

HOs' feelings over the introduction of S100

The University of Genoa, in a joint effort with the Italian Hydrographic Institute is conducting research on how the introduction of S100 products is perceived by Hydrographic Offices and how it is going to revolutionize them in the upcoming years. A part of the resource will be based on the present questionnaire. The survey has been forwarded to IHO member states and is structured into three parts:

1. **How S-100 can affect Hydrographic Offices** – this part is meant to analyze how the introduction of a new product line can affect HOs' operability and what are the challenges and risks that HOs will have to face in the future.
2. **How S-100 can affect seafarers** – this part is meant to understand how the producer thinks that his work will affect the final user who is out at sea. At this stage, even though it is still premature to have a full view of how the future bridge will look like, the analysis of the producer's overall feeling can be useful to start understanding it.
3. **How S-100 can affect maritime shipping companies** – beyond seafarers, the introduction of new systems and services depend on maritime companies' investments, this part of the survey is meant to detect how the hydro community can make S-100 ECDIS appealing to private companies.

In some questions you will be asked to choose your answer in a scale of options that goes from Certain to Rare. When answering, consider that each option has the following meaning:

- Certain, close to 100%;
- Likely, 75% of possibility that it will happen;
- Possible, 50% of possibility that it will happen;
- Unlikely, 25% of possibility that it will happen;
- Rare, close to 0%.

Organization:	
Submitted by:	
Email address:	

How S-100 can affect Hydrographic Offices:

1. The introduction of S100 may require your organization to adapt to a new production factor and to a different way of managing your institutional activity. For each cost component, choose how much it will be affected by the introduction of S100 (choose one option per column):

	Human Resources' costs	Software licences' costs	Hardware components' costs	External coordination costs (e.g. with other organisations like the Coast Guard)	Internal Horizontal coordination costs (between different departments of your organization)
Sensible Increase (specific investments will be necessary)					
Moderate increase (easily manageable through daily management)					
No change					
Moderate decrease (marginal savings)					
Sensible decrease (consistent savings)					
I prefer not to answer					

2. Depending on various aspects (personnel's average age, hiring policies, etc.), the management of a new production factor may require new investments in human resources. Based on new hires and on training activities, choose how much the following activities will affect the current Human Resources budget (choose one option per column):

	More people to hire	Recruitment of more specialized personnel	Training costs for the existing staff
Sensible Increase (increase of more than 20%)			
Light increase, (increase within 20%)			
No change			
Light decrease, (decrease within 20%)			
Sensible decrease, (decrease of more 20%)			
I prefer not to answer			

3. The introduction of S100 will change the portfolio of products provided by your HO. The production of the new products may require changes in the professionalism which you rely on. Based on your current work force, for each education type category, choose if any change will be necessary (choose one option per column based on the number of total staff you already have in force):

	Computer science	Geologists	Nautical science	Naval Engineering	TLC Engineering
Sensible Increase (over 20%)					
Light increase (within 20%)					
No change					
Light decrease (within 20%)					
Sensible decrease (over 20%)					
I prefer not to answer					

4. The introduction of S100 will change the portfolio of products offered by HOs to the seafarers. For each of the options, choose how probable is it that they will affect your organization's revenues (choose one option per column):

	Wider choice of products offered	The switch from product oriented to service oriented for some nautical publications	The same data can be used differently into multiple products	Sales Paper Chart
Certain				
Likely				
Possible				
Unlikely				
Rare				
I prefer not to answer				

5. Based on your perception of S100 and also on the experience developed with S57, when talking about your organization mission¹ and vision², please choose one of the following options:
- Both mission and vision will be affected by S100.
 - Only the mission will be affected.
 - Only the vision will be affected.
 - The mission and the vision will not be affected by S100.

¹ The mission defines the company's business, its objectives, and its approach to reach those objectives (What do we do? Whom do we serve? How do we serve them?)

² The vision describes a long-term, future-oriented, and comprehensive view of an organization's development. It mainly focuses on a broader picture of the organization's future, which is intended to be emotionally appealing. The vision is further broken down into specific organizational goals that organization members can aspire to.

6. Considering that the adoption of S100 will ask HOs to rethink their operations, based on the readiness level of your organization, please select one the following options:
- a. My organization is fully conscious of how S100 will affect its future work. The implementation of S100 is already part of its business plan³;
 - b. My organization is fully conscious of how S100 will affect its future work and is currently working in changing its business plan.
 - c. My organization has a general perception on how S100 will affect its future work but is not ready yet to estimate how its production will be affected. The business plan will be changed based on IHO's directives and based on other HOs' experience.
 - d. My organization has a general perception on how S100 will affect its future work but it is not ready yet to estimate how its production will be affected. No change in the business plan will be necessary to face the introduction of this new standard.
 - e. My organization has no perception on how S100 will affect its future work, it is too early to have think about how to change my business plan.
 - f. I prefer not to answer.

7. When talking about S100 production and the future challenges of Hydrographic Offices, write the most relevant concept connected to each of the following aspects (Opportunities-threats-Strengths-Weaknesses). Please enter a one-line answer:

a. **Opportunities** - positive external factors (example: An increase in sales):

b. **Threats** - negative external factors (example: Working with other organizations like Coast Guard or weather service):

c. **Strengths** - positive internal factors (example: Familiarity with S-57):

d. **Weaknesses** - negative internal factors (example: The structure of my HO needs to be reorganized):

³ A business plan is a formal document containing the goal of your organization, the methods for attending those goals and the timeframe for their achievement.

How S-100 can affect seafarers:

1. Considering the application of S100 products on board, what are the negative consequences for the bridge personnel (choose one option per column) - LIKELIHOOD?

LIKELIHOOD	Seafares can over trust S100 and be less aware	Displaying data on a screen may cause over-scaling problems like what happens with ENCs.	Older personnel may find difficult to get familiar with the system.	More attention on electronic navigation will reduce the performance of traditional navigation. In case of distress, personnel would not be able to react.
Almost Certain				
Likely				
Possible				
Unlikely				
Rare				

2. Considering the application of S100 products on board, what are the negative consequences for the bridge personnel (choose one option per column) – IMPACT⁴?

IMPACT	Seafares can over trust S100 and be less aware	Displaying data on a screen may cause over-scaling problems like what happens with ENCs.	Older personnel may find difficult to get familiar with the system.	More attention on electronic navigation will reduce the performance of traditional navigation. In case of distress, personnel would not be able to react.
Insignificant				
Minor				
Moderate				
Major				
Catastrophic				

3. How probable is that S100 guarantee a more conscious usage of maritime data for seafarers?

- a. Almost Certain
- b. Likely
- c. Possible
- d. Unlikely
- e. Rare

⁴ Insignificant, minimal impact, no significant threats; Minor, any risk which will have just mild impact on the process; Moderate, risks that can cause some problems; Major, risks that can jeopardize some aspects of the process; Significant, a risk that can prove detriment of the whole process.

4. The study of the impact of S10X products on the bridge personnel's practices may be useful to understand how navigation will be performed in the future. Considering some activities already done by the bridge personnel, how probable is that S100 will change them?

	The usage of the Radar and other TLC equipment	The usage of those data that today are contained in Nautical Publications	The execution of navigation in restricted waters	The Officer of the watch's job	The Lookout activity
Almost Certain					
Likely					
Possible					
Unlikely					
Rare					
I prefer not to answer					

5. S100 will give availability of not homogeneous data structured into layers into a single device. Do you have any idea on how this can affect the seafarer's daily work?

YES	NO
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6. If you have answered "Yes" to the previous question, for each of the following activities, based on the relevance for the seafarer, assign a value from 1 to 5⁵ :

	Combination of data for weather route (S-412)
	Better utilization of currents and wind data in order to reduce fuel consumptions (S-111 and S-412)
	Better awareness of navigational warnings and increase in safety of navigation (S-124)
	Rethinking of the pilot's role (S-127)
	Water level Information for Surface Navigation(S-104) can overstep the limits of the low spring water level sounding data and the usage of Tides Chart.
	S-102 (Bathymetric surface) and S-127 when talking about mega vessel operations.
	S-102 (Bathymetric surface) and S-127 and the possible increase of load capacity.

⁵ 1 – Very Low, the current procedure won't be affected; 2- Low, minor impact on today's procedures; 3 – Medium, Large impact that can be managed with current procedures; 4- High, High impact that will need to rethink current procedures; 5 – Very High, extreme consequences, current procedures cannot be used anymore; 9 – I prefer not to answer

7. Which of the following methods is forecastable for S10X Products distribution:
- a. The current S-57 structure will be fine also for S-10X type products.
 - b. A combination of the current procedures and web cloud technologies will be used. The cloud technologies will be used only for those products that are updated very often.
 - c. A combination of the current procedures and the web cloud technologies will be used. The S-57 distribution schema will be still available for those area with internet connectivity problems.
 - d. S-10X type products will be distributed through a cloud technology.
 - e. I prefer not to answer.

How S-100 can affect maritime operators:

1. In order to make S-100 appealing to maritime operators, what concept will you focus on? If your idea is not listed below, please write your answer in the blank space. (Choose maximum two options, you may choose three if one of them includes option e).
- a. Safety of navigation
 - b. Efficiency of navigation in relation to fuel consumption
 - c. Efficiency in navigation in relation to GHG emissions
 - d. A method to comply with UN sustainability goals
 - e. _____
2. Which of the following UN sustainability goals can be boosted by S100 and by a better usage of maritime data?
- a. Affordable and clean energy
 - b. Industry innovation and infrastructure
 - c. Responsible consumption and production
 - d. Climate action
 - e. Life below sea
 - f. Partnership for the goals
3. How it will be possible to accelerate the transition to S100 ECDIS?
- a. The only way to accelerate S100 transition is to make the S100 ECDIS IMO compulsory.
 - b. With an adequate institutional campaigning focused on the new technology benefits, S100 ECDIS will find wide adoption in private companies.
 - c. Private companies will spontaneously adopt S100 ECDIS without any IMO's regulatory interference.

4. Considering the investment in the S100 ECDIS on board, what are the negative consequences for SHIPPING COMPANIES? For each column choose a rating from 1 to 4 (1 - Not relevant; 2 - Somewhat relevant; 3 – Quite relevant; 4 – Highly relevant)

	Costs for the acquisition of the new ECDIS and more costs for internet connection
	Costs for the crew's training
	Overreliance on subscription to official services
	The overlying on a cloud web-based distribution will make navigation more vulnerable to cyber attacks
	I have no idea. If you choose this option, just mark this box. You can avoid to rate the other options.

5. Considering the investment in the S100 ECDIS on board, what are the opportunities for SHIPPING COMPANIES? For each column choose a rating from 1 to 4 (1 - Not relevant; 2 - Somewhat relevant; 3 – Quite relevant; 4 – Highly relevant)

	Safety of navigation and safety of personnel on board: a more conscious usage of maritime data can reduce marine casualties.
	Safety of navigation and safety of cargo on board: a more conscious usage of maritime data can reduce roll, pitch and yaw movements and consequentially the cargo will be less subject to involuntary movements. Benefits on marine cargo insurance.
	GHG emissions: the proper usage of marine data (currents, wind, tides) will guarantee more sustainable and efficient sea operations.
	S100 will guarantee the evolution of the slow steaming practice into the smart steaming practices.
	I have no idea. If you choose this option, just mark this box. You can avoid to rate the other options.