S-124 progress

Development of a S-100 Product Specification for Navigational Warnings (S-124)

Submitted by:	Leader of the S-124 Correspondence Group (Eivind Mong, Canada)
Executive Summary:	This paper reports on the work of the S-124 CG since HSSC8.
Related Documents:	On IHO/IRCC/WWNWS-SC/S-124 CG web pages
Related Projects:	E-navigation, Modernization of GMDSS.

Membership
China and INMARSAT joined the CG during the period. Chair position changed from Yves LeFranc to Eivind Mong. Yves still remains a member of the CG.

The members are:
Australia (AMSA), Brazil, Canada (CCG), China, Denmark (DMA), France, Greece, Japan, New-Zealand, Norway, Republic of Korea, Sweden, Turkey, United-Kingdom, United States (NGA), CIRM, KRISO, INMARSAT and TRANSAS.

Activities since HSSC 8 - Points to be considered

Introduction
The S-124 CG is focused on the development of the S-100 ProdSpec for the Navigational Warnings (NWs) of the World Wide Navigational Warning Service which is part of the MSI service of the GMDSS. This includes NAVAREA, Sub-area and coastal warnings produced by Coordinators and currently broadcast via SafetyNET and NAVTEX in a TELEX format. It is of course highly wished that S-124 be also suitable for local NWs. MET forecasts and MET warnings are not in the perimeter of the S-124.
S-124 will be a technical component of the e-navigation and of the modernization of the GMDSS.

Modeling
Following the paper encoding exercise last year and the comments received, the model (dated 3 Dec 2015) has been explained in a better manner and the chair worked out proposals to amend the draft S-124 model. These proposals were submitted to S-124 CG members. The replies provided various inputs, including backgrounds from the authors (via Eivind Mong) and DMA's contribution based on the NIORD implementation and tests (see below). With the EfficientSea2 project ending, the STM Validation and SMART Navigation projects are providing testing environments and modelling feedback. Inputs are of great value for clarifying some aspects and for progressing in the choice of modelling options. Thus, there are still many points to be consolidated on the way to enhanced warnings. Some of them are:

- The use of the Maritime Resource Name (MRN) in the model: MRN for Unique Id of a NW, MRN for linking the NW and the object subject of the NW (e.g. A NW related to a dysfunctional AtoN identified by its MRN).
- The use of HTML for a better presentation of the textual information (description of the danger).
- The harmonization of short legends to be displayed on ECDIS.
- The shared mechanism for managing the NWs status (in-force or cancelled) on the client side according to the information provided by the Coordinator.

Some aspects have to be addressed carefully when S-124 should target ECDIS but also other clients (websites, apps, etc.), taking into account that a NW will be issued simultaneously in S-124 and in the current form (S-53, likely generated from S-124 data) and that the two forms should provide the same information to the end-user. Other rounds are required with the advice of the S-100 WG. The model is nearing stabilization and the new version will be issued soon. The draft Product Specification will evolve from there.

EfficiencSea2 and NIORD (Nautical Information Directory - DMA)
EfficienSea2 is testing S-124 NWs via the demonstration system NIORD of the DMA. NIORD uses a model based on the draft S-124 (the NIORD's model for warnings is close to the draft S-124, not strictly the same).
A simple operational end-user facing web-interface is available at:
https://nautiskinformation.soefartsstyrelsen.dk/#/messages/map. DMA offered that coordinators of the S-124 CG use NIORD on the test server to explore the NWs production side. NIORD gives a very good idea of what producing systems based on S-124 will be and so, the coordinators can better understand the S-124 model and

its impacts on them. The human interface of NIORD is simple even if the data model is complex. NIORD demonstrates also that producing solutions will be available.
Other projects of issuing systems exist (mainly web based systems), built on DMA's solutions (Canada, France) or on others. The S-124 CG will help in sharing experiences and solutions.

Technical Services
An objective of the e-navigation Maritime Service Portfolios (MSPs) is to reduce the load of work of the users and the risks of errors via digitalized information and services. That implies that the delivery of data should be more machine-to-machine whereas it currently involves the users a lot. This is a domain where harmonization is also needed, in addition to the formatting of the data via product specifications.
According to the MSP/Operational Service – Technical Service – Product Specification concept accepted by IALA-IHO coordination meeting (18th July 2017), NWs services that coordinators will operate will be implemented by Technical Services able to deliver S-124 data from the coordinator's system (machine) to clients systems (machines).
Typically, close to the S-124 data production, we have to define how the server of a coordinator will exchange with the server of a radio-station and other clients. This Technical Services should be made available via APIs[1] of the NWs servers.
So, the S-124 CG will have to work on the design of standardized Technical Services for S-124 data delivery. The projects of implementing systems would provide valid inputs to this task, noting that IALA has issued a draft guideline on specification of e-navigation technical services that is very helpful, including an example from DMA of a NW service.

E-navigation projects support
The e-navigation projects are essential to the development of S-124. They provide the necessary experience in implementation and testing when the draft standards prepare the basis of harmonized solutions. Some experts involved in projects and in S-124 CG looked for ways to further help the S-124 development. They have come up with a set of tests that are important to verify some of the assumptions with S-124. These tests verify the critical points along all the chain from the production of the NW to its display in the navigation system. They could be summarized as follow:
- S-124 data model supports various examples of information.
- S-124 data can be transliterated into legacy NWs (S-53) for NAVTEX, both providing the same information.
- Navigation System can ingest S-124 data.
- S-124 can be viewed, portrayed and filtered.
- S-124 data cause no conflict with S-101 (ENC) data.
- Cancellation process runs.

The SMART Navigation project and the STM Validation project have agreed to run the tests and to report the results to the S-124 CG. This is a great offer of assistance.

Display of NWs
The S-124 CG's chair was involved in the IHO response to the new IMO draft Module F of the Performance Standards for INS (Display of information received via Communication Equipment – coordinated by China). MSC 98 finally postponed this task, giving the priority to the development of the "Guideline for the Harmonized display of information received via communication equipment". NIPWG coordinates the IHO contribution to the related correspondence group led by Norway. The S-124 CG will have to liaise with the NIPWG on this important subject: S-124 and the Guideline should be aligned.
These items will contribute to define the portrayal of the NWs. This matter will be addressed when the model is stabilized.

Renewal of the leader
Yves Le Franc (France) has led the CG since it has been creating in October 2013, and asked to be replaced. He was replaced by Eivind Mong of Canadian Coast Guard in February 2018.

Action Required of the NIPWG
The NIPWG is invited to:
a. note the report

[1] API: Application Programming Interface.