

## Definition of a Cartographic Visualization Model for Smart Cartographic Symbolization in an Open Geoportal

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Highly interactive geoportals are powerful and well-suited tools for disseminating geodata using the advances in Web technologies. However, the geodata visualization on geoportals often lacks the quality founded on sound Web cartographic principles. Indeed, geoportals have been, so far, focused on their role as data sharing platforms and have put little emphasis on the adequate visualization of geodata.

This paper presents the first steps towards a smart cartographic symbolization for geoportals. It does not aim at being a cartographic expert system, but rather a tool for combining datasets into correct cartographic visualizations.

We first define and describe a core cartographic visualization model (CVM) needed to support smart symbolization in the context of geoportals. This involves the formal definition of the elements of a cartographic visualization and their relations: for instance, how layers, features, data themes and symbolization methods relate to build the visualization. The CVM represents a foundation required in formalizing cartographic principles for web-based geodata visualization into a set of rules.

Afterwards, we introduce the concept of a smart wizard that assists the users in visually combining datasets for exploration and mashup purposes. The CVM and the formalized rules form the knowledge base and allow the wizard to automatically modify the default styles of combined datasets into a new cartographic visualization, based on the datasets selection and user's input (main layer, representation type, map theme etc.).

In conclusion, this paper presents the CVM, a first set of rules, and several use cases demonstrating the workflow of the wizard to be implemented in the GEOIDEA.RO geoportal. The overarching goal of the wizard is to bring cartographic knowledge to geoportal users. Therefore, the above-mentioned use cases illustrate the advantages of a smart wizard for improving the cartographic visualization on geoportals and for helping users understand the cartographic choices behind the symbolization.

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