

Project title: Creation and Test-bedding of ECDIS capable of displaying S-102 Bathymetric Surface datasets

Project description: The S-100 ECDIS aims to create a display of S-101 Electronic Navigational Chart (ENC) first and S-102 Bathymetric Surface datasets on S-101 ENCs at a later stage.

Summary of project objectives:

The project aims to create a S-100 ECDIS capable of displaying S-102 Bathymetric Surface datasets on S-101 ENCs.

To actualize this, sponsoring Hydrographic Office (HO) and SevenCs (7Cs) would look at it from 2 components:

Component 1: Production and Validation of S-102. This would include harmonizing of S-102 with S-101 datasets.

Component 2: Display of S-102 dataset with S-101 ENCs on a Testbed ECDIS.

Testbed ECDIS

- The Purpose of the Testbed is to test run the next generation ECDIS to enable S-100 products group, namely S-101 and S-102 to be used.
- Allows users/OEM/stakeholders to further and test various display format to best meet user requirements.
- The Testbed ECDIS will not be developed to a type approved unit.
- To have a sea-trial unit to test the Testbed ECDIS with using the provided S-101 and S-102 area.
- Provide feedback on S-98 interoperability definitions.
- Identify gaps and shortcomings in current test version of S-102.
- Propose S-102 validation checks.

The estimated duration project for the creation of S-102 dataset and Testbed ECDIS capable of harmonising S-102 dataset with S-101 datasets is 18 months. Sea-trials on board stakeholders' vessel could also be carried out to showcase the capability of the Testbed ECDIS vis-à-vis a current ECDIS to understand the effectiveness of the S-102 with S-101 for the Mariner.

Future extension of the project may include investigating the effects of interfacing more S-100 product groups such as S-104 Water Level onto ECDIS using various means of data transmission such as AIS and/or data (4G/5G) network.

Summary of project deliverables:

MPA

- Various permutations for S-102 dataset would need to be produced using different resolution / density / etc.
 - The produced S-102 would then be fed to the Testbed ECDIS.
- Validated datasets of 101 and S-102 would need to be provided by MPA.

7Cs

- Providing a 2 x Testbed ECDIS capable to display S-102 with S-101.
 - Testbed ECDIS to have various visualisation modes for the display of S-102.

1. includes adaptable safety contour.
 2. various 2.5D visual such as various colours banding depending on safety depth or sun-illumination.
- Introduction training on how to use the Testbed ECDIS.

Practical relevance to Hydrographic Community/Industry:

Challenges with nautical data use:

- a. Creation of suitable S-102 data

Creation of suitable resolution of S-102 data with consideration of application schema related to tiling scheme, tile size, grid resolution and maximum data file size.

- b. Harmonisation between S-102 and other datasets

To automate checks to deconflict discrepancy of S-102 dataset and its derived products (contours and/or depth areas) with other data such as S-101.

- c. Display of S-102 on a Navigation system

A Testbed ECDIS to incorporate the various display to allow for optimum portrayal and resolution for S-102 with S-101.

Project team (Please include details of all team members in Appendix 1)

IHO Lab

First 2 years of technical support and documenting results.

Project governance:

Dr Parry Oei is Adviser (Hydrography) in the Maritime and Port Authority of Singapore.

Oliver Schwarz is Owner and Business Development Director in the ChartWorld International.

Team leader:

Dave Chow is Development Director Asia in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Technical development leader:

Joern Rinne is ECDIS Product Manager in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Team members:

3 pax Data Development Team from MPA, Project Leader from MPA is Ms Pearlyn Pang.

Ralf Lehnert is Director Navigation Solutions in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Friedhelm Moggert-Kägeler is Solutions Director in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Gordon Doleschall is Operations Director in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Applicant(s) information:

Creating S-100 ECDIS subgroup (MPA & SevenCs to supply full participation list if required).

Collaborators information:

Volunteer vessel provided by MPA and data from HOs for testing phase.

Project schedule (Please provide project schedule in Appendix 2)

Production of S-102 dataset for demonstration area (by MPA +5 months)

Validation of S-102 with S-101 (by MPA +5 months)

Display of Dataset in Testbed ECDIS and Sea trial on stakeholder vessel (by 7Cs + 8 months)

Summary of project cost (Please provide detailed breakdown of budget estimates and description of costs in Appendix 3)

Production of S-102 dataset for demonstration area

Validation of S-102 with S-101

Display of Dataset in Testbed ECDIS and Sea trial on stakeholder vessel (Installation & Commissioning)

Project documentation

Project items	Project costs	Funding support required
Manpower	1 project management & development	€26K
	1 expert on providing feedback on S-98, identifying gaps and validation checks on S-102	€10K
	Installation & commissioning	€5K
	Project documentation	€5K
Equipment	2 Testbed ECDIS (Touchscreen Panel PC)	€12K
Other operating expenditure	IT support	€2K
Total costs		€60K

Other source of funding (Have you attempted, applied for or obtained any other form of incentives/funding for this project or any similar project)

NIL

Do you require a Workspace at IHO Lab? If so please provide:

Work area needed (m3) at the Lab: space for the hosting server (physical or virtual)

- 2 to 3 desk office spaces

Other requirements:

Declaration by applicants:

We the Applicants hereby declare that the information provided in this Application form, including the supporting documents attached hereto, are true and correct. We have read and understood the terms set out herein, including the Terms of Funding and we agree to be bound thereby.

Name of Applicant:

Dave Chow – Business Development Director Asia – ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH

Date: 13th Oct 2022

REGISTRATION OF PROJECT AT IHO LAB

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Ralf Lehnert is Director Navigation Solutions in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Friedhelm Moggert-Kägeler is Solutions Director in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

Gordon Doleschall is Operations Director in the ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH.

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Equipment	2 Testbed ECDIS (Touchscreen Panel PC)	€12K
Other operating expenditure	IT support	€2K
Total costs		€60K

PROJECT TEAM LEADER AND MEMBERS

Please provide the following details below:

- A) Name
- B) Designation
- C) Education / Professional Qualifications
- D) Department
- E) Organisation
- F) Postal Address
- G) Tel No.
- H) Email Address

Please provide details of Research, Scientists and Engineers (RSEs) participating in the project, indicate the Names, whether Existing/New hire.

Maritime & Port Authority of Singapore (Hydrographic Department)

A)	Name	
B)	Designation	
C)	Education / Professional Qualifications	
D)	Department	
E)	Organisation	
F)	Postal Address	
G)	Tel No.	
H)	Email Address	

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G)	Tel No.	
H)	Email Address	

SevenCs GmbH

A)	Name	Dave Chow
B)	Designation	Business Development Director Asia
C)	Education / Professional Qualifications	BBA and Dip. for ECC (Wireless)
D)	Department	Business Development
E)	Organisation	ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH
F)	Postal Address	15 Jalan Kilang Barat, #07-05, Frontech Centre, Singapore 159357
G)	Tel No.	+65 9843 1344
H)	Email Address	dave.chow@sevencs.com

A)	Name	Ralf Lehnert
B)	Designation	Director for Navigation Solutions
C)	Education / Professional Qualifications	MSc in Economics & BA
D)	Department	Solutions
E)	Organisation	ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH
F)	Postal Address	Atlantic Haus Zirkusweg 1, 20359 Hamburg Germany
G)	Tel No.	+49 40 8535869 130
H)	Email Address	ralf.lehnert@sevencs.com

A)	Name	Friedhelm Moggert-Kägeler
B)	Designation	Solutions Director
C)	Education / Professional Qualifications	Degree in Hydrography & Geodesy
D)	Department	Solutions
E)	Organisation	ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH
F)	Postal Address	Atlantic Haus Zirkusweg 1, 20359 Hamburg Germany
G)	Tel No.	+49 40 851724 132
H)	Email Address	mo@sevencs.com

A)	Name	Gordon Doleschall
B)	Designation	Operations Director
C)	Education / Professional Qualifications	Foreign Trade
D)	Department	Operations
E)	Organisation	ChartWorld Asia Pacific Pte Ltd/SevenCs GmbH
F)	Postal Address	15 Jalan Kilang Barat, #07-05, Frontech Centre, Singapore 159357
G)	Tel No.	+65 8799 4793
H)	Email Address	gordon.doleschall@chartworld.com

PROJECT SCHEDULE

Please provide details on the following:

A) Detailed project work plan

Production of S-102 dataset for demonstration area (by MPA +5 months)

Validation of S-102 with S-101 (by MPA +5 months)

Display of Dataset in Testbed ECDIS and Sea trial on stakeholder vessel (by 7Cs + 8 months)

B) Overview in Gantt Chart format

(Applicant May Submit a Separate Attachment for the Gantt Chart)

	Year 1 Q1	Year 1 Q2	Year 1 Q3	Year 1 Q4	Year 2	Year 2	Year 3	Year 3	Parties Involved
Production of S-102 dataset for demonstration area									<ul style="list-style-type: none"> MPA
Validation of S-102 with S-101									<ul style="list-style-type: none"> MPA SevenCs
Display of Dataset in Testbed ECDIS and Sea trial on stakeholder vessel (Installation)									<ul style="list-style-type: none"> MPA SevenCs
Display of Dataset in Testbed ECDIS and Sea trial on stakeholder vessel (Commission)									<ul style="list-style-type: none"> MPA SevenCs
Project documentation									<ul style="list-style-type: none"> MPA SevenCs

SUMMARY OF PROJECT COSTS (To Indicate Cash or In-Kind)

Qualifying Project Costs		Cost of Item €K	Collaborator Contribution (If Any) €K
Category*	Details of Items		
Manpower (Please provide itemised details and budget breakdown)	1 project management & development	€26K	1 x 7Cs Analyzer in kind
	1 expert on providing feedback on S-98, identifying gaps and validation checks on S-102	€10K	
	Installation & commissioning	€5K	
	Project documentation	€5K	
Equipment (Please provide itemised details and budget breakdown)	2 Testbed ECDIS (Touchscreen Panel PC)	€12K	
Other Operating Expenditure (Please provide itemised details and budget breakdown)	IT support	€2K	
Total €K		€60K	

*The Cost of Item indicated shall include any Collaborator Contribution(s) obtained for the same item.

*The Governing Board needs to discuss what are the qualifying expenses eligible for co-funding.