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Semantic Comparison of 3D City Datasets and Mapping to Geospatial Ontologies

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27 November 2026

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activity guided by digital tools, whose results were further analysed in a post-processing phase. Such results are presented in this paper and will be the base for planning the future network activity.

Paper # 84 Semantic Comparison of 3D City Datasets and Mapping to Geospatial Ontologies

Authors: Elisabetta Colucci, Department of Environmental, Land and Infrastructure Engineering (DIATI) - Politecnico di Torino, Italy; M. Kokla, School of Rural and Surveying Engineering, National Technical University of Athens, Greece; Delft University of Technology, Netherlands

In the last years the interest in 2D and 3D spatial data grew, reaching many application areas (such as built heritage documentation, urban planning and design, risk prevention management, smart and resilient cities design, energy-related plans, multicriteria analysis and so on). Moreover, many researches deal with integration and linked data structures with a top-down approach, considering the data models. In this framework, the link among standards for 3D representation of cities and heritage and semantic web has been increased in order to enhance geometric and semantic interoperability among data. However, the road towards an effective standardization, with universal consensus and fitting the requirements of any customized use case is still very long. On the other hand, the importance of data reuse and integration is becoming fundamental due to the huge amount of data available (mostly heterogeneous, collected with different techniques and methods with a different scale and stored with different data structures and with different aims). Therefore, a unique mechanism for accessing them would be helpful for many users and actors. In this context, the aim of the present research focuses on the analysis of various data models, ontologies and thesaurus to investigate and to clarify how different concepts and attributes of the selected datasets could be expressed and represented by other conceptualisations and data specifications. The purpose is to facilitate the integration with other geospatial datasets. Hence, the paper investigates a strategy and a methodology to re-use available datasets even when not completely described by one only data model.

Paper # 78 The Economics of 3D Geospatial Information

Authors: Andrew Coote, Mr, United Kingdom

The use of 3D geo-information has rapidly developed in recent years. Technological advances have driven this evolution and reduced the costs involved in acquisition and processing. Consequently, National Mapping Agencies (NMA's), other public bodies and private entities are all actively seeking to transform their data operations and processes to produce such enhanced products. However, budgetary constraints necessitate a rigorous assessment of costs and benefits before opportunities can be developed. This presentation will cover work undertaken to establish a generally applicable approach for business case analysis to support investment in 3D Geospatial Information. It will explain a 3-stage approach which involves: i) Alignment to Organisational Policy Drivers – why is this important, are we solving the right problem? ii) Value chain analysis – what added socio-economic value will changes to the supply chain deliver? iii) Cost-benefit Analysis – how can we present this value in a form that allows decision makers to objectively compare 3D Geo-information to other investments.

Click here for full abstract.