**21st IHO-TSMAD Meeting**
**Vancouver, Canada, 29th November - 3rd December 2010**

**Paper for Consideration by TSMAD**

# S-100 Feature Catalogue Builder

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| ***Submitted by:*** | UKHO |
| ***Executive Summary:*** | This paper outlines the S-100 Feature Catalogue Builder, which is a web application used to build XML Feature Catalogues which form part of S-100 Product Specifications. |
| ***Related Documents:*** | 1. S-100 |
| ***Related Projects:*** | 1. S-101 |

## Introduction / Background

1. Data product specifications which conform to S-100 must include a feature catalogue. This must be supplied in a machine readable XML file accompanied by an XSL Stylesheet for display in human readable form. As part of S-100 development a set of schemas were created to validate the XML Feature Catalogue. These ensure that catalogues are consistent and contain the correct structure and data content to ensure that the minimum required information is included. To manually develop feature catalogues in XML would be a time consuming process and much of the information is already available in the IHO Registry. Therefore it was decided to develop a small web application which connects to the Feature Concept Dictionary and can be used to construct Feature Catalogues.

## Analysis/Discussion

2. The application has been created using Java Server Pages using the NetBeans Integrated Development Environment it connects to two MySQL databases. One of which is the IHO Registry Feature Concept Dictionary, the other is the database which stores all the catalogue information and bindings. Annexe B gives an overview of the Feature Catalogue builder process, fundamentally this consists of adding all the required items from the FCD and binding objects as required. Custom items can also be created in order to enable development of feature catalogues without proposing items to the Registry. Upon completion the catalogue can then be used to feed submissions to the registry for these custom items.

3. The Java web application developed uses Java Server Pages (JSPs) and connects to two MySQL databases. The basic structure of the application is to select a catalogue and from the main page the different elements of the catalogue can be edited. Options to add/remove/edit items such as features, simple attributes and information types are available. Items can be added from the Feature Concept Dictionary but custom items can also be created. In addition to adding such items, sub-items such as enumerate values and bindings can be added. An HTML help file is included and a php page is used to generate the XML output. The output process consists of various SQL queries which form the content of the database selected into a structured XML document which confirms to the S-100 schemas. It should not be necessary to validate against the schemas in the software as it should only allow the

construction of valid Feature Catalogues. Annexe B provides an overview of the catalogue building process.

4. As part of the development and testing of the application it has been used to construct draft S-101 feature catalogues. Initially features, attributes and enumerates were added based on the existing S-57 Product Specification. A draft 0.1 Feature Catalogue was submitted to the S-101 Focus Group in August and a draft 0.2 version accompanies this paper. In this version complex attributes, themes and information types have been included. As the development of the S-101 Feature Catalogue continues the Catalogue Builder will be used to add new items and bind new items as required. The builder has also been used to construct a Feature Catalogue for the Law of the Sea

5. Currently the Feature Catalogue Builder allows all items in the S-100 General Feature Model to be added to a catalogue. However it does not currently support the binding of Features and Information Types or the construction of relationships ie themes, aggregations etc This functionality will be included in due course and after testing the application will be made available to TSMAD members for testing comment and further development.

**Conclusion**

6. The S-100 Feature Catalogue Builder forms part of the S-100 Geospatial Infrastructure and enables part of the S-100 product development process (see Annexe A). Although still to be completed the ability of the application to construct and output the S-101 Draft Feature Catalogues proves its usefulness. Further development and testing is required, TSMAD members are encouraged to engage in this and provide comment.

7. As S-100 development progresses and development of the Portrayal Registry and Catalogue begins the Feature Catalogue Builder may provide a template for an equivalent Portrayal Catalogue Builder. This will require different structure and content, it will also generate a different output but the two applications will be related. With this in mind Annexe C includes a basic overview of the Portrayal Catalogue Builder process to compliment Annexe A.

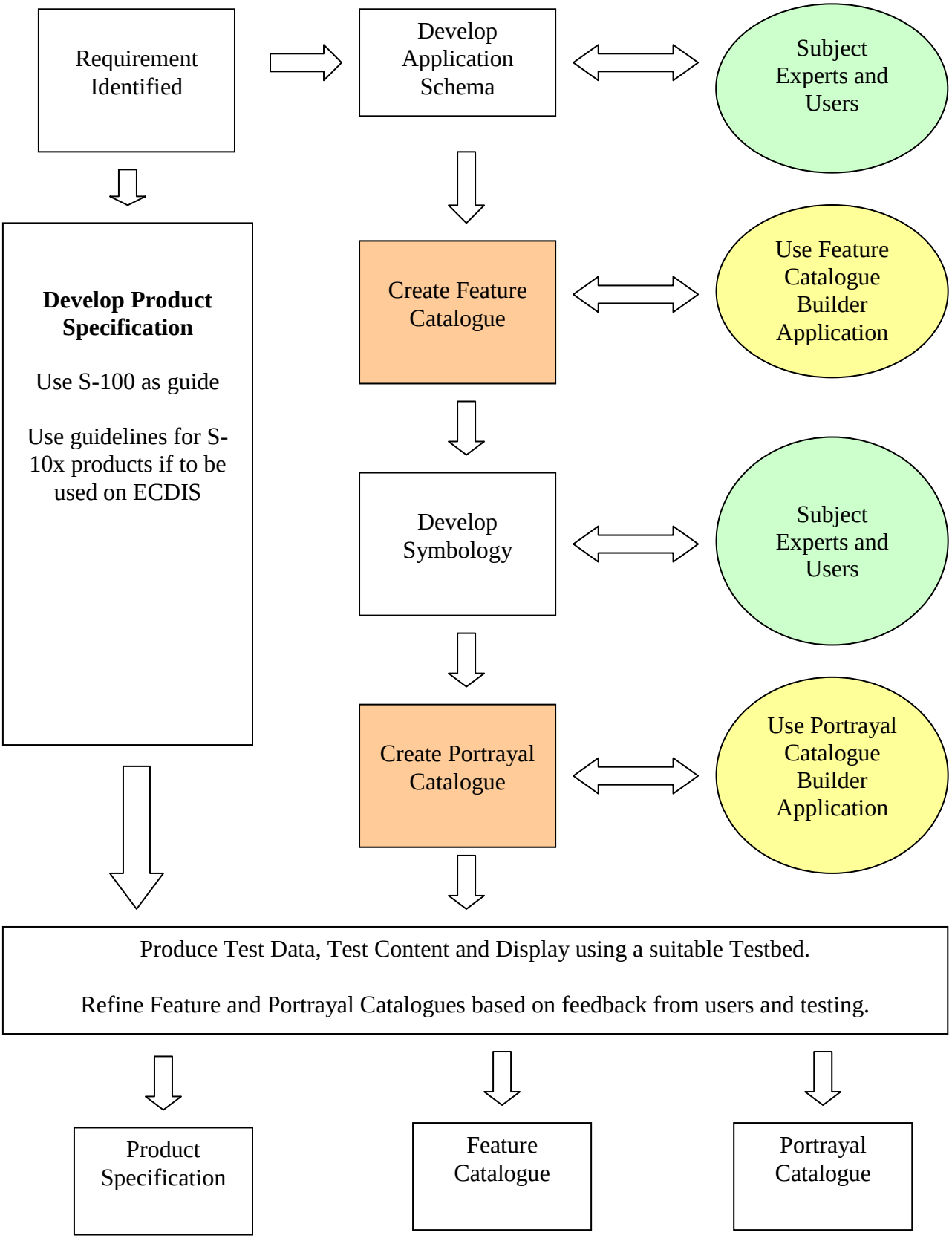
**Action Required of TSMAD**

8. TSMAD is invited to:

a. Note this paper and contribute to the development of the S-100 Feature Catalogue Builder.

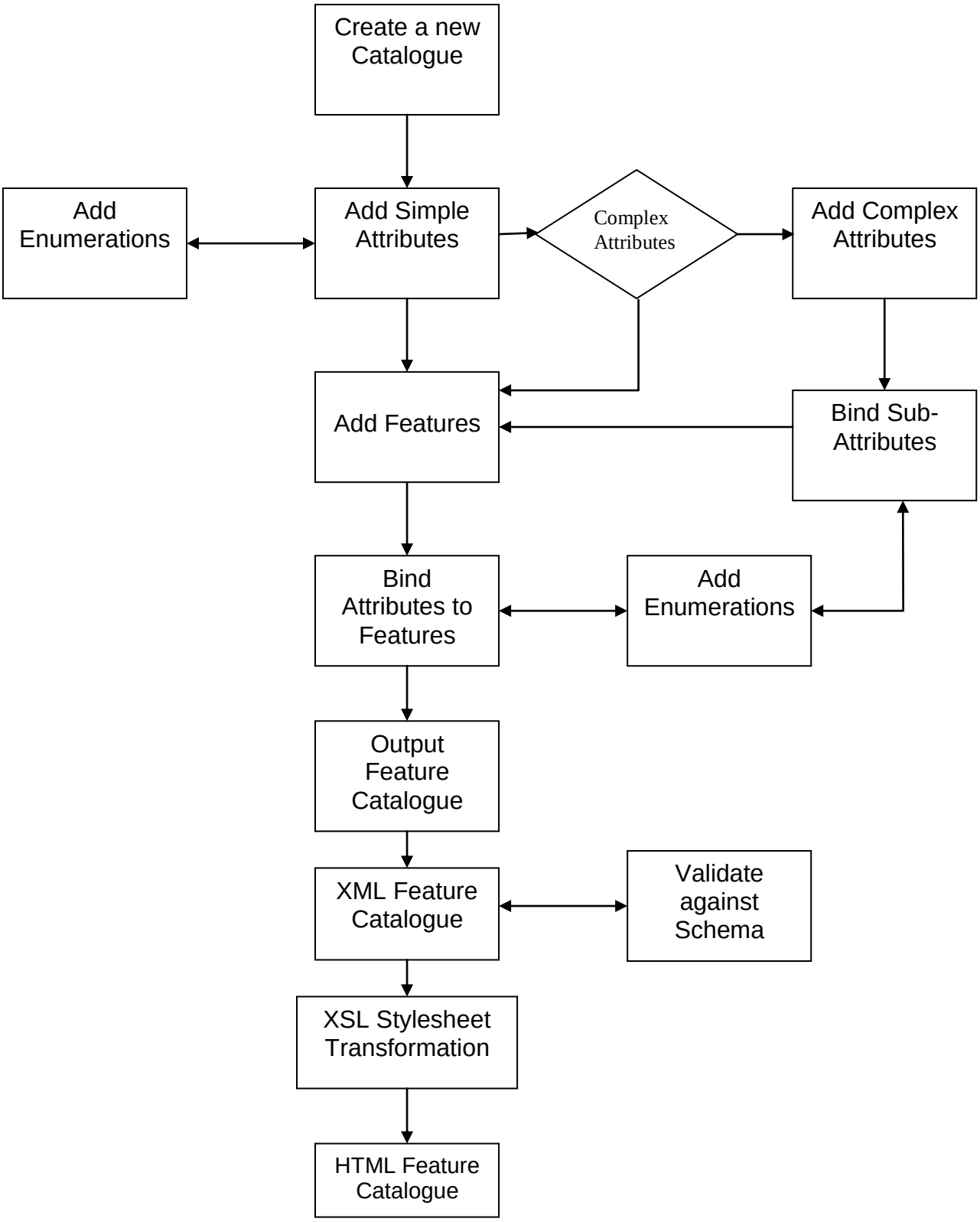
Annexe A

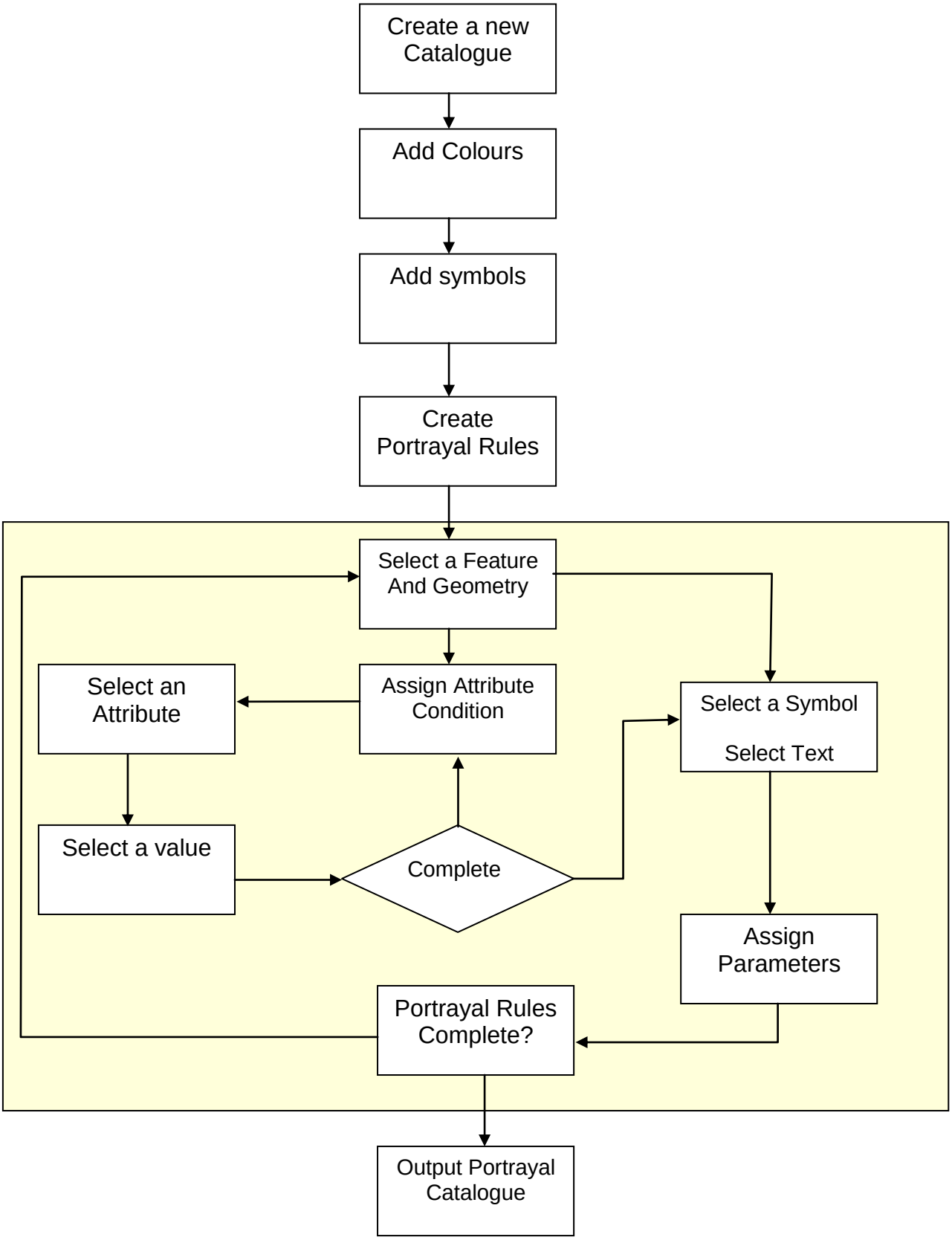
# The S-100 Product Development Process



Annexe B

**Creating an S-100 Feature Catalogue Using Feature Catalogue Builder**



Annexe C

**Creating an S-100 Portrayal Catalogue Using Portrayal Catalogue Builder**