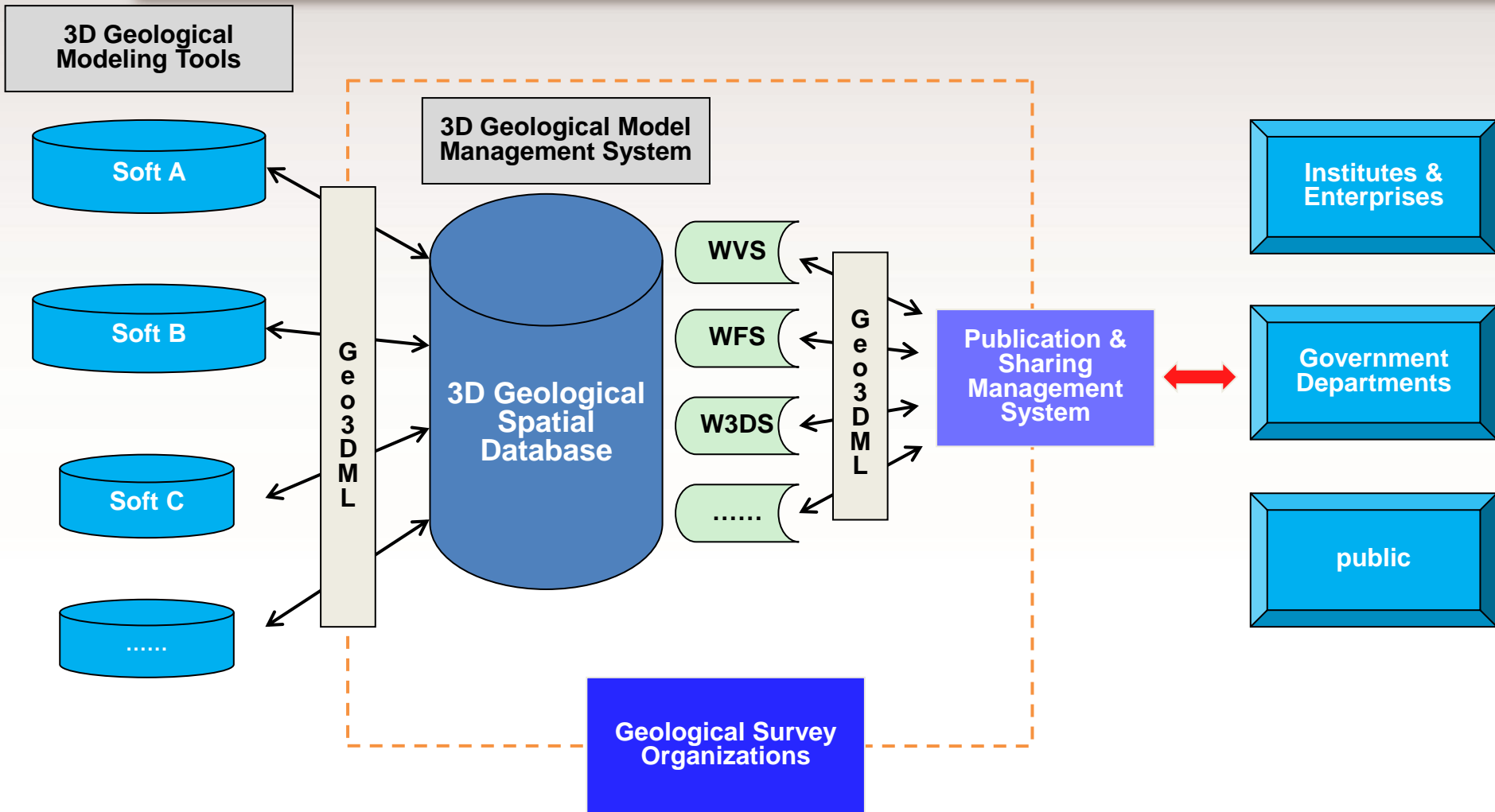




Geo3DML: an open 3D geological model data exchange format

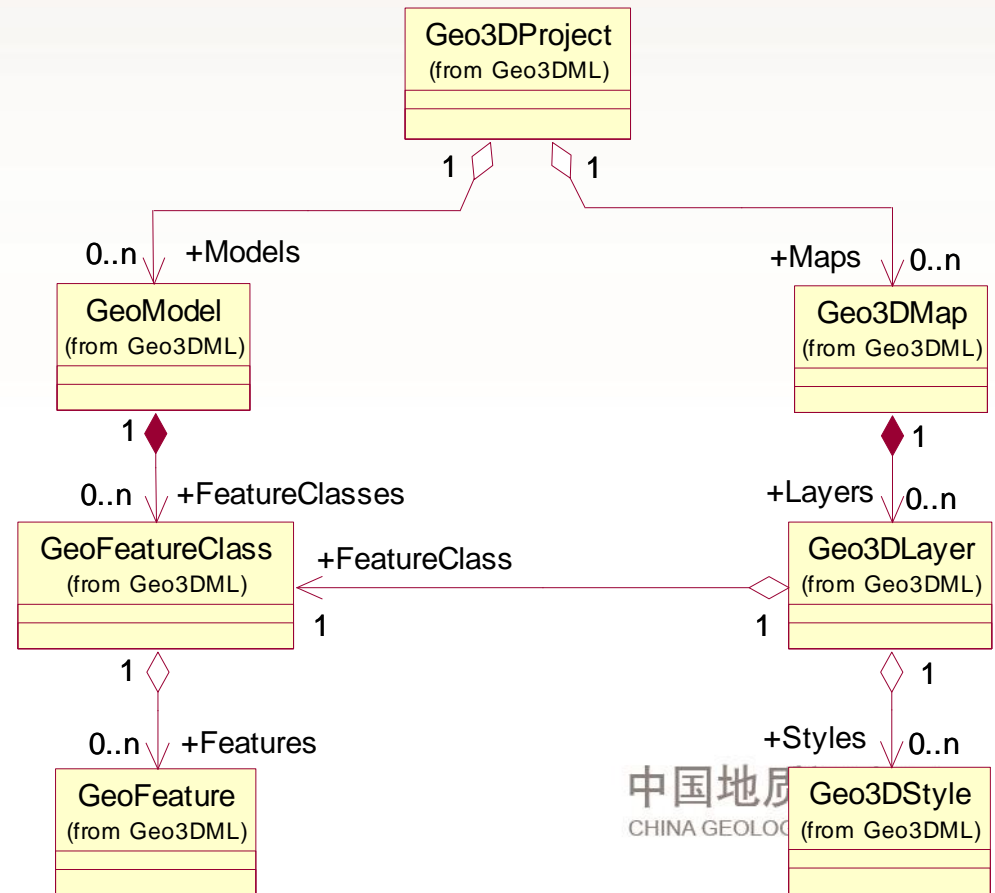
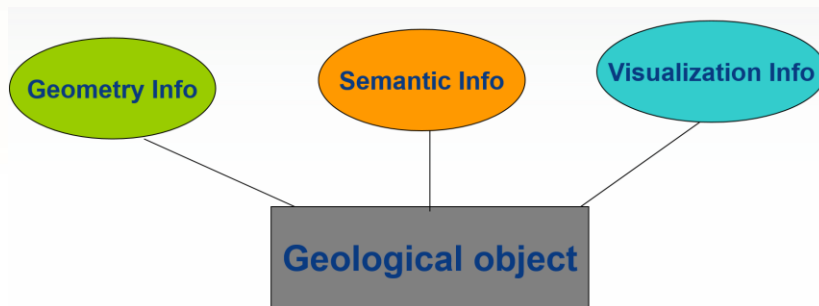


Design Principles of Geo3DML: Practical and open,
Modeling tool independent, Reuse existing standards



Geo3DML: 3D Geological Model Markup Language

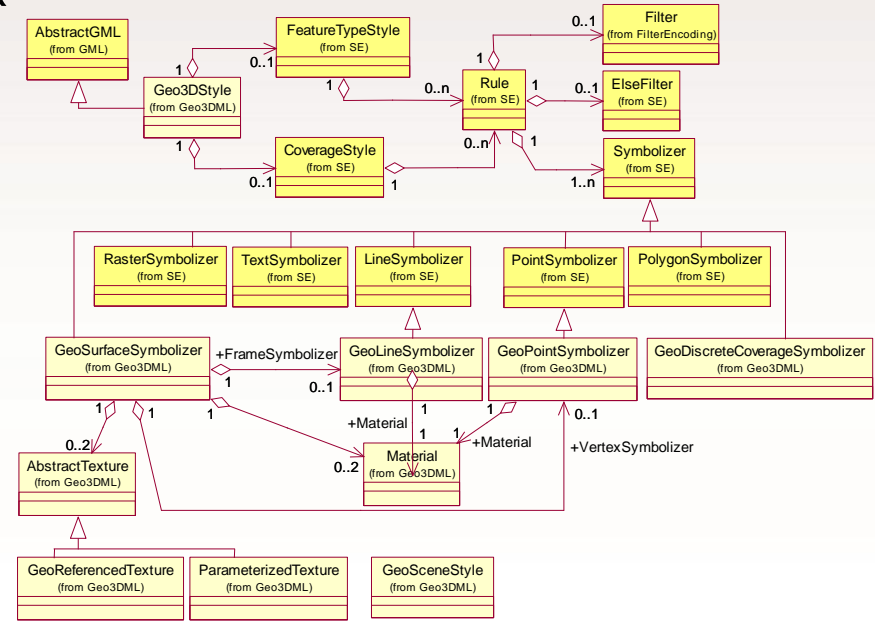
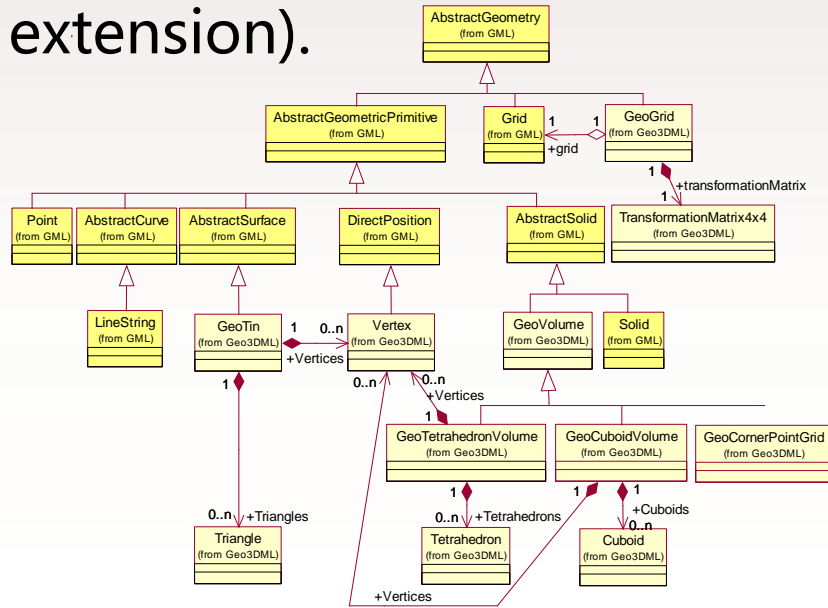
- Definition of the exchange information of individual geological object (geometry, semantic and visualization information; spatial relationship) and their hierarchical data organization (data and visualization parameters are separated also).





Geo3DML: 3D Geological Model Markup Language

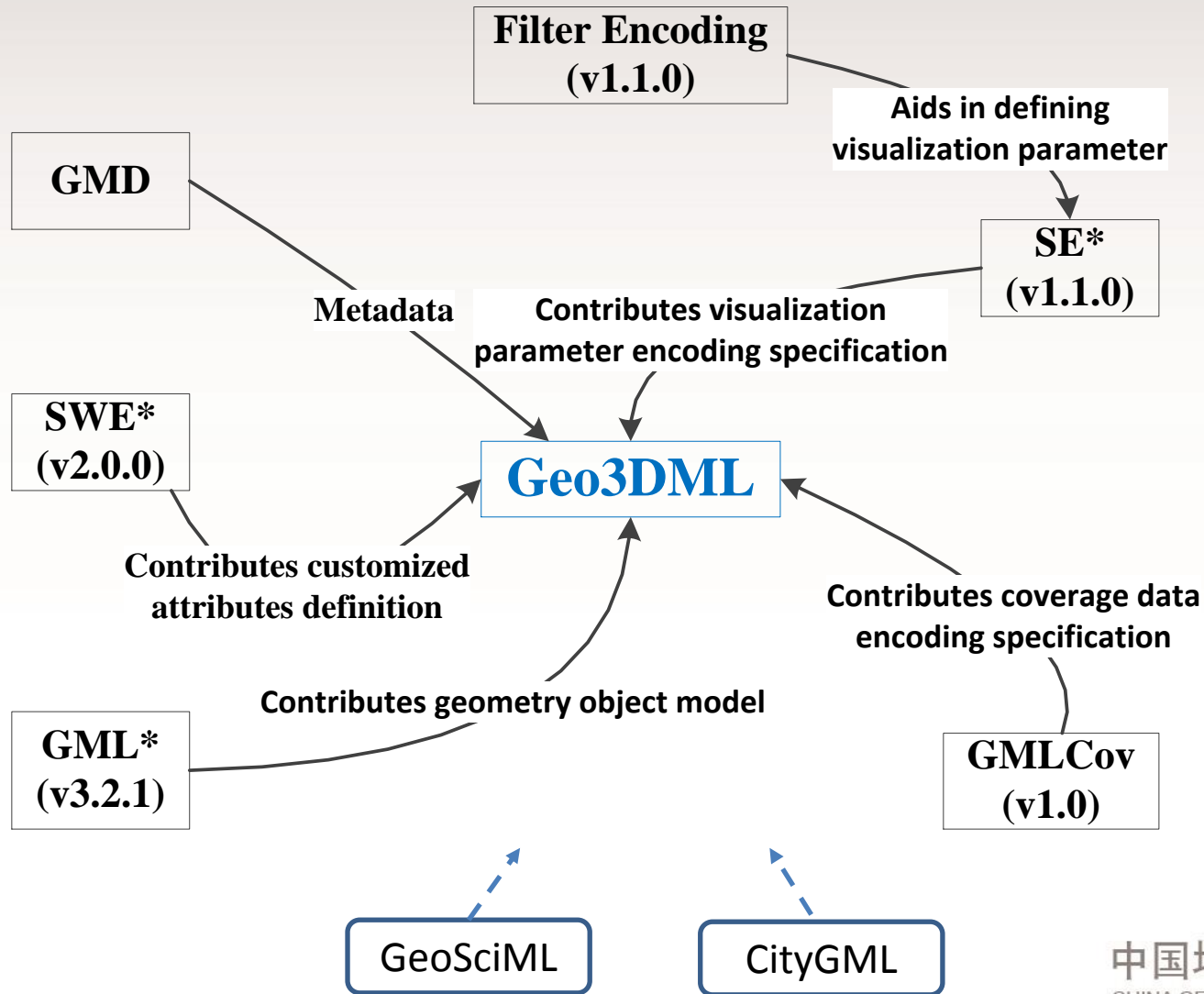
- Supported geometry types:** 3D points, lines, surfaces, solids, voxels, and notes, etc. (Based on GML and its extension).



- Supported data types:** 3D models, borehole, geological map, cross-section, etc.
- Applied in the geological fields:** basic geology, hydrogeology, engineering geology, environmental geology, mining and energy, etc.



Geo3DML with Other Standards





The progress (2011-2016)

- Geo3DML have been issued as the China Geological Survey standard in **Dec. 2015**
- **Useful tools of Geo3DML Viewer and SDK were also released.**
- **3D geological model metadata standard:** Started in 2015, completed by the end of 2016, released in 2017
- **3D geological model data management and web publishing system based on Geo3DML:** Started in 2015, test run at the end of 2016



Some suggestions

- **Why:**
 - 3D geological model construction is one of bottlenecks for the development and applications of 3D technology in the geosciences.
 - A wide range of techniques and software tools have been developed to meet various needs of modeling and information dissemination.
 - Different types of modeling software packages, without the same data models, may be simultaneously used in one organization, even in one work team
- **What:**
 - an open 3D geological model data exchange format (not a common standard 3D data model, just for exchange)
 - 3D geological model metadata standard
- **How:**
 - institutions engaged in geological survey, scientific research, and industry
 - practical and open