DSM Alchemy

PAI Solution

- An ongoing Ordnance Survey programme

DSM Geodata Ltd.
United Kingdom

What Is PAI And Does It Affect Me?

As part of its ongoing commitment to data quality, Ordnance Survey is undertaking a national Positional Accuracy Improvement programme. This programme will allow the capture of data at 1:2500 scale, to a greater absolute accuracy than previously (absolute accuracy is the position of features in relation to the Ordnance Survey National Grid). The PAI programme will result in an improved accuracy standard and more consistent mapping of data for rural areas. Furthermore, it will future proof the data for the addition of new building developments and other change, as well as providing a better relationship between Ordnance Survey 1:2500 scale map data and the mapping of customers' own GPS-positioned assets.

Due to the improved accuracy of the 1:2500 scale mapping, you will now see that features compared before, and after data has been through the PAI programme, may have been moved. If you have mapped your own company assets to fit in with the OS 1:2500 scale mapping, you are highly likely to find that they no longer fit with the new improved OS data. The OS provides a set of link files to it's customers that identify the amount of change from old to new position in any given area.

DOES IT AFFECT ME?

If you use any of the Ordnance Survey rural maps of Great Britain, the answer is "YES".

The Philosophy behind DSM Alchemy

Our philosophy is based on the fact that each organisation is unique and it has its own way for capturing, managing and updating company asset data. Therefore a standard solution is impractical and unlikely to work effectively. We provide a customised but cost-effective solution, developed in close alignment to the customer's requirements. Furthermore experience has shown that PAI is often part of a much larger data quality issue and DSM endeavours to understand all aspects of the client's data and provide a solution that delivers a high quality asset dataset, resolved for PAI.

The Solution

Specialists in solving PAI problems by combining rich OS data expertise with a large offshore delivery capability

DSM provides an outsourcing solution to address the specific issue of PAI and other data quality issues. We have a large production centre, staffed with highly skilled and motivated technical staff, who are familiar with all types of client and OS base data issues. We have developed our own in-house application Alchemy, which works in a semi-automatic fashion and is designed to be capable of automatically re-aligning a high percentage of the client data. Error detection routines and quality control procedures are in place to identify the problem areas and resolve through the intelligent application of skilled resources.
This solution is capable and robust enough to cope with a wide range of quality of input data and by careful application of the rules, the constraint engine and the error detection, we can guarantee a consistently high quality output (gold!!).

Although there are some disadvantages of outsourcing the data, DSM has developed ways to try and minimise these, through the intelligent use of technology. We have developed query-tracking systems and can provide controlled access to the company's extranet for real time project monitoring. We believe that by carrying out a careful initial study of the client's data the most cost effective and easiest method of tackling the PAI problem is to outsource the work to DSM.

DSM ALCHEMY

Alchemy is an application created in-house for addressing the specific issue of client asset data mapping and problems introduced by the PAI program. The process is divided into 3 main stages.

Additional link creation

The OS supply link files, which contain lines linking the original position of features in the pre-PAI OS Base data, to the same feature on the post-PAI base data (OS MasterMap). Our application has the advantage that it creates additional links to the Ordnance Survey supplied links. This is a major advantage; particularly for utility companies where the user data is not always snapped to the OS base data. For utility companies, quite often the features are buried and therefore the spatial relationship to base data is more important than snapping.

It should be noted that it is not always necessary to create additional links however there are many cases where the additional links are found to enhance the accuracy of the final output.

Automatic Shifting

Our application uses complex rubber-sheeting algorithms to shift the user data using the link files. This is an automatic process, for which different options can be selected depending on whether the user data is snapped to OS data.

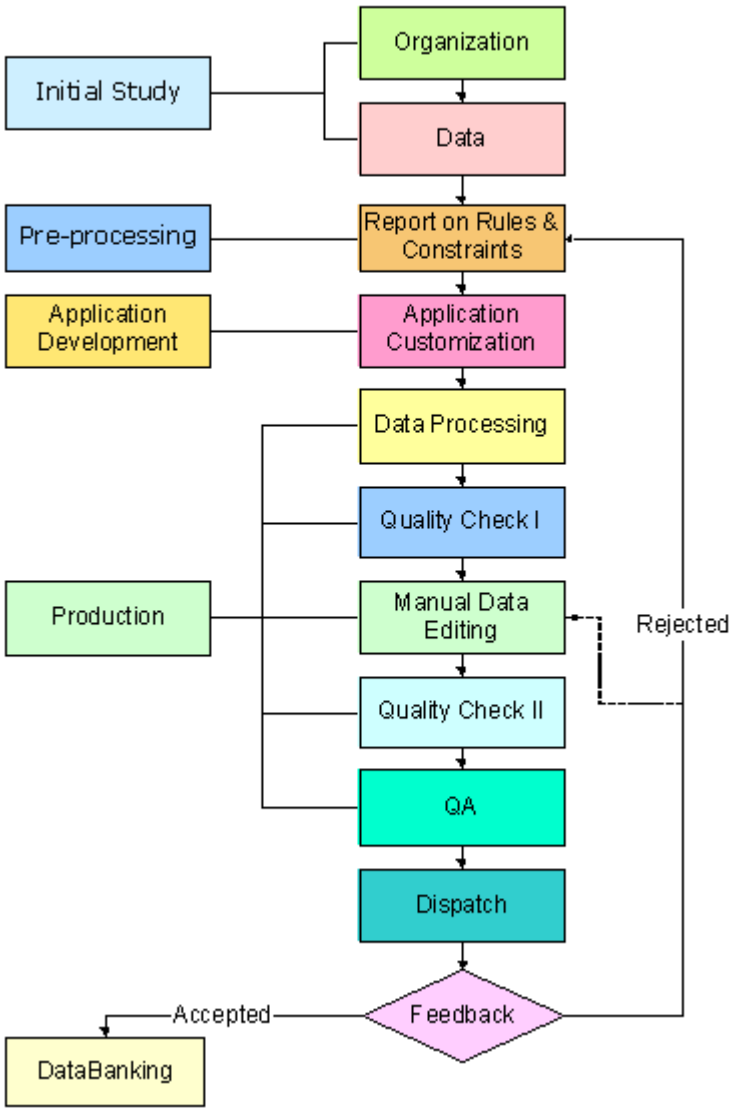
This process produces an "error check log" which indicates possible areas where user intervention is required.

Manual Correction / shifting

As no process will ever be 100 % automatic, the data is then passed on to a data operator who checks the output together

with the "error log file" and manually corrects any problems. Usually the operator can make an informed decision on how to shift the data based on the results of the data audit and the initial study report, however when the answer is not immediately obvious he will raise a query to the client through our internally developed Query Management System.

Implementation Flowchart



Implementation Methodology

DSM employs a multi part methodology, which is documented as follows:

Data Audit

Prior to any work undertaken it is suggested that a complete data audit of the client's data is done. This can be done internally by the client or an agent of the client and the results provided to DSM; or DSM can come into the client's premises and personally assist with conducting the audit.

Initial Pilot Study

An initial study of the Geometrical Asset Data owned by the organisation and its applications needs to be carried out before processing the data. This study will help in understanding the constraints or geometrical rules that will have to be applied when processing the data. The pre-processing report that identifies the rules to be applied by the constraint engine, is approved by the client before full scale implementation of the process.

Pre-processing

Often it is found that the user data is not always topologically correct prior to PAI. After the initial study of the data, a report will be prepared on Geometric Rules and constraints existing in the asset data. This report will also indicate whether or not cleaning of the data is required prior to PAI realignment. The following issues will be addressed:

- Orientation
- Dimension
- Offset (Parallelism)
- Snapping (OS Base data and also between user data layers)
- Other user defined constraints

If required and in agreement with the client, DSM will process the data prior to doing the PAI shifting. This usually involves snapping data to OS (pre-PAI) base data where required. Once the pre-PAI client data is topologically correct it is then processed through the Alchemy automatic correction application.

QC and Final Delivery

DSM is accredited to ISO quality standards and all data would be passed though strict Quality assurance checks prior to delivery to the client.

Contact Details

DSM GeoData Ltd,
3 Hope Street, Bo'ness, West Lothian,
EH51 0AA, Scotland

tel: + 44 (0)1506 518000
fax: + 44 (0) 1506 517777
email: info@dsmgeodata.com
url: www.dsmgeodata.com