

Work Session on Geographical Information Systems
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NATIONAL REPORT: UNITED KINGDOM

Submitted by the Office for National Statistics of the United Kingdom ¹

I. INTRODUCTION

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1. Responsibility for the collection of statistics is divided between a number of government departments in the United Kingdom. The notes below outline major GIS and geographic information initiatives in the key departments.
2. Because of the number of organisations and GIS projects involved only outline details of the work taking place can be provided. Working papers, demonstrations or posters at the Work Session will provide technical details and further discussion of most of these projects.

II. OFFICE FOR NATIONAL STATISTICS

GIS development for Census 2001

3. Work is now well underway on the development of a system to plan collection areas for the 2001 Census. The system has been largely developed in-house and runs in ArcInfo on a network of Sun UNIX workstations. Further details of the operation of the system and progress to date are included in Working Paper 37. This system will be demonstrated during the Work Session.
4. Although plans for the Census remain at the development stage it seems likely that separate geographies will be used for data collection and output of Census data in 2001. An innovative approach for the automatic construction of output areas using ArcInfo is being investigated. Working Paper 38 provides further details of the methods being considered and, again, this system will be demonstrated.

Development of central GIS and mapping services

5. An efficient central service has been developed to carry out GIS work on ONS datasets and produce maps for data visualisation, analysis and publication. Our principle GIS system is MapInfo running on standard PCs but most high quality map products are produced using Adobe Illustrator running on Apple Macintosh Power PCs. Working Paper 33 provides full details of the technical process and discusses the advantages gained from provision of a central service. The map production system will be demonstrated.

Development of the use of desktop GIS

6. A strategy for the dissemination of the wider use of desktop GIS within ONS is now in place. After a review of a wide range of available PC-based GIS systems the central GIS unit has produced a short list of products to be promoted and supported within ONS. Ease of use and the ability to share data and boundary sets are fundamental requirements for the systems adopted. The recommended products at present are MapInfo and Maptitude but we will continue to monitor developments in the GIS market in order to ensure that we continue to use the most appropriate GIS tools. Allied with the promotion of the use of GIS within ONS will be the development of a central library of digital boundaries.
7. It is our intention to investigate low cost, or free tools suitable for Internet distribution with ONS data and options for the use of corporate GIS via the ONS Intranet. It seems likely that both such approaches will have a role to play in providing access to the ONS Integrated Database (See discussion in Working Paper 33).

Geographic Information Strategy Group for ONS (GISGO)

8. A fundamental review of the geographic referencing system used for the collection, management and output of ONS statistics is currently being carried out. Consideration is being given to the possibility of using addresses and their grid references as the fundamental building block for referencing data. It is likely that any change of strategy would be introduced with the 2001 Census.

9. The technical, organisational and financial implications of any findings from the review are, as yet, unknown but it seems likely that GIS will play a fundamental role in any system recommended. It is the availability of GIS techniques capable of easily constructing flexible outputs from such building blocks and the continuing high rate of change in UK geographies which has prompted the review. (Poster session)

III. DEPARTMENT OF THE ENVIRONMENT, TRANSPORT AND THE REGIONS

10. The Department of the Environment, Transport and the Regions (DETR) has been formed from Department of the Environment and Department of Transport in June 1997. The Department is developing its GIS unit, originally set up for census analysis, to offer a GI bureau service to its policy areas. The Department is digitally capturing areas of restraint which will be used in GIS for policy makers to analyse statistics, eg. to establish what land use change has been made in green belt areas.

11. Several research projects within the Department use GIS, eg. "Defining Town Centres: Boundaries for Statistical Monitoring" described in Working Paper 19. This project is in its final stages and aims to produce a methodology to produce a consistent statistical base for employment, retail sales turnover and floor space for all town centres.

IV. GENERAL REGISTER OFFICE (SCOTLAND)

12. GRO(S) maintain for Scotland a GIS based on unit postcodes (approx 135,000 postcodes with an average of 15 addresses in each). Work is now complete on setting up a system containing the digital boundary of each postcode, the codes for a variety of areas containing each postcode (eg. local authorities) and background maps in digital form from Ordnance Survey (the mapping agency for GB). A variety of products are available for sale from this system.

13. The geographic information system has been used to create the enumeration districts (EDs) for a small Census Test this year, with maps and address lists issued to field staff. Each ED is an amalgamation of unit postcodes. GRO(S) has started work on a system to create postcode based output areas (OAs) for the 2001 Census. These OAs will be on the same lines as in 1991 where, in Scotland, there were separate geographies for enumeration and output.

V. ORDNANCE SURVEY (NORTHERN IRELAND)

Improvements to spatial referencing within the Central Postcode Directory (CPD) for Northern Ireland

14. Work has been completed on a project to improve the spatial referencing of postcodes within the Northern Ireland portion of the CPD, including validation of the current CPD allocation to 1984 wards and allocation of postcodes to 1992 wards.

15. The project used ArcInfo GIS to manipulate various source data including the OSNI address database (COMPAS), OSNI 1:50,000 scale vector ward boundaries for 1984 and 1992 and existing CPD data.

16. The GIS project has resulted in a very much improved co-ordinate value / ward assignment, suitable for use with GIS, for approximately 90% of the CPD. The remaining 10% of records are being allocated by a manual exercise based on OSNI 1:10,000 scale paper maps.

VI. CROSS GOVERNMENT GEOGRAPHIC INITIATIVES

17. A number of major GI initiatives taking place in the UK deserve mention because of the central role they are likely to play in defining the development of GIS and the use of geographic information in UK statistical community.

National Geospatial Data Framework (NGDF)

18. The NGDF is a UK wide geographical community initiative. The aim of the NGDF is 'to develop an over-arching UK framework to facilitate and encourage efficient linking, combining and widespread use of geospatial data which is 'fit for purpose''. The NGDF Board has identified 7 working groups covering areas such as standards and metadata to take the project forward and work has started on planning their programmes. The NGDF is contributing to forging a global framework through the exchange of information with European and other international organisations. More information is available on the NGDF web site at : www.ngdf.org.uk

UK Standard Geographic Base (UKSGB)

19. The UKSGB is an initiative aimed at providing a UK standard set of commonly used areas, together with their names, codes, centroid references and associated boundary data. The primary aim of establishing a standard base is to increase the effective use of geographic information by government and the wider geographic community and reduce the duplication of effort involved in individual systems. The project working group has completed the planning phase of the project and has produced outline implementation plans. The projects which have been identified to take the work forward are due to start at the beginning of September 1997. See WP 34 for details.

Interdepartmental Group on Geographic Information (IGGI) and the Geographic Information Charter Standard Statement

20. IGGI brings together representatives from a wide range of government departments and agencies and aims to facilitate the effective use, both within and outside central government of geographic information held by government departments and associated bodies. A major element of IGGI's recent work has been the publication of a Geographic Information Charter Standard Statement. The Statement provides guidance on good practice to be followed by those in government in their handling of geographic information. Copies of the GICSS will be available at the Work Session.

National Land Information System (NLIS)

21. NLIS is an initiative which aims provide national information on land and property ownership. It aims to explore ideas for bringing together information held by the land registry and other public bodies to speed up, simplify and promote security in property transactions and bring details of all land ownership.

22. The Northern Ireland Geographic Information System (NIGIS), formed in 1983, is a multi-partner initiative to develop a common infrastructure to improve the accessibility and usefulness of geographic information held by government departments and public utilities. A

liaison committee, supported by a dedicated NIGIS unit created within OSNI, meets at regular intervals to discuss policy and coordinate developments and standards.