Paper for Consideration by HSSC Chair

Provision of S-100 based products

Submitted by:	NIPWG
Executive Summary:	Suggestions for the production on an S-100 Strategy Implementation Plan.
Related Documents:	C-2 Report Action item C2/31; HSSC10-05.3D, HSSC10-05.3F
Related Projects:	S-100 based products

Introduction / Background

Council-2 meeting defined action C2/31 which was assigned to Council, HSSC/IRCC Chairs and SecGen *'to draft an implementation strategy/roadmap for a transition plan aiming to the regular and harmonized production and dissemination of S-100 based products for further discussion at A-2 and for the preparation of the 2021–2023 IHO Work Programme.'* This action was stimulated by papers HSSC10-05.3D from NIPWG, TWCWG, IEC, Canada and Germany, and HSSC10-05.3F from NIPWG.

During the recent NIPWG6 meeting the group discussed the provision of S-100 based products under the remit of NIPWG. S-100 based products, such as S-122 and S-123, will be available in the foreseeable future. Member States and stakeholders invested considerable resources to the development of these product specifications. They now need guidance to make related products available to the mariner and GIS market. Due to this fact, an S-100 Strategic Implementation Plan (S-100SIP) should contain plans for the development of the following:

- IMO acceptance;
- the business case;
- the scope of SOLAS relevant products;
- the infrastructure for creation and distribution;
- descriptions of validation procedures at all relevant phases.

The S-100SIP should also contain a reliable timeline indicating when these solutions will be available for mariners.

This paper discusses several S-100SIP technical and administrative aspects which are summarised and listed below. The findings are not exhaustive but should be taken into consideration by action C2/31.

Analysis/Discussion

S-100 strategic implementation plan

The S-100 SIP should consider four maturity levels:

- the provision of standards (that are the S-100 based product specifications with the associated interoperability rules);
- the establishment of a governance authority;
- the synchronisation of standards and products; and
- the operationalisation of the data.

The provision of standards

The S-100SIP should consider that currently 14 different S-100 based product specifications under the remit of the IHO have either been released or are currently under development. It should also be considered that more product specifications are in preparation. Interoperability aspects, as described in S-98, should be considered especially to define the principles of the display of the ENC in conjunction with other products on an S-100 ECDIS and the relative roles of products.

This includes the consideration on the establishment of a governing body for affected product specifications. The issue and the expected scope of the governing body according to the issue should be pointed out. Complex systems need centralised, permanent and strong engineering. An underlying question is therefore, what level of complexity is manageable by IHO?

Note: FOR REASONS OF ECONOMY, DELEGATES ARE KINDLY REQUESTED TO BRING THEIR OWN COPIES OF THE DOCUMENTS TO THE MEETING

The S-100SIP should specify if backward compatibility of S-100 and of S-100 based product specifications to previous editions of S-100 and S-100 based product specifications and to which extent is required or not.

Views were expressed at NIPWG that there is little benefit in continuing to produce more product specifications before defining how those in existence are intended to be implemented, including aspects of which will be used in what context as discussed in HSSC10-05.3F. Priorities need to be defined to focus efforts on the further maturing of existing product specifications rather than simply adding to their number.

The establishment of a governance authority

The S-100SIP should clarify the role of the RENCs in the new global system architecture (It is recognised that RENCs are not governance authorities. They are semi-commercial entities that facilitate data distribution on behalf of their members). Are the RENC functions (for example data/product qualification, quality control, data consistency, data encryption, data integrity, product distribution) still needed or should this work being done under national responsibility?

The S-100SIP should clarify whether the WEND principles are applicable in the IHO S-100 paradigm, under which circumstances and for which products (e.g. only to S-101, all S-100 based products or something in between).

It should be discussed whether the current IHO Registry operational mode needs revision, especially in relation to the management of entries. The fitness of, or the necessity of standing up, the Domain Control Body should be elaborated. It should be considered if the responsibility of the S-98 maintenance should belong to the IHO governance as the impact of S-98 can be significant.

The synchronisation of standards and products

Consideration should be given to the provision of synchronised products. The S-100SIP should discuss two principle data handling approaches:

a)   The provision of semantically separated information and the merging of this information on board, and

b)   The provision of information in products as a whole.

This implies consideration of the intended plug-and-play philosophy and on the validity of the S-100 concept that expects that machines could handle product specifications, and consequently products, based on different S-100 editions and on different product specification levels.

Guidance is required to ensure that data producers understand the importance of including the appropriate set of information in S-xxx products that could overlap in their content. Key to this is the definition of who is the authority for information types.

It is also important to understand the intended host system for S-100 based products. During the NIPWG6 Stakeholder forum the International Chamber of Shipping proposed the merits of an Electronic Bridge Folio Management System. The suggestion was that such a system would manage nautical publication information and only filter through to the ECDIS that which is essential during voyage execution, such as calling points or notes specific to safe port entry.

It should be considered that certain information can also be provided on shore-based systems.

Without knowing how/where products should be used it is difficult for product specification developers producers to know what information should be in which product.

Considerations should be made on the fact that cooperation in an S-100 environment requires a rethink in how cooperation and data production is done today between HOs and source originators that may even create their own products one day. That also has effects on the appropriate use of the Marine Resource Names (MRN).

•*The operationalisation of the data*
A timeline should be developed indicating when the first data could be used comercially. This time line should consider possible IMO impacts.

Description of IHO Responsibility
The S-100SIP should provide a clear statement on the IHO responsibility for S-100 based product specifications. This will affect the development and maintenance of S-98, including the Interoperability Catalogue.

On board host systems

Nautical information, that includes for the subject of this paper charted and other information relevant to support the safety of navigation, the situational awareness and good seamanship, will be provided in ECDIS or other electronic devices on board ships.

Two modes of information provision should be considered:

- Normal ECDIS operation for safety of navigation includes route planning and route monitoring. For that purpose ECDIS must follow the rules defined by IMO and the referred IHO's standards and resolutions.

- A separate non-regulated operational mode of the ECDIS may be used for provision of extended information. For that purpose the ECDIS becomes a non-regulated (ECS) device which offers more flexibility for data provision, updating mechanism, display modes etc.

Possible side effects on IMO SOLAS Chapter V should be considered. This includes statements on how the carriage requirement could be satisfied.

Conclusions

Member States and stakeholders are in need of an S-100SIP to have planning certainty for S-100 based product placement on the market. That reimburses their invested money and allows budget allocation for further development of S-100 based products.

The paper provides a list of findings which should be considered during the S-100SIP development.

Recommendations

The collection of ideas on the S-100SIP should be considered. Additions are requested to describe the whole picture. Due to the fact that NIPWG is not able to identify a HSSC WG that is able to discuss these issues should be discussed at the Strategic Plan Review Working Group (SPRWG) level.

Justification and Impacts

This is a high priority work. The S-100SIP should be discussed at Council-3 and subsequently at Assembly-2. It forms part of the 2021-2023 IHO work programme.

Action Required of HSSC Chair

The HSSC Chair is invited to:

      a.   Note the paper.

      b.   Reflect the discussed findings in the S-100SIP development as possible input into action C2/31.

      c.   Act as appropriate.