

AN INVESTIGATION OF DATABASE DRIVEN PRODUCTION OF ATLASES

DAVIES C., FORREST D.

University of Glasgow, GLASGOW, UNITED KINGDOM

INTRODUCTION

A new methodology for the creation of a page of the Times Comprehensive Atlas of the World using cartographic representations and annotations in ArcGIS is presented. The idea of this new process is to use ESRI's ArcGIS Distributed Geodatabase structure to create a product specific geodatabase. This geodatabase can then be linked to the main HarperCollins Publishers geodatabase, that is continually maintained to reflect real world feature changes, to enable future product specific updates.

BACKGROUND

The Times Comprehensive Atlas of the World (TCAW) is the flagship cartographic product of HarperCollins Publishers. A new edition is produced every four years. In the current digital production flowline, mapping for each atlas page from the previous edition, originally cut from an ArcGIS geodatabase, is updated in Adobe Illustrator independently from the concurrent update to HarperCollins geodatabase. This duplication of effort is both wasteful of effort and prone to introduction of differences in content. By replacing this with a totally database driven production flowline these problems could be avoided, resulting in cost savings and improved efficiency. However, a question that arises from the literature is whether ArcGIS has the map finishing quality to rival or even equal that which has been proven in Illustrator.

METHODOLOGY

The stages of the proposed production process tested in this study are:

1. Create a replica Child Geodatabase for an individual page of the TCAW.
2. Create a basic version of the page using standard ArcGIS symbolisations, rendering and labelling.
3. Create and apply a set of rules to customise the representations and enhance or relocate existing symbols in areas of conflict.
4. Use overrides to manually resolve any remaining graphic conflicts.
5. Produce final digital output file.

For subsequent editions of the product it is important that any modifications to the Parent database can be transferred to the new edition of the product. This is achieved by synchronisation of the Child Geodatabase with the Parent, which has also been tested using simulated updates to the Parent Geodatabase.

DISCUSSION

The proposed benefits of the new process over the currently adopted one are that duplication of work is removed and many processes are automated, thus increasing business efficiency. Heuristic evaluation of the new product quality against the current version, published using Adobe Illustrator, shows that while some minor differences remain and their needs to be some refinement of the representation rules, generally the product is satisfactory and the method merits further investigation.

An assessment of time and cost of the current flowline is compared to the new flowline using end-to-end production in ArcGIS. This incorporates the initial set-up of product specific mapping and a comparison of the two processes for producing future editions. This indicates there is additional cost in producing the first edition, but by the fourth edition significant saving would be achieved. If the potential for automating index creation is taken into account, the benefits would be achieved much sooner.

CONCLUSION

It is shown that the suggested new methodology can be successfully incorporated into the HarperCollins Publishers digital production flowline for the Times Comprehensive Atlas of the World. It is concluded that publishable map finishing quality in ArcGIS is possible and that initial investment in the new process would save money in the long-term.