization challenges						
D.1.4: Regional harmonization guidelines for product development						

### 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 1 Group of activities 1.5

### 5.6.1 Group of activities leader

**Group of activities leader** PP 2 - RISE Research Institutes of Sweden AB

## A 1.5

### 5.6.2 Title of the group of activities

Develop piloting scenarios and product evaluation platform

58 / 100 characters

### 5.6.3 Description of the group of activities

This activity aims at define and analyze the preconditions for conducting the most relevant product evaluation and pilots in WP2. The piloting will be based on relevant scenarios that are defined taking into account different perspectives:

- Geographical context, such as navigational difficulties
- Technical possibilities, such as the use of different testing platforms (e.g. navigation simulators, portable pilot units, chart systems on real vessels)
- Vessel types, and their specific navigation challenges
- End-user use cases, such as certain traffic situations or environmental conditions

The activity will identify geographical areas that are challenging and interesting with respect to:

- The design of development procedures for S-100 based products.
- The harmonization of S-100 based product development between the Hydrographic Offices.
- The relevance of the geographical areas for maritime operations (i.e. the potential impact that S-100 based products for these geographical areas could have on maritime safety and efficiency).

The geographical areas will be identified by means of at least one workshop between representatives of the Hydrographic Offices and vessel crews. Presently anticipated suitable geographical areas in the Baltic Sea include the port of Gothenburg, the Sound, the Quark, the port of Luleå, the port of Raahel, the Irbes strait, and Kadetrenden/Kadettrinne.

Structure of group of activities

1.4 - Develop scenarios for evaluation

1.4.1 - Scenarios from different perspectives (geography, technology, vessel types, end-user (vessel crew) use cases, harmonization challenges (see 1.5))

1.4.2 - Scenarios for different products (respectively and combined)

1.4.3 - Production of test data sets

For the selected areas, S-100 based products will be created (i.e. S-101, S-102, S-104, and S-111) by the other activities in WP1. Then, these S-100 based products will be refined in WP2 through their piloting and evaluation.

To evaluate the S-100 based products, an evaluation platform will be developed. The platform will be able a decision support tool for navigation (similar to an Electronic Chart Display Information System ECDIS) and it will be able to display the S-100 based products.

2,233 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



## D 1.5

### Title of the deliverable

Piloting scenarios and product evaluation platform

50 / 100 characters

### Description of the deliverable

This deliverable consists of descriptions of the scenarios to be used in the piloting and evaluation of the S-100 products and the evaluation platform. The descriptions will be the base of the piloting and evaluation work in WP2 and the platform will be used to carrying out a part of the piloting and evaluation work (i.e. risk assessments, usability analyses). The evaluation platform will mainly be developed by Furuno and consist of the technical systems needed to pilot the S-100 based products in relevant settings. This platform could consist of an ECDIS in real world vessels and simulators, as well as decision support software in portable pilot units (i.e. the tablet or PC based navigation systems that marine pilots use for their work) and back bridge chart systems.

779 / 2,000 characters

### Which output does this deliverable contribute to?

O.3.1 O.3.2 O.3.3 O.3.4

23 / 100 characters

## 5.6.6 Timeline

Period: 1 2 3 4 5 6

### WP.1: Preparing solutions

A.1.5: Develop piloting scenarios and product evaluation platform

D.1.5: Piloting scenarios and product evaluation platform

## 5.6.7 This deliverable/output contains productive or infrastructure investment

## Work package 2

### 5.1 WP2 Piloting and evaluating solutions

#### 5.2 Aim of the work package

The aim of this work package is to pilot, evaluate and adjust solutions. Plan one or several pilots to validate the usefulness of the solutions prepared in Work Package 1. Start Work Package 2 early enough to have time to pilot, evaluate and adjust solutions, together with your target groups. By the end of this work package implementation the solutions should be ready to be transferred to your target groups in Work Package 3. The piloted and adjusted solution should be presented in one project output. Organise your activities in up to five groups of activities. Describe the deliverables and outputs as well as present the timeline.

#### 5.3 Work package leader

Work package leader 1 PP 2 - RISE Research Institutes of Sweden AB

Work package leader 2 PP 10 - Satakunta University of Applied Sciences

#### 5.4 Work package budget

Work package budget 25%

#### 5.4.1 Number of pilots

Number of pilots 3

#### 5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	<p>National public authority</p> <p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p> <p>497 / 500 characters</p>	<p>The Hydrographic Offices will be involved through workshops, where the results of the piloting and evaluation will be presented and discussed. In an iterative approach, the Hydrographic Offices will further refine their products, based on evaluation and piloting results.</p> <p>271 / 1,000 characters</p>
2	<p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p> <p>381 / 500 characters</p>	<p>The Baltic Sea Hydrographic Commission (BSHC) will continuously be informed about the on-going evaluation work. This will be done by submitting formal status reports to the yearly high-level BSHC conference as well as by discussing the project's work in meetings of the relevant BSHC working groups, where representatives from the project partners will participate. If needed, specific project related workshops can be held at BSHC level.</p> <p>439 / 1,000 characters</p>



**5.6 Activities, deliverables, outputs and timeline**

No.	Name
2.1	Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)
2.2	High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)
2.3	Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)
2.4	Develop and evaluate product governance
2.5	Refinement of the piloting scenarios and evaluation platform

## WP 2 Group of activities 2.1

### 5.6.1 Group of activities leader

**Group of activities leader** PP 10 - Satakunta University of Applied Sciences

### A 2.1

### 5.6.2 Title of the group of activities

Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)

89 / 100 characters

### 5.6.3 Description of the group of activities

This activity will refine the next generation Electronic Navigational Chart product (S-101 ENC) developed in WP1 through feedback and improvement iterations. The partners RISE and SAMK will pilot and evaluate the ENC product to provide the Hydrographic Offices with feedback regarding the value of the product for end-users and derived product developers. The feedback will be provided to the Hydrographic Offices through at least two workshops. In the workshops, modifications to the ENC product will be outlined based on discussions regarding associated costs and benefits. When the Hydrographic Offices have implemented the changes, a new iteration will be carried out. If no further adjustments are necessary or possible, the solutions will be deemed ready for transfer to WP3.

The value of the ENC product for the end-users will be determined through usability analyses and risk assessments, while the value for the software developers will be determined by evaluating the potential of using the S-101 compliant ENC in the development of new functions and the impact of such functions in maritime operations.

In the usability analyses, a number of end-users (e.g. ship officers, navigators, pilots, VTS operators) will be asked to pilot and evaluate the products according to the scenarios and platform developed in activity 1.5. In the risk assessments, risks associated to the product will be identified through the same scenarios and platform, and if considered necessary, risk mitigation options will be suggested.

Finally, the value of the S-101 product for the software developers of derived-products will be determined by evaluating:

- The potential of using the information provided by the new ENC products on the development of new functions (e.g. decision support functions to maximize safety and minimize environmental impact of ship operations).
- The impact that such functions could have on maritime operations (e.g. reduced risk of grounding accidents or reduced fuel consumption).

2,006 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 2.1

#### Title of the deliverable

Refined next generation Electronic Navigational Chart (S-101 ENC)

65 / 100 characters

#### Description of the deliverable

This deliverable is the refined next generation Electronic Navigational Chart product (S-101 ENC), ready to transfer to WP3. These next generation ENCs will be fully functional and relevant products for the end users, but limited geographically to the areas used during evaluation and piloting.

294 / 2,000 characters

#### Which output does this deliverable contribute to?

O.3.1

5 / 100 characters

### 5.6.6 Timeline

	Period: 1 2 3 4 5 6					
<b>WP.2: WP2 Piloting and evaluating solutions</b>						
A.2.1: Next generation Electronic Navigational Chart product piloting and evaluation (S-101 ENC)						
D.2.1: Refined next generation Electronic Navigational Chart (S-101 ENC)						

### 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 2 Group of activities 2.2

### 5.6.1 Group of activities leader

Group of activities leader PP 2 - RISE Research Institutes of Sweden AB

### A 2.2

### 5.6.2 Title of the group of activities

High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)

94 / 100 characters

### 5.6.3 Description of the group of activities

This activity will refine the high-resolution seabed information product (S-102 Bathymetric Surface) developed in WP1 through feedback and improvement iterations. The partners RISE and SAMK will pilot and evaluate the seabed information product to provide the Hydrographic Offices with feedback regarding the value of the product for end-users and derived product developers. The feedback will be provided to the Hydrographic Offices through at least two workshops. In the workshops, modifications to the seabed information product will be outlined based on discussions regarding associated costs and benefits. When the Hydrographic Offices have implemented the changes, a new iteration will be carried out. If no further adjustments are necessary or possible, the solutions will be deemed ready for transfer to WP3.

The value of the seabed information product for the end-users will be determined through usability analyses and risk assessments, while the value for the software developers will be determined by evaluating the potential of using the S-102 compliant product in the development of new functions and the impact of such functions in maritime operations.

In the usability analyses, a number of end-users (e.g. ship officers, navigators, pilots, VTS operators) will be asked to pilot and evaluate the products according to the scenarios and platform developed in activity 1.5. In the risk assessments, risks associated to the product will be identified through the same scenarios and platform, and if considered necessary, risk mitigation options will be suggested.

Finally, the value of the seabed information product for the software developers of derived-products will be determined by evaluating:

- The potential of using the information provided by the seabed information products on the development of new functions (e.g. decision support functions to maximize safety and minimize environmental impact of ship operations).
- The impact that such functions could have on maritime operations (e.g. reduced risk of grounding accidents or reduced fuel consumption).

2,085 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 2.2

### Title of the deliverable

Refined high-resolution seabed information product (S-102 Bathymetric Surface)

78 / 100 characters

### Description of the deliverable

This deliverable is the refined high-resolution seabed information product (S-102 Bathymetric Surface) ready to transfer to WP3. These high-resolution seabed information products will be fully functional and relevant from an end user perspective, but limited geographically to the areas used during evaluation and piloting.

323 / 2,000 characters

### Which output does this deliverable contribute to?

O.3.2

5 / 100 characters

### 5.6.6 Timeline

Period: 1 2 3 4 5 6

### WP.2: WP2 Piloting and evaluating solutions

A.2.2: High-resolution seabed information product piloting and evaluation (S-102 Bathymetric Surface)

D.2.2: Refined high-resolution seabed information product (S-102 Bathymetric Surface)

### 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 2 Group of activities 2.3

### 5.6.1 Group of activities leader

Group of activities leader PP 2 - RISE Research Institutes of Sweden AB

### A 2.3

### 5.6.2 Title of the group of activities

Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)

94 / 100 characters

### 5.6.3 Description of the group of activities

This activity will refine the real-time and predicted sea surface information products (S-104 Water Level Information and S-111 Surface Currents) developed in WP1 through feedback and improvement iterations. The partners RISE and SAMK will pilot and evaluate the sea surface information products and provide the Hydrographic Offices and the Finnish Meteorological Institute with feedback regarding the value of the product for end-users and derived product developers. The feedback will be provided to the Hydrographic Offices and the Finnish Meteorological Institute through at least two workshops. In the workshops, modifications to the sea surface information products will be outlined based on discussions regarding associated costs and benefits. When the Hydrographic Offices and the Finnish Meteorological Institute have implemented the changes, a new iteration will be carried out. If no further adjustments are necessary or possible, the solutions will be deemed ready for transfer to WP3.

The value of the sea surface information products for the end-users will be determined through usability analyses and risk assessments, while the value for the software developers will be determined by evaluating the potential of using the S-104 and S-111 data formats in the development of new functions and the impact of such functions in maritime operations.

In the usability analyses, a number of end-users (e.g. ship officers, navigators, pilots, VTS operators) will be asked to pilot and evaluate the products according to the scenarios and platform developed in activity 1.5. In the risk assessments, risks associated to the product will be identified through the same scenarios and platform, and if considered necessary, risk mitigation options will be suggested.

Finally, the value of the sea surface information products for the software developers of derived-products will be determined by evaluating:

- The potential of using the information provided by the sea surface information products on the development of new functions (e.g. decision support functions to maximize safety and minimize environmental impact of ship operations).
- The impact that such functions could have on maritime operations (e.g. reduced risk of grounding accidents or reduced fuel consumption).

2,321 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 2.3

### Title of the deliverable

Refined real-time and predicted sea surface information products (S-104/S-111 products)

87 / 100 characters

### Description of the deliverable

This deliverable contains the refined sea surface information products (S-104 Water Level Information and S-111 Surface Currents), ready to transfer to WP3. The main goal here is to gain a solid understanding of the required product characteristics from a usage perspective and how such product can be implemented in a commercial market. A full implementation of the needed refinements is likely outside of the scope of this project and its partnership, which lacks the necessary focus on the oceanographic and meteorological data providers. Instead, the activity 2.3 deliverable will be the basis for a detailed implementation plan to be developed in activity 3.3 and suggestions with regard to a suitable governance structure in activity 3.4.

745 / 2,000 characters

### Which output does this deliverable contribute to?

O.3.3

5 / 100 characters

### 5.6.6 Timeline

	Period:	1	2	3	4	5	6
<b>WP.2: WP2 Piloting and evaluating solutions</b>							
A.2.3: Real-time and predicted sea surface information piloting and evaluation (S-104/S-111 products)							
D.2.3: Refined real-time and predicted sea surface information products (S-104/S-111 products)							

### 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 2 Group of activities 2.4

### 5.6.1 Group of activities leader

**Group of activities leader** PP 3 - Finnish Transport and Communications Agency Traficom

### A 2.4

### 5.6.2 Title of the group of activities

Develop and evaluate product governance

39 / 100 characters

### 5.6.3 Description of the group of activities

Traditionally, the governance of navigational products, publications and information services is handled by the Baltic Sea Hydrographic Commission (BSHC). This includes internationally harmonized printed navigational paper charts (INT charts) and also traditional IHO S-57 compliant Electronic Navigational Charts.

Although the responsibility for production based on the the IHO S-100 product specifications clearly falls within each Member State's hydrographic organisation, it is beneficial for all data producers that a holistic and harmonized common view is applied when Hydrographic Offices plan new navigational products and arrange their distribution or similar services.

Ships entering and navigating the Baltic Sea waters also welcome the situation where the coverage of the new S-100 derived navigational products evolve in logical steps and the corresponding services appear consistent and easily accessible in all parts of the region.

The group of activities include three parts:

2.4.1 Governance of next generation ENC products (S-101 ENC)

2.4.2 Governance of high resolution seabed information products (S-102 Bathymetric Surface)

2.4.3 Governance approach for real-time and predicted sea surface information products and services (S-104 Water Level Information products)

The minimum level of governance may just consist of information exchange between Hydrographic Offices, whereas a comprehensive governance model would aim at synchronized production plans and common control over the development of S-100 products. The optimal level of governance probably lies somewhere between these options and may vary by product type. These activities aim at evaluating the different options and put forward proposals to the BSHC for consideration.

Current BSHC working groups with existing terms of references should be taken into account and when drafting governance structures for products in hand.

1,912 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### D 2.4

### Title of the deliverable

Plan for regional governance structure regarding specific S-100 based products and services

91 / 100 characters

### Description of the deliverable

The deliverable includes a plan for three separate governance structures, concerning the three products dealt with in this project (S-101 ENC, S-102 Bathymetric Surface and S-104/S-111 sea surface information). According to common BSHC procedures, each will likely consist of Terms of References and Rules of Procedures, as well as additional technical documentation as deemed necessary.

387 / 2,000 characters

### Which output does this deliverable contribute to?

O.3.4

5 / 100 characters

### 5.6.6 Timeline

	Period:	1	2	3	4	5	6
<b>WP.2: WP2 Piloting and evaluating solutions</b>							
A.2.4: Develop and evaluate product governance							
D.2.4: Plan for regional governance structure regarding specific S-100 based products and services							

### 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 2 Group of activities 2.5

### 5.6.1 Group of activities leader

**Group of activities leader** PP 10 - Satakunta University of Applied Sciences

### A 2.5

### 5.6.2 Title of the group of activities

Refinement of the piloting scenarios and evaluation platform

60 / 100 characters

### 5.6.3 Description of the group of activities

The piloting scenarios and evaluation platform developed in activity 1.5 determine to a great extent the quality and content of the feedback available for refining the S-100 based products to get them ready for transfer to WP3. Therefore, to guarantee that the feedback improves together with the S-100 based products, an activity for their refinement is necessary. This activity will continuously refine the piloting scenarios and the evaluation platform.

457 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



### 5.6.6 Timeline

Period: 1 2 3 4 5 6

#### WP.2: WP2 Piloting and evaluating solutions

A.2.5: Refinement of the piloting scenarios and evaluation platform



## Work package 3

### 5.1 Transferring solutions

### 5.2 Aim of the work package

In Work Package 3, communicate and transfer the ready solutions to your target groups. Plan at least one year for this work package to transfer your solutions to the target groups, considering their respective needs. Select suitable activities to encourage your target groups to use the solutions in their daily work. Organise your activities in up to five groups of activities. Describe the deliverables and outputs as well as present the timeline.

### 5.3 Work package leader

**Work package leader 1** PP 3 - Finnish Transport and Communications Agency Traficom

**Work package leader 2** Please select

### 5.4 Work package budget

**Work package budget** 20%

### 5.5 Target groups

	Target group	How do you plan to reach out to and engage the target group?
1	<p>National public authority</p> <p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p> <p>497 / 500 characters</p>	<p>Target group members are project partners and associated organisations and will actively participate in all relevant activities. Transferring the developed solutions to the market is an important step for the Hydrographic Offices. It will lay the foundation for additional future products that will enable advanced Under Keel Clearance Management for their customers, i.e. sailing with very accurately defined safety margins under and around the vessel. Getting there will require additional steps in the form of even more specific S-100 products and highly accurate satellite positioning systems. Eventually, Under Keel Clearance Management will further improve navigational efficiency at the same time as it will allow for additional cargo (and thereby vessel draft), without deteriorating navigational safety.</p> <p>812 / 1,000 characters</p>
2	<p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p> <p>381 / 500 characters</p>	<p>The project anticipates that the relevant BSHC Working Groups should continue to be responsible for chart coordination and governance related questions even after the introduction of the next generation, S-101 based ENC as well as the high-resolution seabed information products based on S-102. The Baltic Sea Int Chart Coordination Working Group (BSICCWG) has dealt with questions regarding paper charts and traditional ENCs. Technical and collaborative sea surface related questions have been dealt with by the Chart Datum Working Group (CDWG) of the BSHC. As both the BSICCWG and the CDWG consist of members appointed by the respective national hydrographic offices, they will naturally be informed about the project from the beginning. When it comes to the ENC related project output at the end, the project will put forward a suggestion as to how governance should be implemented to BSHC and leave the formal decisions to the Baltic Sea Hydrographic Commission.</p> <p>966 / 1,000 characters</p>

### 5.6 Activities, deliverables, outputs and timeline

No.	Name
3.1	Operationalize next generation Electronic Navigational Chart product (S-101 ENC)
3.2	Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)
3.3	Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)
3.4	Implement governance structures

### WP 3 Group of activities 3.1

#### 5.6.1 Group of activities leader

Group of activities leader PP 1 - Swedish Maritime Administration

#### A 3.1

#### 5.6.2 Title of the group of activities

Operationalize next generation Electronic Navigational Chart product (S-101 ENC)

80 / 100 characters

#### 5.6.3 Description of the group of activities

The activities in WP 3.1 aim at defining and institutionalizing how the Baltic Sea hydrographic offices will continue to produce and deliver the next generation of Electronic Navigational Chart products, based on the at that time current IHO S-101 product specification. Important aspects for the market uptake are usability concerns for the end users as well as following a regionally harmonized approach for the issuing of the charts, so that the different countries' national products interoperate as seamlessly as possible across the borders of differing national responsibility, both territorial borders at sea as well as boundaries between the exclusive economic zones of different nations. The natural international governance body for this kind of questions is the Baltic Sea Hydrographic Commission.

A suitable governance structure should be based on the IHO Resolution 1/2021, the Principles of the WEND for S-1XX Products (WEND-100 Principles). In practice, it should regulate the following:

- The subdivision of sea areas into a suitable pattern of ENC cells at different map scales, so-called "ENC scheming"
- The harmonization of data content for the various objects present in next generation ENCs, and appropriate guidance for the navigators
- Criteria for harmonizing the ENC publication schedule regionally and between countries
- A harmonized plan for the production of the first edition of next generation ENCs covering the Baltic Sea Area at all necessary map scales
- A harmonized approach to business models and distribution chains, taking national preconditions into account

For the publication of paper charts and traditional Electronic Navigational Charts (S-57), similar governance structures have been established through collaboration between countries in the Baltic Sea Int Chart Coordination Working Group (BSICCWG), under the BSHC. The project anticipates that governance of the next generation ENCs (S-101 products) could likewise fall within BSICCWG responsibility and lift the existing international collaboration to the next level. Governance aspects that specifically concern only a small group of countries could also be settled in bilateral or multilateral agreements.

Activity 3.1 also includes up-scaling the production capabilities by developing and implementing process flows for S-101 compliant ENC production.

2,358 / 3,000 characters

#### 5.6.4 This group of activities leads to the development of a deliverable





## O 3.1

### Title of the output

Production ready next generation Electronic Navigational Chart (S-101 ENC)

74 / 100 characters

### Description of the output

Operational Electronic Navigational Charts compliant with the new S-101 format will be available in strategic geographic areas in the Baltic Sea, ready for distribution to end users. Dissemination chains and business models are in place, so that the market, which is mainly the shipping industry, can utilize the new generation of electronic charts.

349 / 3,000 characters

### Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
<p>Target group 1</p> <p>National public authority</p> <p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p>	<p>The Baltic Sea Hydrographic Offices will take over the responsibility for continued supply of the rolled-out next generation ENC products to their customers, delivered via the RENCs (PRIMAR and IC-ENC). This includes also updating the charts as necessary and distributing new editions accordingly. Furthermore, based on the preparatory work laid down in this project, the Hydrographic Offices will be able to up-scale their S-101 compliant production processes in order to achieve the operational transition to full scale S-101 ENC production in their areas of responsibility. This will include dual production lines for legacy (S-57) and new-generation (S-101) ENCs, for a yet to be determined transition period depending on market uptake and regulatory framework.</p>
<p>Target group 2</p> <p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p>	<p>According to the governance structure proposed as output of activity 3.4, the BSHC will take the relevant steps to ensure a harmonized production and delivery of next-generation ENCs in the Baltic Sea area. This will likely happen under the umbrella of the Baltic Sea Int Chart Coordination Working Group (BSICCWG), which has had similar tasks for legacy navigational products.</p>

765 / 1,000 characters

377 / 1,000 characters

### Durability of the output

The production of officially certified Electronic Navigational Charts is a national duty for all coastal states, with the national Hydrographic Offices being responsible for the production and the content of the charts. The goal of this project is to develop the next generation ENC, based on the S-101 standard, and establish the technical, organisational and governance related preconditions that are necessary for the involved Hydrographic Offices to commit to S-101 ENC production on a long-term basis.

The activity output will therefore be taken care of within the ordinary and already established structures and productions processes at the Hydrographic Offices.

669 / 1,000 characters

## 5.6.6 Timeline

	Period: 1	2	3	4	5	6
<b>WP.3: Transferring solutions</b>						
A.3.1: Operationalize next generation Electronic Navigational Chart product (S-101 ENC)						
O.3.1: Production ready next generation Electronic Navigational Chart (S-101 ENC)						

## 5.6.7 This deliverable/output contains productive or infrastructure investment



## WP 3 Group of activities 3.2

### 5.6.1 Group of activities leader

**Group of activities leader** PP 4 - Federal Maritime and Hydrographic Agency

### A 3.2

### 5.6.2 Title of the group of activities

Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)

85 / 100 characters

### 5.6.3 Description of the group of activities

The activities in WP 3.2 aim at defining and institutionalizing how the Baltic Sea hydrographic offices will continue to produce and deliver the high-resolution seabed information products, based on the at that time current IHO S-102 product specification. Important aspects for the market uptake are usability concerns for the end users as well as following a regionally harmonized approach for the issuing of the products, so that the different countries' national products interoperate as seamlessly as possible across the borders of differing national responsibility, both territorial borders at sea as well as boundaries between the exclusive economic zones of different nations. The natural international governance body for this kind of questions is the Baltic Sea Hydrographic Commission.

A suitable governance structure should be based on the IHO Resolution 1/2021, the Principles of the WEND for S-1XX Products (WEND-100 Principles). In practice, it should regulate the following:

- The subdivision of sea areas into a suitable pattern of cells at different usage scales, comparable to the concept of "ENC scheming"
- The harmonization of the data content for the seabed information products, and appropriate guidance for the navigators
- Criteria for harmonizing the seabed information product publication schedule, regionally and between countries
- A harmonized plan for the production of the first edition of seabed information products, covering relevant parts of the Baltic Sea area at all necessary usage scales
- A harmonized approach to business models and distribution chains, taking national preconditions into account

For the publication of paper charts and traditional Electronic Navigational Charts, similar governance structures have been established through collaboration between countries in the Baltic Sea Int Chart Coordination Working Group (BSICCWG), under the BSHC. The project anticipates that even governance of the high-resolution seabed information products (S-102 Bathymetric Surface) could likewise fall within BSICCWG responsibility and lift the existing international collaboration to the next level. Governance aspects that specifically concern only a small group of countries could also be settled in bilateral or multilateral agreements.

Activity 3.2 also includes up-scaling the production capabilities by developing and implementing process flows for high-resolution seabed information products.

2,444 / 3,000 characters

### 5.6.4 This group of activities leads to the development of a deliverable



## O 3.2

### Title of the output

Production ready high-resolution seabed information (S-102 Bathymetric Surface)

79 / 100 characters

### Description of the output

Operational seabed information products compliant with the new S-102 format will be available in defined bottle neck areas in the Baltic Sea; bottle necks areas to be defined in WP1. This additional product, which will interoperate seamlessly with S-101 compliant Electronic Navigational Charts, is expected to provide the shipping industry with an improved decision support for route and loading optimization, as well as increased safety. The product will be ready for distribution to end users. Dissemination chains and business models are in place.

551 / 3,000 characters

### Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
<p>Target group 1</p> <p>National public authority</p> <p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p>	<p>The Baltic Sea Hydrographic Offices will take over the responsibility for continued supply of the rolled-out high-resolution seabed information products to their customers, delivered via the RENCs (PRIMAR and IC-ENC). This includes also updating the products as necessary and distributing new editions accordingly. Furthermore, based on the preparatory work laid down in this project, the Hydrographic Offices will be able to up-scale their S-102 compliant production processes in order to achieve to full scale production in their areas of responsibility, based on market possibilities.</p>
<p>Target group 2</p> <p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p>	<p>According to the governance structure proposed as output of activity 3.4, the BSHC will take the relevant steps to ensure a harmonized production and delivery of the new high-resolution seabed information products in the Baltic Sea area. This will likely happen under the umbrella of the Baltic Sea Int Chart Coordination Working Group (BSICCWG), which has had similar tasks for legacy navigational products.</p>

587 / 1,000 characters

408 / 1,000 characters

### Durability of the output

The production of officially certified high-resolution seabed information (S-102 Bathymetric Surface) is optional to do for coastal states, but will fall under the responsibility of the respective national Hydrographic Office. The goal of this project is to develop the seabed information products, based on the S-102 standard, and establish the technical, organisational and governance related preconditions that are necessary for the involved Hydrographic Offices to commit to S-102 production on a long-term basis. This will be taken care of within the developed structures and productions processes at the Hydrographic Offices.

One important aspect for a full scale rollout of these products this is commercial viability, where the project also will investigate possible business models based on user feedback and anticipated market demand.

845 / 1,000 characters

## 5.6.6 Timeline

	Period: 1	2	3	4	5	6
<b>WP.3: Transferring solutions</b>						
A.3.2: Operationalize high-resolution seabed information product (S-102 Bathymetric Surface)						
O.3.2: Production ready high-resolution seabed information (S-102 Bathymetric Surface)						

## 5.6.7 This deliverable/output contains productive or infrastructure investment



### WP 3 Group of activities 3.3

#### 5.6.1 Group of activities leader

Group of activities leader PP 1 - Swedish Maritime Administration

#### A 3.3

#### 5.6.2 Title of the group of activities

Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)

92 / 100 characters

#### 5.6.3 Description of the group of activities

Activity 3.3 will investigate and determine the governance structure for the production of sea surface information in the Baltic Sea, based on the at that time current S-104 and S-111 product specifications, and deliver a roadmap for implementation. The roadmap will describe the future work and necessary milestones to be able to obtain a well-organized and sustainable production of sea surface information services in the Baltic Sea. The purpose of the roadmap is also to give guide the Baltic Sea states in developing their respective national plans.

Important aspects for the market uptake of sea surface information services are usability concerns for the end users as well as following a regionally harmonized approach for the issuing of the products. Such approach will ensure that the different countries' national products interoperate as seamlessly as possible across the borders of differing national responsibility, both territorial borders at sea as well as across boundaries between the exclusive economic zones of different nations. As these services will be integrated with core navigation features in the electronic charts, there is a need to certify these services for commercial navigation use. This will be a responsibility of the national Hydrographic Offices and could also require a regionally harmonized approach. The natural international governance body for this kind of questions is the BSHC.

The roadmap for implementation of sea surface information will among others describe the following:

- Criteria for harmonizing the sea surface information regionally and between countries
- A harmonized approach to business models and distribution chains, taking national preconditions into account
- The harmonization of data content for the sea surface information compliant with S-104 / S-111

For certain aspects of the coordination and harmonization of sea surface information, governance structures have already been established through collaboration between countries in the BSHC Chart Datum Working Group (CDWG). Therefore, the CDWG is a suitable organisation to monitor, foster and support the implementation of the regional production of the new sea surface information services and to propose actions to ensure a long-term, harmonized and sustainable production of such information.

The project anticipates that governance of the sea surface information products will require a close cooperation with the oceanographic community. Specifically, the Baltic Sea Oceanographic Operational System (BOOS) consists of oceanographic and meteorological organisations, which handle the observations and models necessary as input for the production of sea surface information services. Also, the North Sea Hydrographic Commission could be important to collaborate with, in order to ensure a harmonized transition between the regions.

Governance aspects that specifically concern only a small group of countries could also be settled in bilateral or multilateral agreements.

2,998 / 3,000 characters

#### 5.6.4 This group of activities leads to the development of a deliverable



### O 3.3

#### Title of the output

Proposal for operational real-time and predicted sea surface information service (S-104 / S-111)

96 / 100 characters

#### Description of the output

A fully operational commercial real-time and predicted sea surface information service, based on IHO specifications S-104 Water Level Information and S-111 Surface Currents, will likely require the input from, and collaboration with additional data providers, because the responsibilities for collecting weather and ocean observations and forecasting such phenomena lies within other authorities than the Hydrographic Offices. The corresponding national meteorological and oceanographic agencies have a similar track record of international collaboration compared with the hydrographic community. But because of the scope of this project, they are here only present with one partner, the Finnish Meteorological Institute.

Based on these preconditions, the output of this activity will encompass a formal proposal on how a fully operational real-time and predicted sea surface information service should be implemented in the Baltic Sea. The proposal will be submitted to the BSHC for approval, further product development and final implementation. Even though the Hydrographic Offices likely will be dependent on other data and service providers, when it comes to using e.g. water level information in the regulatory context of nautical charts, they will be responsible for certifying such products or services for navigation use.

1,332 / 3,000 characters

#### Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
<p>Target group 1</p> <p>National public authority</p> <p>The main target group of the project are the national Hydrographic Offices, in their function of digital maritime infrastructure providers. The Hydrographic Offices are the national authoritative producers of nautical charts and the hydrographic offices of all Baltic Sea EU member states will participate in the project (LT and PL as associated partners). Under the umbrella of the IHO, all Baltic Sea states' hydrographic offices collaborate within the Baltic Sea Hydrographic Commission (BSHC).</p>	<p>The Baltic Sea Hydrographic Offices will be responsible for taking the next steps towards full scale commercial implementation of these services, together with the national and regional meteorological and oceanographic agencies, leading to further product development and final roll-out.</p> <p>287 / 1,000 characters</p>
<p>Target group 2</p> <p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p>	<p>The proposal of a S-104 Water Level Information and S-111 Surface Currents service and government structure will be submitted to the Baltic Sea Hydrographic Commission (BSHC) for approval. According to the usual procedures, this will result in work items in the Action Plan for the relevant BSHC working groups, namely the Chart Datum Working Group in this case.</p> <p>362 / 1,000 characters</p>

#### Durability of the output

The proposal for operational real-time and predicted sea surface information service will be handed over to, and taken care of by, a well-established operational structure in the form of the BSHC working groups.

One important aspect of this project's activities regarding the sea surface information services is to investigate the characteristics of a commercial market for such a product in the shipping industry. At present, the Hydrographic Offices expect that there will be a commercial demand for enhanced navigation products, which probably includes the functional improvements that come with real-time and predicted sea surface information. Based on this assumption, financing and commercializing a sea surface information service after the project should very well be possible. Most likely this will happen in a collaboration between the hydrographic and oceanographic/meteorological communities.

905 / 1,000 characters

#### 5.6.6 Timeline

WP.3: Transferring solutions	Period: 1	2	3	4	5	6
A.3.3: Plan operationalizing real-time and predicted sea surface information (S-104/S-111 products)						
O.3.3: Proposal for operational real-time and predicted sea surface information service (S-104 / S-111)						

5.6.7 This deliverable/output contains productive or infrastructure investment



WP 3 Group of activities 3.4

5.6.1 Group of activities leader

Group of activities leader PP 3 - Finnish Transport and Communications Agency Traficom

A 3.4

5.6.2 Title of the group of activities

Implement governance structures

31 / 100 characters

5.6.3 Description of the group of activities

This activity aims at establishing the necessary permanent regional capabilities and preconditions for the production of the S-100 based product portfolio implemented by the project (S-101, S-102 and S-104/S-111). Such regional governance structures consists of a common understanding of these products' implications, production, regional harmonization and publication coordination. Governance will be implemented under the realms of the BSHC, using its relevant existing working groups. For S-101 ENC and S-102 Bathymetric Surface products the Hydrographic Offices anticipate that this could lie within the responsibility of the Baltic Sea Int Chart Coordination Working Group (BSICCWG). For the sea surface information products (S-104 and S-111), the BSHC Chart Datum Working Group (CDWG) could be appropriate.

The project will propose regional harmonization guidelines and a plan forward to the BSHC for consideration in order to take appropriate decisions.

961 / 3,000 characters

5.6.4 This group of activities leads to the development of a deliverable



## O 3.4

### Title of the output

Established regional governance structures

42 / 100 characters

### Description of the output

The output of this activity are well-established regional governance structures under the realms of the relevant Baltic Sea Hydrographic Commission working groups, primarily BSICCWG and CDWG, for the S-100 based product portfolio consisting of the next generation ENC (S-101) and the additional high-resolution seabed information (S-102). This implies that the necessary decisions are taken by the BSHC and regional harmonization guidelines for the products are approved.

With regard to the sea surface information products (S-104 water level and S-111 surface currents), full-scale commercial production of such services will likely require the input of and collaboration with additional data providers, because the responsibilities for collecting weather and ocean observations and forecasting such phenomena lies with other authorities than the Hydrographic Offices. With regard to governance, the project will put forward proposals as to how such collaboration could be organised after the end of the project.

1,015 / 3,000 characters

### Target groups and uptake of the solution presented in this output

Target groups	How will this target group apply the output in its daily work?
<p>Target group 1</p> <p>Interest group</p> <p>The Baltic Sea Hydrographic Commission (BSHC) is the regional organisation for the Baltic Sea under the IHO umbrella. The BSHC members are all Baltic Sea coastal states, represented by their respective national Hydrographic Office. BSHC is a strong supporter of this project and an important target group with respect to the governance related activities and results of the project.</p>	<p>The output of the activity, in form of harmonisation guidelines and a plan forward, submitted to the Baltic Sea Hydrographic Commission, will result in decisions and actions taken by the BSHC to be implemented by its relevant working groups (primarily the BSICCWG and the CDWG). In the working groups, the BSHC member states continuously cooperate around product related questions, such as publication schedules and the technical details of the products.</p>

454 / 1,000 characters

### Durability of the output

As described, the output of this activity are governance structures in the form of documentation and action items for the relevant BSHC working groups. The BSHC, under the umbrella of the IHO, has a proven record of being a solid platform for long-term collaboration, including, for example, coordinating the publication of paper charts and ENCs covering international waters in the Baltic Sea region. The Hydrographic Offices, which participate in this project as partners, will naturally continue their common management of the project results. This will include full commercialization of the developed products according to market demands.

642 / 1,000 characters

## 5.6.6 Timeline

	Period: 1	2	3	4	5	6
<b>WP.3: Transferring solutions</b>						
A.3.4: Implement governance structures						
O.3.4: Established regional governance structures						

## 5.6.7 This deliverable/output contains productive or infrastructure investment



## 6. Indicators

### Indicators

Output indicators				Result indicators		
Output indicators	Total target value in number	Project outputs	Please explain how the solution presented in this output serves the target group(s).	Result indicator	Total target value in number	Please explain how organisations in the target groups within or outside the partnership will take up or upscale each solution.
RCO 84 – Pilot actions developed jointly and implemented in projects	3	N/A	N/A	RCR 104 - Solutions taken up or up-scaled by organisations	4	Based on the outputs of this project, the Hydrographic Offices around the Baltic Sea will be able to take decisions on starting full-scale production and distribution of S-101 ENC's and S-102 Bathymetric Surface products. For the sea surface information products (S-104 Water Level and S-111 Surface Currents information), the project's output will be a proposal on how to proceed in order to establish these services on a commercial scale. For further steps with regard to these products, likely other organisations need to be involved, such as the national meteorological and oceanographic agencies.
RCO 116 – Jointly developed solutions	4	O.3.1: Production ready next generation Electronic Navigational Chart (S-101 ENC)	The S-101 ENC is the product specification that evolves the well-established electronic chart data format (S-57) into the next-generation ENC, which is compatible with the new IHO S-100 product portfolio. For the Hydrographic Offices and the Baltic Sea Hydrographic Commission this is a technological milestone and provides the needed baseline for further advancements into S-100 compliant products.  400 / 1,000 characters			600 / 2,000 characters
		O.3.2: Production ready high-resolution seabed information (S-102 Bathymetric Surface)	The S-102 Bathymetric Surface adds an improved and unprecedented level of detail regarding the seafloor to the electronic charts. For the Hydrographic Offices and the Baltic Sea Hydrographic Commission this is a product which can add enormous value for the end users, the vessels' navigators. As vessels are becoming larger and loading optimization more important, the Hydrographic Offices anticipate that there is a commercial market for such improved navigational chart information.  484 / 1,000 characters			



Output indicators	Total target value in number	Project outputs	Please explain how the solution presented in this output serves the target group(s).
		<p>O.3.3: Proposal for operational real-time and predicted sea surface information service (S-104 / S-111)</p>	<p>The S-104 Water Level information adds the possibility to dynamically adjust depth information in S-100 compliant electronic chart systems to the current environmental conditions. This leads to better control of the actual clearance under the vessel's keel, which may contribute to optimized loading without deteriorating navigational safety.</p> <p>The S-111 Sea Surface Currents information adds additional dynamic information to the chart system, which is beneficial for navigation.</p> <p>As vessels are becoming larger and loading optimization more important, the Hydrographic Offices anticipate that there is a commercial market for such improved navigational chart information.</p> <p>672 / 1,000 characters</p>
		<p>O.3.4: Established regional governance structures</p>	<p>Clear and agreed governance structures implemented under the Baltic Sea Hydrographic Commission will aid the Hydrographic Offices in the production and updating of S-100 compliant products. Furthermore, such regional collaboration will lead to more streamlined, harmonized and efficient production compared with different national approaches.</p> <p>342 / 1,000 characters</p>

Output indicators		Result indicators		
Output indicator	Total target value in number	Result indicator	Total target value in number	Please describe what types of organisations are planned to actively participate in the project. Explain how this participation will increase their institutional capacity. These types of organisations should be in line with the target groups you have defined for your project.
RCO 87 - Organisations cooperating across borders	14	PSR 1 - Organisations with increased institutional capacity due to their participation in cooperation activities across borders	14	<p>Project partners and associated organisations</p> <p>At its core, this project is all about capacity building for the participating organisations. Currently, the project partners have a good theoretical understanding of the implications that come with the S-100 paradigm shift. With this project, the partners will be able to translate this into concrete plans and practical steps. They will together obtain and share the necessary knowledge and expertise and finally build the operational capacity to get going with full scale production of the first set of relevant S-100 products.</p> <p>531 / 1,500 characters</p>
				<p>Other organisations</p> <p>n/a</p> <p>3 / 1,500 characters</p>

## 7. Budget

### 7.0 Preparation costs

#### Preparation Costs

Would you like to apply for reimbursement of the preparation costs?

Yes

#### Other EU support of preparatory cost

Did you receive any other EU funds specifically designated to the development of this project application?

No

#### 7.1 Breakdown of planned project expenditure per cost category & per partner

No. & role	Partner name	Partner status	CAT0 - Preparation costs	CAT1 - Staff	CAT2 - Office & administration
1 - LP	Swedish Maritime Administration	Active 22/09/2022	24,000.00	1,067,236.00	160,085.40
2 - PP	RISE Research Institutes of Sweden AB	Active 22/09/2022	0.00	279,484.00	41,922.60
3 - PP	Finnish Transport and Communications Agency Traficom	Active 22/09/2022	0.00	312,700.00	46,905.00
4 - PP	Federal Maritime and Hydrographic Agency	Active 22/09/2022	0.00	594,432.00	89,164.80
5 - PP	Finnish Meteorological Institute	Active 22/09/2022	0.00	55,080.00	8,262.00
6 - PP	Republic of Estonia Transport Administration	Active 22/09/2022	0.00	408,000.00	61,200.00
7 - PP	Maritime Administration of Latvia	Active 22/09/2022	0.00	116,640.00	17,496.00
8 - PP	Danish Geodata Agency	Active 22/09/2022	0.00	351,902.00	52,785.30
9 - PP	Furuno Finland	Active 22/09/2022	0.00	459,000.00	68,850.00
10 - PP	Satakunta University of Applied Sciences	Active 22/09/2022	0.00	287,928.00	43,189.20
<b>Total</b>			<b>24,000.00</b>	<b>3,932,402.00</b>	<b>589,860.30</b>

No. & role	Partner name	CAT3 - Travel & accommodation	CAT4 - External expertise & services	CAT5 - Equipment	Total partner budget
1 - LP	Swedish Maritime Admini	160,085.40	251,860.00	0.00	1,663,266.80
2 - PP	RISE Research Institutes	41,922.60	0.00	0.00	363,329.20
3 - PP	Finnish Transport and Co	46,905.00	57,500.00	0.00	464,010.00
4 - PP	Federal Maritime and Hv	89,164.80	9,000.00	0.00	781,761.60
5 - PP	Finnish Meteoroloical In	8,262.00	18,262.00	0.00	89,866.00
6 - PP	Republic of Estonia Tran	61,200.00	9,000.00	0.00	539,400.00
7 - PP	Maritime Administration o	17,496.00	71,000.00	0.00	222,632.00
8 - PP	Danish Geodata Agency	52,785.30	9,000.00	0.00	466,472.60
9 - PP	Furuno Finland	68,850.00	9,000.00	10,000.00	615,700.00
10 - PP	Satakunta Universitv of A	43,189.20	0.00	15,000.00	389,306.40
<b>Total</b>		589,860.30	434,622.00	25,000.00	5,595,744.60

## 7.1.1 External expertise and services

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
5. Finnish Meteorol	IT	CAT4-PP5-B-0	IT development for S-104 and S-111 data files. <small>46 / 100 characters</small>	No	1.3	10,000.00	
3. Finnish Transport	IT	CAT4-PP3-B-0	IT development for S-101 and S-102 production tools <small>51 / 100 characters</small>	No	1.1 1.2 3.1 3.2	50,000.00	
1. Swedish Maritim	Other	CAT4-PP1-G-0	Buy relevant modeled sea level and current data for S-104/S-111 <small>63 / 100 characters</small>	No	1.3	25,000.00	
1. Swedish Maritim	Specialist support	CAT4-PP1-E-0	Production specialist S101 <small>26 / 100 characters</small>	No	1.1 2.1 3.1	193,237.00	
7. Maritime Adminis	IT	CAT4-PP7-B-0	Obtain observed and gridded sea level data. <small>43 / 100 characters</small>	No	1.2	15,000.00	
1. Swedish Maritim	IT	CAT4-PP1-B-0	License for S101 production module <small>34 / 100 characters</small>	No	N/A	33,623.00	
5. Finnish Meteorol	Events/meetings	CAT4-PP5-A-0	Project meetings and workshops <small>30 / 100 characters</small>	No	1.3 2.3 3.3	8,262.00	
3. Finnish Transport	Events/meetings	CAT4-PP3-A-0	Project meetings and workshops <small>30 / 100 characters</small>	No	1.4 2.4 3.4	7,500.00	
4. Federal Maritime	National control	CAT4-PP4-F-0	External audit <small>14 / 100 characters</small>	No	N/A	9,000.00	
6. Republic of Esto	National control	CAT4-PP6-F-1	External audit <small>14 / 100 characters</small>	No	N/A	9,000.00	
7. Maritime Adminis	National control	CAT4-PP7-F-1	External audit <small>14 / 100 characters</small>	No	N/A	9,000.00	
8. Danish Geodata	National control	CAT4-PP8-F-1	External audit <small>14 / 100 characters</small>	No	N/A	9,000.00	
<b>Total</b>						434,622.00	

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
9. Furuno Finland	National control	CAT4-PP9-F-1	External audit <small>14 / 100 characters</small>	No	N/A	9,000.00	
7. Maritime Adminis	Other	CAT4-PP7-G-1	2 separate weeks for CARIS HPD S-100 module training <small>53 / 100 characters</small>	No	2.2	20,000.00	
7. Maritime Adminis	IT	CAT4-PP7-B-1	Subscription of on-line sea level data flow from the responsible agency <small>71 / 100 characters</small>	No	1.2	5,000.00	
7. Maritime Adminis	Specialist support	CAT4-PP7-E-1	Software development to convert and provide sea level data in acceptable format. <small>80 / 100 characters</small>	No	1.5	10,000.00	
7. Maritime Adminis	Other	CAT4-PP7-G-1	CARIS HPD S-100 module annual subscription <small>43 / 100 characters</small>	No	1.2	12,000.00	
Total						434,622.00	

#### 7.1.2 Equipment

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
9. Furuno Finland	IT hardware and soft	CAT5-PP9-B-0	Test equipment <small>14 / 100 characters</small>	No	1.2	10,000.00	
10. Satakunta Unive	IT hardware and soft	CAT5-PP10-B-	ECDIS Equipment <small>15 / 100 characters</small>	No	2.1	15,000.00	
Total						25,000.00	

#### 7.1.3 Infrastructure and works

Contracting partner	Group of expenditure	Item no.	Specification	Investment item?	Group of activities no.	Planned contract value	
Please select	Please select	CAT6-PP--01	 <small>0 / 100 characters</small>	Please select		0.00	
Total						0.00	

## 7.2 Planned project budget per funding source & per partner

No. & role	Partner name	Partner status	Country	Funding source	Co-financing rate [in %]	Total [in EUR]	Programme co-financing [in EUR]	Own contribution [in EUR]	State aid instrument
1-LP	Swedish Maritime Administration	Active 22/09/2022	SE	ERDF	80.00 %	1,663,266.80	1,330,613.44	332,653.36	For each partner, the State aid relevance and applied aid measure are defined in the <a href="#">State aid section</a>
2-PP	RISE Research Institutes of Sweden AB	Active 22/09/2022	SE	ERDF	80.00 %	363,329.20	290,663.36	72,665.84	
3-PP	Finnish Transport and Communications Agency Traficom	Active 22/09/2022	FI	ERDF	80.00 %	464,010.00	371,208.00	92,802.00	
4-PP	Federal Maritime and Hydrographic Agency	Active 22/09/2022	DE	ERDF	80.00 %	781,761.60	625,409.28	156,352.32	
5-PP	Finnish Meteorological Institute	Active 22/09/2022	FI	ERDF	80.00 %	89,866.00	71,892.80	17,973.20	
6-PP	Republic of Estonia Transport Administration	Active 22/09/2022	EE	ERDF	80.00 %	539,400.00	431,520.00	107,880.00	
7-PP	Maritime Administration of Latvia	Active 22/09/2022	LV	ERDF	80.00 %	222,632.00	178,105.60	44,526.40	
8-PP	Danish Geodata Agency	Active 22/09/2022	DK	ERDF	80.00 %	466,472.60	373,178.08	93,294.52	
9-PP	Furuno Finland	Active 22/09/2022	FI	ERDF	80.00 %	615,700.00	492,560.00	123,140.00	
10-PP	Satakunta University of Applied Sciences	Active 22/09/2022	FI	ERDF	80.00 %	389,306.40	311,445.12	77,861.28	
Total ERDF						5,595,744.60	4,476,595.68	1,119,148.92	
Total						5,595,744.60	4,476,595.68	1,119,148.92	

## 7.3 Spending plan per reporting period

	EU partners (ERDF)		Norwegian partners (Norway)		Total	
	Total	Programme co-financing	Total	Programme co-financing	Total	Programme co-financing
Preparation costs	24,000.00	19,200.00	0.00	0.00	24,000.00	19,200.00
Period 1	947,196.60	757,757.28	0.00	0.00	947,196.60	757,757.28
Period 2	1,058,631.50	846,905.20	0.00	0.00	1,058,631.50	846,905.20
Period 3	1,058,631.50	846,905.20	0.00	0.00	1,058,631.50	846,905.20
Period 4	780,044.20	624,035.36	0.00	0.00	780,044.20	624,035.36
Period 5	947,196.60	757,757.28	0.00	0.00	947,196.60	757,757.28
Period 6	780,044.20	624,035.36	0.00	0.00	780,044.20	624,035.36
Total	5,595,744.60	4,476,595.68	0.00	0.00	5,595,744.60	4,476,595.68