

Generalisation at AdV Germany



AdV (Arbeitsgemeinschaft der Vermessungsverwaltungen der Länder der Bundesrepublik Deutschland) and 1Spatial have been working in partnership, on one of the largest generalisation projects in Europe, to improve business efficiencies at several state mapping agencies in Germany.

For this project, the AdV members chose a two-stage approach, consisting of model and cartographic generalisation, with an ultimate goal of automated generation of digital landscape models at 1:50,000 scale (DLM 50) and digital topographic maps (DTK 50).

The Customer

AdV is a Working Committee that coordinates the official surveying in Germany. Members include the 16 federal state survey offices, the Federal Ministry of the Interior, the Federal Ministry of Defence and the Federal Ministry of Transport, Building and Urban Affairs. In Germany, authoritative surveying is the responsibility of the federal states. Thus, AdV's general function is to find uniform regulations for technical issues with fundamental and supra-regional importance. This ensures that all members follow one consistent approach. AdV's duties cover spatial reference (geodetic), geo-topography and real estate cadastre, as well as information and communication technologies.

As the state survey offices are responsible for the provision of spatial data for administration, economy and private users, the increase in the number of supra-regional users and the growth of the GIS industry have confirmed the need for a uniform set of national data. In the course of achieving national standards, AdV created a new, standardised data model (AAA) which integrates three different spatial information systems: Cadastre (ALKIS®), Topographic-Cartographic (ATKIS®) and Geodetic Control Station (AFIS®).

The Challenge

In order to meet their standardisation goals, AdV required an automatic 1:25,000 to 1:50,000 generalisation flowline for their ATKIS® data to derive digital topographic maps at the target scale. AdV wanted to make time and cost savings as well as enable the group to release more frequent updates of their products and hoped this could be achieved by automating the process. The process of updating their products previously meant maintaining several datasets for different projects, but AdV wanted this to be limited to maintaining a single dataset (the BasisDLM).



The Solution and the Results

The approach adopted by AdV includes both model and cartographic generalisation. Model generalisation operates at the data model level and aims to reduce the amount of source data to a level suitable for the target scale, and was the subject of 1Spatial's first partnership with AdV. The second project was concerned with cartographic generalisation, which deals with the representation conflicts of map objects and text placement.

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The Solution and the Results (contd.)

The first step was to deliver a model generalisation flowline to generalise ATKIS® Digital Landscape Models at 1:25,000 scale (BasisDLM) to 1:50,000 (DLM50). The advantage of the DLM50, when compared to the BasisDLM, is the provision of a smaller amount of data that is easier to structure. 1Spatial then implemented the flowline in the AAA data model allowing AdV, for the first time, to get a continuous, concurrent and consistent set of national data at 1:50,000 scale for the whole of Germany. Having previously been a job that would have taken years to complete, a DLM50 model of an average-sized German state can now be delivered, automatically, within ten days. which means it is possible to provide a closer currency of information between a wider range of products than ever before.

The second step was to create a database for the final production of digital topographic maps at 1:50,000 scale (DTK50). Historically, AdV has been generalising its cartographic data manually, but in the light of the increasing need to deliver up-to-date maps more frequently, 1Spatial was contracted to provide an automated generalisation flowline to derive cartographic data. This has been developed as a new workflow within Radius Clarity, 1Spatial's generalisation software product. Radius Clarity uses AGENT* technology to resolve representation conflicts and place text labels by enabling geographical objects (e.g. roads, buildings) to become self-aware. The benefit of the new workflow is a considerable reduction of the time and effort required to keep products up-to-date, achieved by automating large parts of the cartographic generalisation process. In combination with the consistent set of data provided in DLM50, the new workflow enables AdV to easily generalise its mapping data for all German states.

The automated combination of both model and cartographic generalisation flowlines allows AdV staff to concentrate on data maintenance, reducing the amount of time between data creation and product publication, thus creating more up-to-date products. This new flowline will enable AdV to deliver products almost simultaneously, allowing AdV to avoid previous criticisms that different features were present at different scales.

The Future

At inception, 1Spatial's partnership with AdV involved three of the sixteen federal state survey offices, but since then other offices have joined the team, bringing the number currently involved to nine. Having completed the 1:50,000 (DTK50) release, 1Spatial is continuing to work with AdV on additional scale releases for the future and an additional project concerned with the importing of data.

Benefits

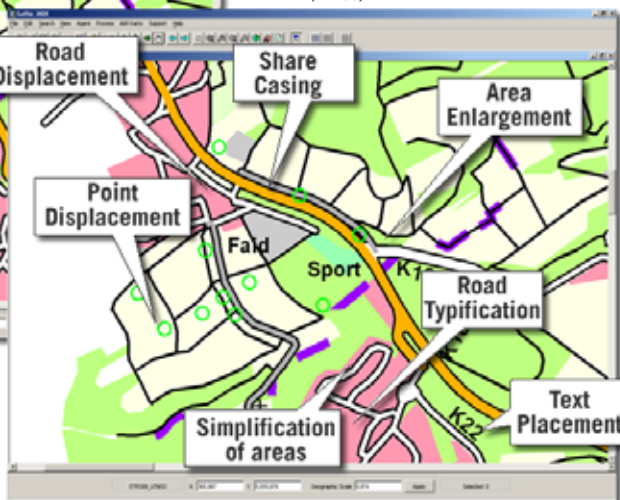
- AdV have considerably reduced the time and effort required to keep products up-to-date by automating large parts of the cartographic generalisation process, significantly reduces operational costs
- AdV are now able to provide a closer currency and consistency of information between a wider range of products than ever before, meaning that more reliable and up-to-date information can be supplied to their customers
- AdV can now release more up-to-date products more often and, in doing so, an improved service is provided for their customers

Before (DLM50)



Cartographic Generalisation

After (DTK50)



*Developed during the ESPRIT project number 24939.



Quality – 1Spatial is committed to quality in all aspects of its business and has achieved ISO 9001:2000 certification. 1Spatial has been ISO9001/TickIT assured continuously since February 1994.

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