Evaluation Methodology for UML and GML Application Schemas Quality

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INSPIRE Directive implementation in Poland has caused the significant increase of interest in making spatial data and services available, particularly among public administration and private institutions. This entailed a series of initiatives that aim to harmonise different spatial data sets, so to ensure their internal logical and semantic coherence. Harmonisation lets to reach the interoperability of spatial databases, then among other things enables joining them together.

The process of harmonisation requires either working out new data structures or adjusting existing data structures of spatial databases to INSPIRE guidelines and recommendations. Data structures are described with the use of UML and GML application schemas. Although working out accurate and correct application schemas isn't an easy task. There should be considered many issues, for instance recommendations of ISO 19100 series of Geographic Information Standards, appropriate regulations for given problem or topic, production opportunities and limitations (software, tools).

In addition, GML application schema is deeply connected with UML application schema, it should be its translation. Not everything that can be expressed in UML, though can be directly expressed in GML, and this can have significant influence on the spatial data sets interoperability, and thereby the ability to valid data exchange. For these reasons, the capability to examine and estimate UML and GML application schemas quality, therein also the capability to explore their entropy, would be very important.

The principal subject of this research is to propose an evaluation methodology for UML and GML application schemas quality prepared in the Head Office of Geodesy and Cartography in Poland within the INSPIRE Directive implementation works.