GERMANY ON THE WAY TO 4D-CADASTRE

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Nowadays economy, science and administration have an increasing demand for official three-dimensional spatial information (3D-geodata) as a base for multiple applications. The surveying and mapping administration in Germany has accepted this demand as a challenge to develop and realise sustainable conceptions for 3D-geodata, focussing on quick and economic solutions. In this context, national and international standards, infrastructures and activities had to be considered. The German AAA® cadastre standard takes into account the international standardisation of ISO and OGC to include 3D-geodata. In Germany the taxation issue was the reason for the establishment of the cadastre in the beginning of the 19th century. One hundred years later (1900) the property cadastre was established. In the last decades the cadastre was increasingly used for other necessary mapping and planning issues - it became a so called multi-purpose cadastre as a geo-basis LIS and nowadays as a part of the NSDI. The cadastre in Germany is a parcel-based system, i.e. information is geographically referenced to unique, well-defined units of land. These units are defined by formal boundaries marking the extent of land. Each parcel is given a unique parcel-number. In addition the buildings are collected and updated. Buildings are proved geometrically (2D) and semantically. They are an important component of the cadastre and basis for tasks of the administration, economy and science. Because of the federalism in Germany, the states and local authorities are responsible for the cadastre. For that reason the Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany[1] (AdV) gives recommendations for nationwide cadastral standardization. The AAA® - data model which ensures the interoperability cadastral and surveying and mapping data is the result of this standardization process. A data versioning concept already allows storing, searching and delivering hisorical data via data exhange interfaces and web services. With this time component, the new system introduces the fourth dimension (4D) within the cadastral systems in Germany. During the last years the information systems of surveying and mapping and cadastre were focusing demands for three-dimensional applications, e.g. environment protection, planning, energy supply and disaster management. The basic request of coverage and actuality was formulated for the third dimension. In 2009, the AdV came up with the following decision: "The collection, data modelling and quality management of buildings for the geo-topographical surveying and for the cadastre are main tasks of the official German cadastre. This also includes the third dimension". This paper will focus on this process and will show benefits and applications.

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