



The deegree framework - Spatial Data Infrastructure solution for end-users and developers

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The open source software framework deegree is a comprehensive implementation of standards as defined by ISO and Open Geospatial Consortium (OGC). It has been developed with two goals in mind: provide a uniform framework for implementing Spatial Data Infrastructures (SDI) and adhering to standards as strictly as possible. Although being open source software (Lesser GNU Public License, LGPL), deegree has been developed with a business model in mind: providing the general building blocks of SDIs without license fees and offer customization, consulting and tailoring by specialized companies.

The core of deegree is a comprehensive Java Application Programming Interface (API) offering access to spatial features, analysis, metadata and coordinate reference systems. As a library, deegree can and has been integrated as a core module inside spatial information systems. It is reference implementation for several OGC standards and based on an ISO 19107 geometry model. For end users, deegree is shipped as a web application providing easy-to-set-up components for web mapping and spatial analysis.

Since 2000, deegree has been the backbone of many productive SDIs, first and foremost for governmental stakeholders (e.g. Federal Agency for Cartography and Geodesy in Germany, the Ministry of Housing, Spatial Planning and the Environment in the Netherlands, etc.) as well as for research and development projects as an early adoption of standards, drafts and discussion papers. Besides mature standards like Web Map Service, Web Feature Service and Catalogue Services, deegree also implements rather new standards like the Sensor Observation Service, the Web Processing Service and the Web Coordinate Transformation Service (WCTS).

While a robust background in standardization (knowledge and implementation) is a must for consultancy, standard-compliant services and encodings alone do not provide solutions for customers. The added value is comprised by a sophisticated set of client software, desktop and web environments. A focus lies on different client solutions for specific standards like the Web Processing Service and the Web Coordinate Transformation Service. On the other hand, complex geoportal solutions comprised of multiple standards and enhanced by components for user management, security and map client functionality show the demanding requirements of real world solutions. The XPlan-GML-standard as defined by the German spatial planning authorities is a good example of how complex real-world requirements can get. XPlan-GML is intended to provide a framework for digital spatial planning documents and requires complex Geography Markup Language (GML) features along with Symbology Encoding (SE), Filter Encoding (FE), Web Map Services (WMS), Web Feature Services (WFS). This complex infrastructure should be used by urban and spatial planners and therefore requires a user-friendly graphical interface hiding the complexity of the underlying infrastructure.

Based on challenges faced within customer projects, the importance of easy to use software components is focused. SDI solution should be build upon ISO/OGC-standards, but more important, should be user-friendly and support the users in spatial data management and analysis.