

# Base Maps of National Geoportals of Europe: Pragmatic and Stylistic Aspects

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## Abstract:

In 2020, it has been more than for a decade that practically all European countries have functioning and recognized national portals for interchange of spatial data (geoportals). Web map browser is a typical component of a geoportal. It is an application that allows for viewing various spatial data served at the geoportal, usually using one or several reference base maps as a background. Depending on maturity level of a geoportal, such background map can be reused by the users of a geoportal or even served for use in other information systems with the same purpose – a reference base for different thematic layers. Quality of the base map is an essential aspect of quality of cartographic communication at a geoportal. As the base map is usually the first map that the user of a geoportal would see, so it has an impact on further actions. The base map can either facilitate visual exploration of available data or, on the contrary, because of excessive complexity, irritating graphics or slow redrawing, hinder the efficiency of such exploration. The base map has two functions that may be mutually exclusive – to efficiently serve as a background for other information and to be usable and valuable standalone.

In European geoportals, base maps are different. Many countries develop their own multiscale maps, but some use Open Street Map, Google map or just orthophotographic maps as background. In some geoportals, user can choose from several versions of the base maps – from plain and simple maps that just serve as a background for other map layers to expressive, colourful and complex maps that are explored individually. A trend of moving from use of a universal base map to providing different options for the user, from data generalization to cartographic generalization, from elementary to complex exploratory tools can be noticed – that means a shift of a concept of reference map style that is closely related to usability.

Unification of stylistic solutions can be observed as contemporary good practices are spread and re-implemented. The effect of unification on usability is controversial – typical design and standard tool set make it easier to apply functions; on the other hand, original and thus memorable web maps are rather rare. The strength of map style – implementation of formal map style with orientation to the state geoportal users, creation of visual hierarchies reflecting the territorial aspects in the map, usage of clear and legible fonts for labelling. The main findings according to cartographic stylistic aspects are as follows: relying on typical design templates instead of original design solutions, the base map losing its primary purpose to serve as the background for thematic layers due to the bright colour schemes and high colour contrast decisions used for visualization, the base map looking more suitable for printed map instead for viewing in the screen, lacking of stylistic integrity at different levels of details as the colour scheme changes and flexible lines appear static ones at the most detailed view of the map.

We attempted to define a set of criteria that describe both aesthetical (original fonts, colour schemes, decorative elements) and functional qualities of web maps. We looked for examples that would demonstrate a balance of both.

In this paper we present the results of analysis of the official geoportals of the European countries that reflect pragmatic and stylistic evaluation of their base maps. Several characteristics related with usability of these maps are analysed, formalized and assessed: variety of available base map versions, complexity of the contents; information load, generalization type, interactivity of the map, ease of use (pragmatic parameters) and originality, expressiveness and decorativeness (parameters of the cartographic style). The analysed geoportal base maps were tentatively classified according to the results and insights were made on distribution of different stylistic types. There are maps with high functional and aesthetical value, but the cases where these maps are suitable for both reference and background are rare.