Towards a 3D Cadastre

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ABSTRACT

In the Dutch cadastral registration a cadastral object (real-estate object) can be a complete parcel, part of a parcel or a condominium right (apartment). The geometry of these legal objects are all based on a planar map which partitions the 2D space.

In intensively used areas there is a tendency to use space above and under the surface (e.g. constructions on top of each other; infrastructure above and under the ground; an increasing number of cables and pipes; apartments above shops/offices/other apartments).

From a legal point of view the current registration has proved to be still sufficient to register rights concerning 3D physical objects. However, the Netherlands' Kadaster wants to assure a sustainable, uniform and efficient registration in the future. Therefore, a research is carried out at the Department of Geodesy in collaboration with the Netherlands' Kadaster to develop a prototype of a land information system that can take the relevant 3D information into account. Information on 3D real-world objects (location, geometry, function, legal aspects) should be maintained and at least be accessible at cadastral offices.

In this paper we describe the approach taken in the Netherlands and we will relate our results with the findings of the workshop on 3D Cadastres, which was organised in Delft, the Netherlands in November 2001. This workshop was supported by the FIG. We start by giving three possible solutions of the problem and look at the solutions from both a cadastral and a technical perspective. An important contribution of this paper is the description of a conceptual data model including 3D physical objects and the relationships to subjects and the traditional (2D) objects.

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