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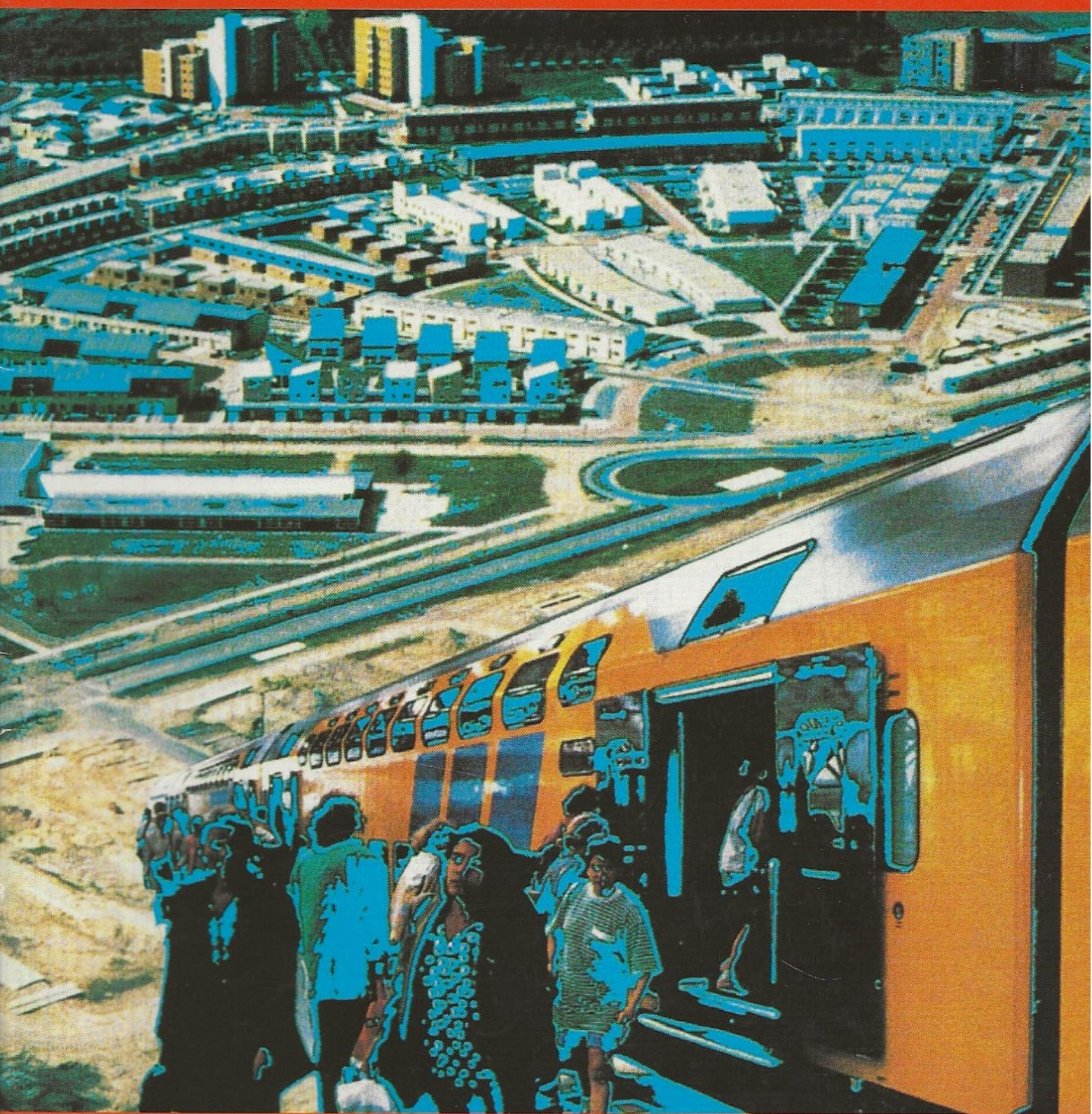


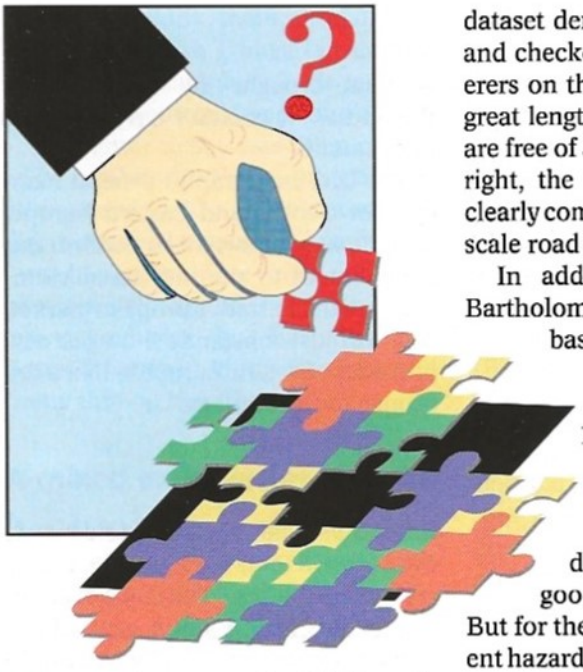
IMPACT 2:
Results of European Community proposal call

LAND FROM WATER:
Controlling growth and change with GIS

EASTERN EUROPE:
GIS news from Hungary, Slovenia, Bulgaria

Matching map data: will the pieces fit?

BY SEPPE CASSETTARI



In mapping terms the UK is well provided for with up-to-date, high-quality data at a variety of scales. The Ordnance Survey started to convert the basic map scales into digital format in the 1980s, and work has progressed so well that the 1:1,250 maps are completely digitized, and the 1:2,500 version is expected to be finished by 1995.

The catch is the high cost of this Ordnance Survey digital data—unless you are a local authority. These prices have effectively been determined by the steep cost-recovery targets that government has set for the Ordnance Survey. These targets, considered by some to be self defeating, are effectively limiting the accessibility of digital data for some purposes.

Cashing in

Inevitably, the high cost of Ordnance Survey data has encouraged other data providers to cash in on the demand for affordable digital map data. The Automobile Association (AA), for example, have created a road network dataset derived from satellite imagery and checked by their many data gatherers on the ground. Having gone to great lengths to ensure that their data are free of any Ordnance Survey copyright, the motoring organization are clearly competing with the OS in small-scale road data market.

In addition, the map publisher Bartholomew have converted their base maps into digital form to provide a roads database. They are also preparing a 1:10,000 digital-map series based on aerial photography for London.

The production of such datasets is, on the face of it, good news for the data hungry. But for the GIS *user* there is an inherent hazard in this data proliferation. In creating problem-specific applications—using the toolbox approach in which customers build their own solutions—map data from more than one supplier are often used. Inevitably, there will be inconsistencies. Errors can result from the quality of the original survey or source material, the conversion routines, the accuracy of the extraction and compilation processes and the effects of cartographic licence.

Locations can vary

In some instances, place names on the various digitized road networks differ, and there is nothing to say that these names will agree with the addresses given by the post office. Locations can vary as well; in one example, a village on one dataset is over a kilometre distant from the position given on the Ordnance Survey map. The user has no way of knowing which dataset is accurate. The actual position of a town may not matter much for many applications, but what the user *does* need is consistency of data.

Some errors can be critical. For instance, in predicting radio-wave propagation, a study combining elevation data with clutter information (such as trees and buildings) led to the siting of some new transmitters in the wrong location. This data mismatch resulted in claims for damages against the data suppliers and the GIS vendors that may have to be settled by the courts.

Authoritative source

Many users of such data will defer to the Ordnance Survey as the authoritative source. And no doubt the OS will argue that you get what you pay for, and that their high cost reflects the quality and accuracy of its data. Yet as long as economic alternatives to the OS product exist, the problems of data consistency will continue.

Many GIS users will have to ask themselves, 'Do I appreciate the degree of accuracy or, conversely, cartographic licence used in compiling the various datasets I am combining? Do I care?' Some practitioners may not know enough to understand that perhaps they *should* care. But when a major project suffers serious financial loss due to the failure of a GIS analysis that relied on map data from different sources, and the lawyers begin to gather, then everyone does need to care.

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