##### Define new information exchange

The decision to define a new information exchange should be based on the likelihood that others will want to publish similar datasets in the future. Members of the USGIN community propose specifications for data sharing exchanges. Exchange documents are developed and reviewed using a publicly accessible repository on GitHub (<https://github.com/usgin-models>). Each exchange has a separate repository associated with the usgin-models pseudo organization. A proposed model must have an identified steward, and a working group of at least three participants with relevant domain knowledge and understanding of the interchange technology. There is no formal process for defining workgroup membership; normally the challenge is finding a sufficient number of qualified individuals to provide meaningful reviews and comment. The exchange steward is responsible to assemble the workgroup and assure sufficient expertise in the group to generate a sound content model and implementation. The exchange steward requests creation of a new model repository at the usgin-models gitHub from the organization members, and identifies workgroup members who will have commit privleges on the repository. Any community member can create a repository branch to propose changes using standard GitHub procedures, and request consideration for merging back into the developing model.

After review and approval by the workgroup, a call goes out to the USGIN technical review e-mail list for comments from the community. An open review period of 4 weeks is normal, after which any comments from the community must be resolved to the satisfaction of the commenter. When issues are resolved to the satisfaction of the stakeholders (workgroup and engaged community), the exchange specification is adopted.

When a specification is adopted, all associated documents are copied to a 'tag' branch in the gitHub repository, and are not changed after they are 'tagged'. The Specification documents are also copied to the exchange repository at <http://schemas.usgin.org>, which is a web site set up to provide public access to exchange specifications and any related xml schema documents or other artifacts required for the deployment and operation of the information exchange.

Here is a more detailed outline for setting up a USGIN information exchange:

1. Steward assembles workgroup, defines scope of model, and gets repository set up on usgin-models gitHub
2. Workgroup defines content model. The recommended procedure is to scope the model based on stated target use scenarios, and on example datasets that the interested parties want to share.
3. Get review of workgroup draft from community of expected users. Revise content model as necessary. Adopt content model for implementation.
4. Select interchange service protocol. This should be based on the availability of server and client software in the community of users. Some example possibilities include OGC WFS, WMS, WCS, OpenDAP/NetCDF/THREDDS, Microsoft OData, ESRI Geoservices API.
5. Implement the content model using an encoding scheme compatible with the chosen service protocol, e.g. XML, JSON, turtle, csv.
6. Define validation rules for instance documents
7. Document the content model, interchange format, service protocol, and any special conventions or profile. Specify how data access links to data exposed using this exchange will be described using the metadata fields in USGIN profile ISO19139 CI\_OnlineResource elements. Use existing identifiers where possible to identify service and MIME types.
8. Deploy an example service and test with client software. Iterate 1-5
9. Have documentation reviewed by target users and technical experts; respond to comments, updating 1-7 as necessary. Adopt exchange for use.
10. Register a datasets distributed using the exchange in a USGIN catalog, make a tag of specification documents in the GitHub repository, and deposit specification documents in USGIN exchange repository at http://schemas.usgin.org/models.

### Checklist for exchange steward:

Before exchange specification documents are tagged in GitHub and put online at schemas.usgin.org/models, the following checks should be made:

* Field headings are consistent in spelling, capitalization, and order in all tabs of the Excel workbook (Data and FieldList tabs).
* Field headings spelling, capitalization, order, and cardinality are exactly the same in the Excel workbook (as described in the FieldList tab) and in the schema (XSD).
* The schema (XSD) has the first field as “OBEJCTID”.
* The schema (XSD) has the last field as “Shape”.  Where both “ShapeLength” and “Shape” fields are used, “ShapeLength” is second to last, and “Shape” is the last field. [xs:any, ShapeArea]

Repository management:

File naming conventions