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Spatial data infrastructures: concept, SDI hierarchy and future directions



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Abstract

The world as we know it is changing. Economies world wide are undergoing a process of profound and continuing structural change, and the global village is becoming a reality driven by IT and communication technologies. With this in mind, many countries believe that they can benefit both economically and environmentally from better management of their spatial data assets by taking a perspective that starts at a local level and proceeds through state, national and regional levels to global level. This has resulted in the development of the Spatial Data Infrastructure (SDI) concept at these levels. SDI is fundamentally about facilitation and coordination of the exchange and sharing of spatial data between stakeholders from different jurisdictional levels in the spatial data community. Understanding of its role and nature are important to the acceptance of the concept and its alignment with spatial industry objectives. The aim of this paper is to present the nature and concept of spatial data infrastructures, including the SDI hierarchy, which have helped to build understanding about the importance of the relationships within different levels of SDIs to support the interactions and partnerships of the spatial data communities. Moreover, the paper will highlight the importance of sharing and understanding its special social system, followed by a discussion of the future direction of SDIs. It is argued that by better understanding the future direction of SDIs, any SDI development can gain support from a wider community of both government and non-government data users and providers.

Keywords

Spatial Data Infrastructure (SDI); SDI Hierarchy; Partnerships; Culture for sharing

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In the analogue era, concern for spatial data and its distribution were tasks for mapping organisations earning a reputation for producing quality products based on their spatial characteristics, including their visualisation in printed map form to be used. Data transfer from one database to another, requires a spatial data standardisation [Moellering 1991, Moellering and Hogan 1997] in order to allow data providers to store their data into a commonly defined standard way that can be interpreted by the data. Provisions for the distribution of spatial (or geographic) data can also be viewed as an



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