

Fit for Use

The basic notion of establishing a Spatial Data Infrastructure (SDI) is to collect geo-data once and then use it many, many times for a wide variety of applications, thus saving massive amounts of taxpayers' money. Is an SDI a success story when the data is downloadable from the internet by the millions, either free of charge or according to the revenue-generation model? Many may be inclined to respond with a firm 'Yes' and a conceding nod. However, the nod probably belongs to the producer and does not touch on the issue of fitness for use. The crucial question from the user's perspective is: to what degree can this geo-dataset be of help in solving the problem at hand?

Let's portray a real-life case. Having imported the digital map in a GIS, a ministerial technician may soon find that the class 'building' does not consist of the subclasses dwellings, hospitals, schools, offices and factories: the categories he would prefer. Rather, buildings are subcategorised as low-rise and high-rise. The advanced querying facilities of his GIS, with which he hoped to answer the question put to him by the Minister of the Built Environment before sunset, become useless. Obviously, knowing where to find core data and get easy access to its source are not the only issues, even not the key ones.

Maps are interpreted representations of reality. As a result, map semantics, that is to say the meaning of map symbols and their relationships, are entirely domain dependent. So many clerical hires, so many segregated desires. Since the semantic wishes of the ministerial technician do not match the semantics of the downloaded map, this chap has himself to interpret additional material, such as aerial photographs and satellite imagery, to satisfy his boss. Before his very eyes the map shrinks to mere backdrop and a sophisticated GIS is rendered useless tool.

Would it be possible to automatically transfer map semantics from the one application domain to another? There are strong arguments for the answer here being a firm 'No'. Give me your most solid reason why not, you may ask. The problem is quite similar to automated interpretation of aerial or satellite imagery. Many years of intensive research have convincingly demonstrated the virtual impossibility of getting the computer to do the job alone - too complex, a search for the Holy Grail, a hopeless task. From this observation there immediately arises another question. We continue squandering much labour and money on creating maps, while they still have to be interpreted by the eye of the beholder. Why do so, when detailed and up-to-date imagery from orbiting sensors is there for the asking, at a fraction of the cost to the taxpayer of producing maps and disseminating these within the framework of an SDI?