Paper for Consideration by NIPWG

[Review of comments on S-128 Application Schema]

Submitted by:	Republic of Korea (KHOA)
Executive Summary:	This paper introduces the review result of S-128 Application Schema.
Related Documents:	NIPWG3-29.1 Results of designing Application Schema for S-128 Catalogue of Nautical products NIPWG2-29.1 Status of S-128 Product Specification for Catalogue of Nautical Products NIPWG1-21.2 Proposal of a new S-10X Prodspec on catalogue of charts and publications
Related Projects:	KHOA S-100 testbed project

Introduction / Background

In accordance with the decision of developing S-128 catalogue of nautical products by IHO HSSC and NIPWG, KHOA drafted the S-128 application schema to support the plan and reported it to NIPWG3. Hereafter S-100 expert (Mr. Eivind Mong) and NIPWG member states provided various comments on the application schema. KHOA gathered the comments and listed it with review notes.

Analysis/Discussion

Draft of S-128 application schema

KHOA identified available nautical products which can be included in S-128 and drafted an application schema based on the investigation results. Since the research team defined that there are geospatial one and non-geospatial one as nautical product, the S-128 application schema consists of AbstractGeoNauticalProduct as Feature type and AbstractNauticalProduct as Information type largely.

AbstractGeoNauticalProduct (Feature type)

- StdGeoNauticalProduct: S-100 based Nautical product (Feature type)
- NonStdGeoNauticalproduct: Non S-100 based Nautical product (Feature type)
- PaperChartProduct: Paper chart (Feature type)
- ENCProduct: ENC (Feature type)

AbstractNauticalProduct (Information type)

- StdNauticalProduct: S-100 based Non geospatial nautical product (Information type)
- NonStdNauticalProduct: Non S-100 based non geospatial nautical product (Information type)

Common information belonging to all nautical products was defined as Producing information of Information type. The draft of S-128 application schema is like Figure 1.

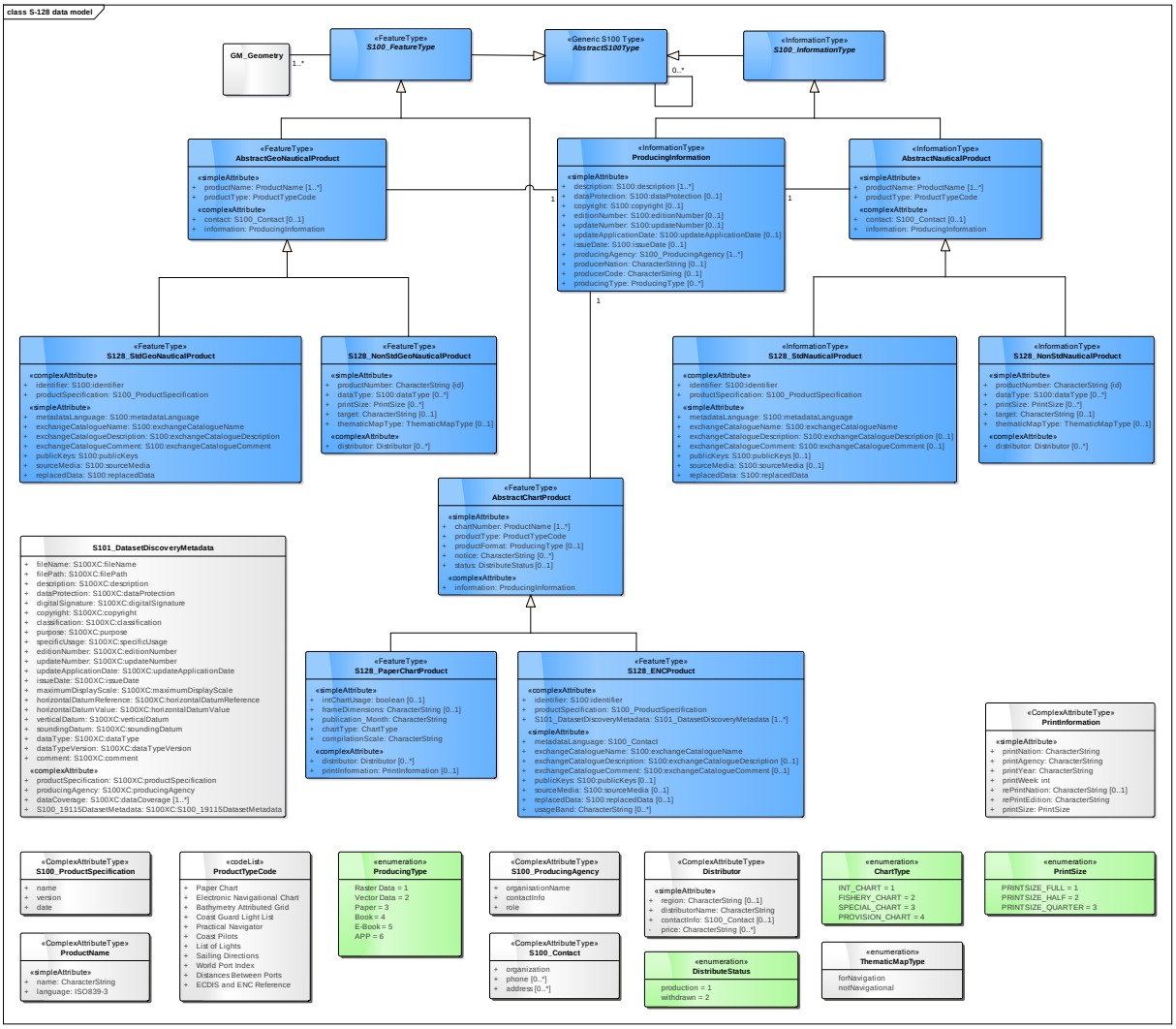

Fig. 1. Draft of S-128 Application schema

S-100 expert and NIPWG member states provided various comment, which was listed with review note like the following:

Comments from S-100 Expert (Mr. Eivind Mong)

ID	Comments	Note
1	The contact information should probably only be an information type that can be associated with the feature instance where required. This also applies to distributor information.	The information type of contact detail will be used considering the latest version of S-122 MPA
2	No need of the separation of nautical products into standard and non-standard. It is difficult to define what is a standard and a non-standard nautical product, because this can vary from hydrographic office to hydrographic office.	Agree on the comment
3	The associations are not defined, neither are the roles at the end of the associations.	The association and role will be included
4	The purpose of the nautical product information types is unclear, and it is not explained how these differ from the geo nautical product feature types.	The data model will be adjusted.
5	Raster charts were mentioned in the review of catalogues. Not all paper charts are reproducible as raster.	Feature type can be used as no geometry to include non-geospatial nautical product

6	Minor issues such as naming conventions have not been followed, i.e. feature types and information types have first character in upper case and attributes have first character lower case	Need to fix the naming issue
7	Contact information should follow the NIPWG modelling and use contactAddress.	Need to follow the NIPWG modelling
8	The printSize attribute is too limited for the variety of sizes that charts and nautical publications are printed in.	some standard sizes like A0, A1, A2, A3, A4, etc will be used
9	It seems the discovery metadata is copied from S-101, I suggest this isn't sufficient and that a S-128 specific discovery metadata should be developed.	Need to investigate the S-128 specific ones.
10	Some items have unexplained or missing attributes	Need to adjust it

Comment from NIPWG Member States

Member state	Comments	Note
Russia	1. There are chart types provided for paper charts in the S-128 data model and only INT charts are included for nautical charts in the "ChartType" attribute. Is it the purpose? Russian catalogue information covers not only INT charts but also other national nautical charts produced by Russian HO. 2. Further guidance may be required to define a method and a form for provision of catalogue information when the contents of the S-128 data model are approved. 3. In Russian catalogues there are some attributes which are not used in the S-128 data model. These attributes describe specific options provided by our production technology; for example, a print-on-demand option for nautical charts. 4. It should be noted that at the current stage of the reconstruction and modernization of DNO's cartographic production our catalogues of charts and nautical publications contain less products and attributes than the S-128 data model provides for.	An open codelist would be more flexible. Then HO can add their own types if there are new or obscure types POD option can be added as own attribute, or as an attribute under printInformation complex attribute.
Italy	Considering current Italian catalogue, we have some charts and publications that have not defined geographical extension, as well as kit (group of charts), that we wish to have in S-128 and it's not clear to us if this may be possible.	Nogeometry among primitive options can be a solution. For bundling products as a portfolio/kit, there are a couple of options 1) add an aggregation to bundle products, or 2) use multiple geometries for a product.
France	From SHOM's point of view, such a catalog of products should satisfy two requirements: - enable addition of products that are not in the current list, - enable its incorporation into a wider catalog of services that HOs would have to provide in the context of e-navigation. After studying the documents provided, it is difficult to know whether these two prerequisites are met.	New products can be handled if the product lists are made into open codelists. In order to support the wider catalogue requirement, a more

		generic product feature type might be needed
Finland	The data model setup as such will probably be sufficient for modeling our products. It is though still a bit unclear how the model is meant to be used, and how different products will be classified in the future. We think there will be a need to ensure that local names, local classification and identification etc. attributes are available at a later stage, when the basic model structure is finalized. The name “ElectronicNavigationalChart” and “ENC” usually refer to official vector charts (S-57 / S-101). According to the data model the S128_ENCProduct productFormat (ProducingType) could be set to vector or raster (unless future constraints are added). If the S128_ENCProduct is assumed to be able to hold also other electronic charts than official ENC, the naming might need consideration. (PaperChartProduct / ElectronicChartProduct). Anyway, as mentioned, it is unclear for me at this point, how this part of the model is supposed to be used. ChartType – enumeration Many nations produce leisure-, inland- or boating charts. I guess it is arguable whether these products shall be part of the exchange catalogue (?), but for example some of our chart-folios are actually used also by merchant shipping, even these are not INT-numbered. Is there a need to include the possibility to categorize a chart as a LEISURE_CHART / BOATING_CHART or such? ProductTypeCode – enumeration This enumeration needs to be revised. I think the product types should basically reflect IHO- publications, possibly with some extension. The list as such seems to be based on a small set of existing publications, not types. Some of the type definitions seem to be inconsistent in definition (Bathymetry Attributed Grid (BAG) is a raster file encoding format) many types of products could use this encoding format. The type here should maybe reflect what data the BAG- file represents. Again the Electronic Navigational Chart (depending on usage) could be renamed (or an item added) for “Electronic Chart”, as ENC easily is assumed to refer to official vector charts, and vector / raster is part of the ProducingType. One List of Lights – type might be enough (producing agency is modeled separately, and Coast Guard List of Lights seem more like a specific publication than a type). World port index, Distance between ports and Practical Navigator seem more like single data sources / publications than types. The types here could maybe be something like “Sailing manual” / “Sailing guide” / “Other” / “Other publication” / “Other datasource” … etc.. Radio publications seem to be missing from the list	A more generic product feature type will solve the issues raised.

<table>
<tr>
<td>Japan</td>
<td>
<table>
<tr><th>Class</th><th>Comments</th></tr>
<tr><td>Product Type code</td><td>We couldn't find out type of certain products equivalent to a "product type".</td></tr>
<tr><td>paper chart product</td><td>Although "paper chart product"is FeatureType, but we have some paper charts which don't specify an area. Those charts don't have longtitude or latitude information.</td></tr>
<tr><td>printinformation</td><td>we don't provide almost all the information , for example reprint edition, print week or print agency, in "print information" in catalogue of charts and publications.</td></tr>
<tr><td>Producing Information</td><td>We provide published date (month and year) but don't provide update information for each products including reprint information in the catalogue of charts and publications.</td></tr>
<tr><td>distributor</td><td>Does "Distributor" mean who sells charts or publications? We don't write an agent with chart number or category.</td></tr>
<tr><td>Abstract ChartProduct, PaperChart</td><td>chart number exists but name of chart is not in the UML.</td></tr>
<tr><td>all publications</td><td>We name the name of charts or publications in both Japanese and English. So text such as name of products should be acceptable for multiple languages for one publication.</td></tr>
<tr><td>paper chart product</td><td>PaperChart has plans, but there is no attribute for plans. Each plan has compilation scale, name of plans, the area for some chart.</td></tr>
<tr><td>paper chart product</td><td>There is an attribute for indication of INT chart, but no INT chart number attribute.</td></tr>
</table>
</td>
<td>The application schema needs big change and need to compare current requirement with the changed one.</td>
</tr>
<tr>
<td>US</td>
<td>The main issue is with Analysis/Discussion (Page 2):
''Feature type products are defined to location information-included Geometry Nautical Product and Chart Product used to regulate charts which are already produced with various products.”
This is a misuse of the Feature type. This model construct is designed to represent geospatially located objects. The intent of the geometry in the proposed model is to reflect the geometry of the area covered by the nautical product. The error here is the nautical product is not a real-world object. It violates the definition of feature type. An information type needs to be used instead and an alternative attribute needs to be used to reflect the area of coverage or geometry the product is covering. This needs to be rectified before any additional change recommendations can be made to the rest of the document.</td>
<td>Need a discussion in the NIPWG4</td>
</tr>
<tr>
<td>Netherland</td>
<td>We give the data model a quick review. We can store all the data we want in it.</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>The provided information by other HO, FI and US in particular, reflects the German position as well.</td>
<td></td>
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Improvement direction of S-128 Application Schema

KHOA listed the comment from S-100 expert and NIPWG member states and added review note to improve the S-128 application schema. In accordance with the comment of S-100 expert, the data model need to be simplified considering the latest NIPWG data model. It’s observed that the S-128 application schema can be changed like the Figure 2 by compiling various comments.

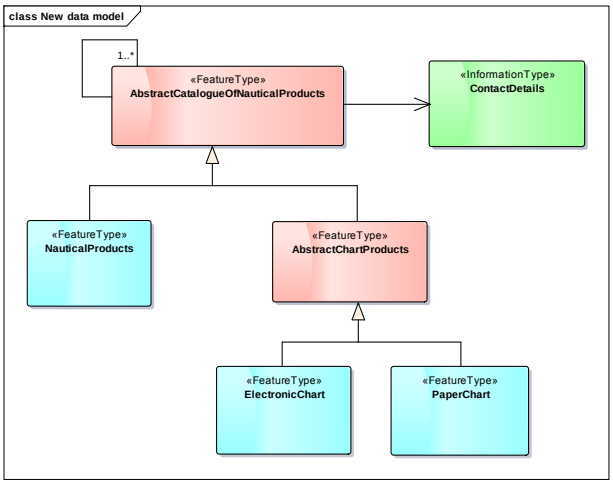

Fig. 2. Improvement direction of S-128 Application schema

It's required to have a discussion to improve the S-128 application schema in NIPWG4. KHOA will revise the data model based on the discussion results.

Conclusions

KHOA listed the comments from S-100 expert and NIPWG member states against the draft of S-128 application schema and added the review note to improve the data model.

Recommendations

It's invited to note the comments and review note on the draft of S-128 application schema and provide helpful recommendation required to improve the data model.

Action Required of NIPWG

The NIPWG4 is invited to:

a. note the comments and review note in the list

b. provide recommendation to improve the S-128 application schema