Country Profile: United Kingdom

Country Profile (PDF)

Country Resources

Topographic

Series	Publisher	Scale	Years	Sheets
VMAP0 1:1,000,000 Scale Vector Data	NIMA	1:1,000,000	1992	4
Northern Ireland 1:25,000 Scale Topographic Maps	OSI	1:25,000	2009 – 2012	11
United Kingdom OS MasterMap – Sites Layer (part of topography layer)	OSI	Varies		1
United Kingdom OS MasterMap – Topography Layer	OSI	Varies		1
United Kingdom OS VectorMap District	OSI	Varies		1
United Kingdom 1:25,000 Scale Colour Raster	OSI	1:25,000		1
United Kingdom 1:50,000 Scale Colour Raster	OSI	1:50,000		1
United Kingdom OS 1:250,000 Scale Colour Raster & Strategic Vector Dataset	OSI	1:250,000	2010	56
Northern Ireland 1:10,000 Scale Topographic Maps (Historical)	OSNI	1:10,000	1958 – 1986	203

Aeronautical

Series	Publisher	Scale	Years	Sheets
United Kingdom 1:50,000 Scale Aeronautical Charts	CAA	1:50,000	2014	1
United Kingdom 1:250,000 Scale Aeronautical Charts	CAA	1:250,000	2016 – 2017	14
United Kingdom 1:500,000 Scale Aeronautical Charts	CAA	1:500,000	2017 – 2019	3
France 1:500,000 Scale Aeronautical Charts	IGN	1:500,000	2016	6
Ireland 1:500,000 Scale Aeronautical Charts	IAA	1:500,000	2013	1

Geoscientific

Series	Publisher	Scale	Years	Sheets
Northern Ireland 1:50,000 Scale Soil Maps	OSNI	1:50,000	1993 – 1995	17

Thematic

Series	Publisher	Scale	Years	Sheets
The World 1:30,000,000 Scale Topographic Map Series 1145 (NGA)	DMA	1:30,000,000		2
United Kingdom Boundary-Line	OSI	N/A		1
United Kingdom OS MasterMap – Integrated Transport Layer (ITN) Layer	OSI	Varies		1
United Kingdom OS VectorMap Local	OSI	Varies		1

Global Census Archive: GIS Census Data

East View Geospatial has an ongoing effort to add GIS census data to our Global Census Archive program. Please contact us for the status and availability of United Kingdom census resources.

Global Resources

Topographic

Series	Publisher	Scale	Years	Sheets
Soviet Military City Plans	VTU GSh	Varies	1944 – 2003	3,020
Soviet Military 1:100,000 Scale Topographic Maps	VTU GSh	1:100,000	1947 – 1999	24,897
Soviet Military 1:200,000 Scale Topographic Maps	VTU GSh	1:200,000	1949 – 2009	17,799
Soviet Military 1:500,000 Scale Topographic Maps	VTU GSh	1:500,000	1953 – 1998	3,093
Soviet Military 1:1,000,000 Scale Topographic Maps	VTU GSh	1:1,000,000	1948 – 1994	1,089

Nautical

Series	Publisher	Scale	Years	Sheets
NGA Nautical Charts POD Certified (All Scales)	NGA	Varies	1943 – 2013	4,517

Aeronautical

Series	Publisher	Scale	Years	Sheets
Joint Operations Graphic (JOG 1501A) 1:250,000 – Aeronautical	DMA	1:250,000	1958 – 2007	4,204
Tactical Pilotage Chart (TPC) 1:500,000 Scale – Aeronautical	DMA	1:500,000	1967 – 2006	598
Operational Navigation Chart (ONC) 1:1,000,000 Scale – Aeronautical	DMA	1:1,000,000	1969 – 2001	243
Jet Navigation Chart (JNC) 1:2,000,000 Scale – Aeronautical	DMA	1:2,000,000	1971 – 1999	117
Global Navigation and Planning Chart (GNC) 1:5,000,000 Scale – Aeronautical	DMA	1:5,000,000	1981 – 1999	27

Note: East View Geospatial is continuously sourcing new resources that may not yet be listed in Global Explorer. Please contact us if you have geodata needs beyond what is listed above and we will be happy to discuss available off-the-shelf and custom solutions.

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Historical Country Mapping Information

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Country Profile (PDF)

Topographic

The United Kingdom comprises England, Scotland and Wales. Northern Ireland is also part of the United Kingdom, but its mapping is often carried out by different organizations and to different specifications. We have also described the mapping of the Channel Islands and the Isle of Man in separate sections, as these islands are self-governing British territories, covered by maps which also differ significantly from British practice. Maps which cover the whole of the United Kingdom, or the British Isles (including Ireland and Northern Ireland) are, however, covered in this section.

The national mapping agency in the United Kingdom is **Ordnance Survey (OS)**. It is the largest employer in the surveying and mapping industries in the United Kingdom, maintains geodetic frameworks and publishes an increasing range of topographic mapping and data, as well as acting as the official body advising government on matters relating to surveying and mapping in the UK. The United Kingdom has no cadastral mapping authority, so the boundaries depicted on **OS** maps play an important role in land registration. Other more specialist mapping has also been carried out by **OS** often in conjunction with official or commercial agencies, for example, in the publication of data relating to land use or the earth sciences, or in recreational or town mapping. Although **OS** is an Executive Agency carrying out civilian mapping responsibilities it has had a military past and continues to cooperate closely with **Military Survey**, the Defence Agency responsible for the provision of mapping to the UK military services. **OS** used to map both the United Kingdom and Ireland, but since the creation of the Republic of Ireland in 1922 its primary remit has been reduced to surveying and mapping the UK. An international role has also been fulfilled since 1984, when **OS** absorbed the **Directorate of Overseas Surveys (DOS)**. **DOS** and its predecessor, the **Directorate of Colonial Surveys**, had delivered technical surveying and mapping aid to many third world countries in projects funded

through British or other aid programs, resulting in many of the mapping specifications. **Ordnance Survey International (OSI)** continues to provide a slimmed down international training and development role. In the last decade **OS** has been radically restructured into a very market sensitive and commercialized agency, with probably the most advanced digital coverage of any national mapping agency. It has built upon a long and rich history of mapping.

The history of **OS** can be traced back to the establishment of the **Board of Ordnance**. in 1791. Early mapping was at 1:63,360 scale, completed for England and Wales by 1850 and subsequently revised and published many times on frequently changing sheet lines. Scotland was not covered by **Ordnance Survey** or mapped in detail until the compilation of six-inch (1:10,560 scale) mapping in the second half of the nineteenth century. In 1858 a decision was taken to survey cultivated rural areas at 1:2,500 scale, to map the uncultivated areas at 1:10,560 and to map towns in 1:500 scale plans. The large scale urban program was abandoned in 1893, but the legacy of large scale data collection influenced policies until the creation of digital map databases from the early 1970s. Until 1945 large scale maps were published as (County series), with each county or group of counties based upon independent Cassini projections with different central meridians. Each county also had independent sheet lines and numbering systems.

After World War II, and arising from the recommendations of the Davidson Committee, it was decided to introduce a single national metric referencing system, designated the National Grid, to be used for all scales, and to base all mapping on a single Transverse Mercator projection, modified Airy spheroid. The numbering system for large scale mapping was derived from the National Grid – urban areas were mapped at 1:1,250 scale in 57,395 sheets, rural areas at 1:2,500 in 163,357 sheets, and uncultivated mountains and moorland at 1:10,000 in 3,680 sheets. Derived 1:10,000 scale coverage in 6,480 sheets was generalized from the larger scales for developed parts of the country to give complete 1:10,000 scale coverage in 10,160 sheets.

Published 1:1,250 and 1:2,500 scale plans were single-color and uncontoured line maps, the former covered 500 m quads, the latter were either 1 km2 or 2 km2 in area. 1:10,000 scale coverage was compiled on the same sheet lines as a former National Grid-based 1:10,560 scale map. Published sheets included contoured relief (the latest specification with 5 or 10 m contours).

Experiments with digital production had began in 1969, but only relatively slow progress in data capture was made until the mid-1980s. Following the Chorley Report of 1987 an accelerating effort was devoted towards digital data capture from the hard copy mapping, and by 1995 all basic-scale mapping in the UK had been digitized, and was held in the National Topographic Database. Data is maintained in a continuous revision program for major developments and in a cyclical five year rolling program for all other change.

Derived products for the recreational and education markets are also produced by **OS**. The United Kingdom is mapped at 1:25,000 scale, with mapping on similar bases but with varying sheet sizes and amounts of tourist information. The (Pathfinder series) is the simplest map – sheet lines are in the main based upon the National Grid and the series was completed in 1990 in 1,374 sheets. Two other 1:25,000 scale series are also produced: the (Outdoor Leisure), larger format coverage of National Park and tourist areas and the (Explorer). In 1999 (Pathfinders) still provided the most extensive coverage, but these 20 km x 10 km sheets have been withdrawn in areas where (Outdoor Leisure) coverage is published, and are being replaced by larger format (Explorer) maps, in a program which is planned to sweep northwards and be completed in 2002. The (Outdoor Leisure) and (Explorer) sheets are designed with overlapping sheet lines and varying sheet sizes and are released with many tourist symbols. Some sheets are published double-sided. Production of 1:25,000 scale mapping used to be tied to conventional 1:10,000 scale mapping, but revision of 1:25,000 scale coverage is now independent of the evolving larger scale databases.

The **OS** map series 1:50,000 scale (Land-ranger) was introduced in the early 1970s and many sheets were initially produced by enlarging the (Seventh Series) 1:63,360 scale map, but with new sheet lines and layout, and the 50 ft contours relabelled in meters. These sheets were progressively replaced by (Second Series) editions, redrawn to a new specification and with 10 m, photogrammetrically derived contours. In 1980 the 1:50,000 scale map was redesignated the (Landranger). There are 204 sheets in the series, each representing a land area of 40 km x 40 km. Since its introduction, there have been numerous small adjustments to map content, with an increasing attention given to tourism and information on countryside access. The series now has a common specification with the formerly separate military version, incorporating National Grid designations printed on the map face. Sheets are revised at least every five years.

At 1:250,000 scale **OS** issues eight (Travelmaster) sheets, with hypsometric relief shading, a town distance table, and a place name index. A single-sheet 1:625,000 scale coverage in the same series is published as a double-sided road map.

Soviet military topographic mapping of the United Kingdom is available at the following scales: 1:1,000,000 (9 sheets, complete coverage, published 1969-1987); 1:500,000 (19 sheets, complete coverage, published 1968-1986); 1:200,000 (98 sheets, complete coverage, published 1967-1991); 1:100,000 (317 sheets, complete coverage, published 1964-1988); 1:50,000 (280 sheets, southern UK coverage,

published 1980-1987) and city (1:10,000 to 1:25,000) topographic mapping of 88 major cities from Aberdeen to York published between 1950 and 1997. These products are available in print, digital raster and digital vector GIS formats from **East View Geospatial**.

Northern Ireland

The official agency responsible for surveying and mapping Northern Ireland is the **Ordnance Survey of Northern Ireland (OSNI)** which was set up in 1922, after the establishment of the rest of Ireland as an independent republic with a separate survey in Dublin. Prior to 1922 British mapping of Ireland had been carried out under the auspices of the **Ordnance Survey** UK. The first all-Ireland coverage was completed at the six-inch scale (1:10,560) by 1846. These maps were revised in the 1850s and 1:2,500 scale mapping of the northern counties was completed by 1907. Separate Cassini projections were used and sheets were arranged and numbered on a county basis, rather than as a national series.

As in United Kingdom, specifications and projection of the mapping were changed after World War II. A nationally-based mapping program was approved by the **Ministry of Finance** in 1947. Since then all new maps produced by **OSNI** have been based on a Transverse Mercator projection and use a unified Irish Grid System, covering both Ireland and Northern Ireland. Primary re-triangulation of Northern Ireland was completed in 1952. In the same year a new levelling program was started and a new network of fundamental benchmarks was completed in 1957. Since the early 1960s **OSNI** has used photogrammetric methods to create and maintain its topographic archive.

OSNI became an Executive Agency answerable to the **Department of the Environment** for Northern Ireland on 1st April 1992. A side-effect of direct rule and the security situation has been that priorities for surveying and mapping are somewhat different from those in the rest of the United Kingdom: military collaboration in mapping in the province is contingent upon the security situation. Separate editions of smaller scale series are produced, rather than single joint editions. **OSNI** moved in 1985 to its current headquarters Colby House in Belfast and maintains three additional regional offices apart from Belfast, in Coleraine, Omagh and Craigavon.

Basic scale data collection in Northern Ireland follows similar procedures to practices in Great Britain. Towns and cities with a population of more than 3,000 are mapped at 1:1,250 scale, and this program was completed between 1957 and 1975. About 150 1:1,250 sheets a year are published as revised editions. Rural areas are published at a scale of 1:2,500. The program involves the maintenance of a total of 3,495 sheets, and from this total about 600 sheets a year are currently issued as revised or resurveyed editions. The remainder of the province is mapped at a scale of initially 1:10,560 and after 1968 1:10,000, in 285 sheets. In developed areas they are derived from larger scale mapping; for mountain, moorland and areas of low user demand 1:10,000 is the basic scale. About five 1:10,000 scale sheets are revised and published as new editions each year.

From June 1981 the two larger scales have been produced as small sheets covering only a quarter of the area of former regular editions. Sheets, though regular and nationally uniform, are not square. Sixteen full size, or 64 small plan 1:2,500 scale maps cover the area of a single 1:10,000, and 1:1,250 scale maps cover a quarter of the area of the same sheet sized 1:2,500 edition.

Since 1978 the one-inch mapping of Northern Ireland has been superseded by a new 1:50,000 scale map. The new map was conceived as an all-Ireland series, the intention being to give complete coverage of the island in 89 sheets. Agreement about the sheet layout was reached with the **OS** in Dublin. Until the late 1980s, however, only the northern sheets had appeared in a systematic fashion, and the design specification for sheets covering the Republic, the majority of which came to be published in the early 1990s, differs significantly from **OSNI** editions.

Complete coverage of Northern Ireland has been available since 1985. The sheet lines are unrelated to larger-scale Irish Grid based mapping and include significant overlaps. The maps are published in two versions, fully colored and outline, and are fully metric with relief shown by 10 m contours and layer tints. The series is derived from photographically reduced 1:10,000 scale Irish Grid mapping, supplemented by information from new aerial photography and ground surveys. Only limited revision of the series has taken place since its completion in 1985. The map was redesignated (Discoverer) in 1987, and minor changes in sheet lines were carried out in 1991, with the introduction of two new sheets. In 1998 the first sheet was released in a new digital version of the map. Data is derived from the **OSNI** small scale database.

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3D/DEM

Northern Ireland

OSNI collaborated with **MR-Data Graphics** in the early 1990s to produce color raster data from 1:50,000 scale color mapping of Northern Ireland. Fifty-four 20 km x 20 km tiles give complete coverage of Northern Ireland and data may be acquired in a variety of raster formats. A separate small scale database has also been established. A digital terrain model derived from relief data in the 1:50,000 scale maps gives height information to 1 m in accuracy, with a spatial resolution of 50 m. Administrative boundary data are available for Parliamentary Constituency, District Electoral Areas, Wards, Townlands and Enumeration Districts and a digital gazetteer of place names derived from the 1:250,000 scale maps has also been prepared. Road center line data and hydrological information are also available.

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GIS/Vector

OS basic scale vector data were redesignated (Land-Line) in 1992 and are continuously revised by digital field update. Tiles corresponding to original paper sheet lines have been edge matched. A road center line database has also been derived from the basic scale data, and the *Ordnance Survey Center Alignment of Roads (OSCAR)* database is available in four different levels of generalization, updated every six months.

Other large scale digital map data includes the *ADDRESS-POINT* database, completed in 1995 and comprising 1 m resolution coordinates of every address listed by the British Post Office. Other point data sets marketed by **OS** also include *Code-Point* (formerly *Data-Point*), comprising geocoded point data for each unit postcode, and the *National Street Gazetteer*, a comprehensive database of streets and their uses.

Digital terrain data are derived from 1:10,000 scale contours and marketed as *Land-Form PROFILE*. A raster scanned version of paper 1:10,000 scale mapping is also published, in 10,556 tiles, and captured in association with **Taywood Data Graphics** (now **MR-Data Graphics**).

Digital data derived from 1:50,000 scale mapping are also available. A raster version of these data was released in 1994, in association with **Taywood Data Graphics** (now **MR-Data Graphics**) and covers the United Kingdom in 812 tiles. Digital terrain data with national coverage has been available since 1991, on the same tile layout, and as two data sets in the *Land-Form PANORAMA* product. The first comprises vector-based contours, the second is a 50 m gridded DTM.

These small-scale maps are derived from two small-scale databases. The *BaseData.GB* product captured from 1:625,000 scale coverage is available in five vector data sets, whilst *Strategi* is a product derived from 1:250,000 scale mapping, and is available as complete national sub-sets or as 50 km tiles. A number of value added products incorporate these data. These include *AutoRoute express Great Britain* and the *Ordnance Survey interactive atlas of Great Britain*.

In addition to these single-source digital map data sets **OS** also produced *Meridian*, a hybrid product incorporating roads from *OSCAR*, with place names from 1:250,000 scale data and boundary information.

Among more recent digital initiatives using **BGS** data has been the publication of the *Geology of the UK* on 3 CD-ROMs. This incorporates 1:625,000 scale geological mapping, with data similar scale from the AA *Automaps* topographic database, as well as many **BGS** databases, and temporal data. These may be accessed and interrogated with a wide range of electronic atlas functions. Spatially referenced **BGS** borehole data incorporated with spatial search functions and are also available on CD-ROM compiled in association with the **Geoinformation Group**.

Completed in 1992 from 1:10,000,000 mapping, under contract to the **Department of the Environment**, *Boundary-Line* includes data to the district ward and parish level in NTF format, as well as electoral divisions.

Two commercial agencies have issued detailed national administrative coverage. **HarperCollins** covers England, Wales and Scotland in a number of administrative maps derived from the **Bartholomew** digital database and several different versions of hard copy or digital boundaries from this source are issued. For example, a CD-ROM of raster road map data is sold with vector postcode overlays to sector

level, and a new edition of a postcode atlas was published in 1995. The official agent for the publication of postcode data is, however, **Geoplan UK Ltd**. Sector boundaries have been captured from 1:50,000 scale master compilations and are updated quarterly. Paper copies of **Geoplan** maps are published at three different resolutions. A postcode atlas and marketing directory are also published. Digital data for area, district or sector levels are distributed. Several digital products from other suppliers incorporate versions of these data, for example in the AA *Automaps* database. In 1999 **Geoplan** itself released a CD-ROM electronic atlas of British postcode data, available in two versions: the basic CD-ROM comprises areas and district postcode boundaries, while the expert version adds sector data and also includes interactive mapping of census information for these units.

There is an increasing number of specialist suppliers of digital cartographic data in the UK. **MapInfo Ltd** (formerly **Data Consultancy**) were the most significant supplier in the UK, and moved in 1999 to the **MapInfo** European headquarters in Windsor. They maintain an extensive catalogue of their own value-added products, in addition to marketing **OS** and **AA** digital data sets and an increasing coverage for Europe and the World. **Geoplan** released a comparably detailed catalogue of available data early in 1999. **AND** market their own extensive range of digital coverage, **Kingswood** specialize in the distribution of the AA Automaps database, and **MR Data Graphics** distribute raster scanned versions of **OS**, **Philips** and **OSNI** mapping.

Northern Ireland

In 1981 **OSNI** began to investigate the replacement of conventional map production with computerized methods. Data conversion of the large scale archive began in 1986. Priority was given to the urban areas and especially to conversion of the 1:1,250 scale coverage of Greater Belfast. Conventional graphic products are generated from the data base, but the digital data themselves are also leased to a steadily growing customer base. Province-wide digital coverage was available by the end of 1999; about 1,400 basic scale sheets are being added each year to the digital archive. A range of digital products is available and derived from the large scale database, including vector data on a sheet by sheet basis, text files of address data and raster scanned products.

The decision to establish a digital database of maps covering the whole of Northern Ireland has led to changes in map publication policy. The *Address centred extract (ACE)* service was launched in July 1992, and offers a customer-defined graphic specification, giving postal or grid reference-centred A4-sized maps, output from the most recent archived digital data. Other more flexible customer defined maps and extracts to meet particular needs are available on special order. The service has been progressively introduced as the digital conversion programme advanced.

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Nautical

The **Hydrographic Office (HO)** dates from the appointment of the first Hydrographer to the Navy in 1795 and is responsible for the supply of hydrographic information to the Royal Navy. It compiles, maintains and publishes a very wide range of 3,350 nautical charts, covering all the seas across the world, 400 of which focus upon home waters. In addition there are 300 thematic charts. An increasing number of **HO** nautical charts conform to international chart specifications. Since 1968 **HO** has been located in Taunton, digital production of charts started in 1972, and since 1992 all chart data have been captured in digital form. **HO** plays an active role in the development of electronic chart databases, including ECDIS vector charting, and a pilot ENC service was introduced in 1999 for several UK ports. The small-boat leisure market is served by **Imray** who repackage Admiralty material into offshore and coastal series, and **Stanfords Charts** whose range of waterproof charts include specially adapted data for yacht navigators. Several competing general maps of the British inland waterway network have been published.

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Aeronautical

There are four publishers of aeronautical charting of Great Britain. Military charts are produced by the **Ministry of Defence** agency Military Survey which collaborates with other military surveys in the production of the hard copy world series and their digital equivalents. **No 1 Aeronautical Information Documents Unit (No 1 AIDU)** produces planning and terminal charts as part of the RAF *Flight information publication* and unclassified data from these charts are also released beyond military circles. The official civilian

charting agency is the **Civil Aviation Authority (CAA)**. Two series of en-route charts are released. The 1:250,000 *Topographical air chart* covers the UK (including Northern Ireland) in 18 sheets, the topographic base is a modified version of **OS** *Strategi* data, printed on the Transverse Mercator projection and since 1997 generated in a digital flowline. 1:500,000 coverage requires three sheets, updated on an annual basis. **British Airways AERAD** is one of the world's largest commercial aeronautical information publishers, and also offers en-route and terminal charting of the whole world. Since 1989 it has been using automated chart production systems to maintain a 28-day update cycle.

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Geological/Scientific

The **British Geological Survey (BGS)** is the national earth science mapping agency. Its activities can be traced back to 1835 and for many years the principal rationale of geological surveying in the United Kingdom was the publication of geological maps and memoirs, to support mineral exploration. These were published at a scale of one-inch to the mile, using **OS** Third Series sheet lines from 1893, with mapping of hard-rock geology, and from the late nineteenth century the depiction of superficial drift deposits. **BGS** also compiles coverage of Northern Ireland. The specifications of published maps have altered greatly over this period.

The current published basic scale cote programme of geological mapping in the UK uses a 1:50,000 scale map base, with four versions of maps produced, up to two of which will be published for any one sheet area. These are a solid and drift edition, showing the under foot geology with superficial deposits and hard rock geology separately colored; a solid with drift edition, (very similar, but with drift deposits shown uncolored and indicated by symbols and line work); a solid edition omitting any drift deposits, and a drift edition. Some editions include two versions side by side as a single sheet. 1:63,360 scale coverage is being withdrawn upon publication of the metric editions. Separate numbering systems are used for England and Wales, and Scotland and sheet lines have remained unchanged since the nineteenth century. England and Wales are currently covered in 355 sheets, and Scotland in about 150 sheets. Scottish coverage is usually issued in subdivided sheets. It is intended to complete the mapping of the country in a 15-year program. These maps are derived from 1:10,000 scale mapping, held on open file at **Keyworth** and are now output from a digital production flowline. Electrostatic color plots of 1:50,000 scale maps may be published in advance of the final fully published edition and photographic copies of out-of-print maps may also be available. Memoirs are published for many of the sheets. Digital cartographic 1:50,000 scale data are becoming increasingly available, as raster files, or as vector data with geological themes structured for use in GIS.

1:250,000 scale UTM-based series of geological maps were completed by **BGS** between 1977 and 1992 to cover the whole of the United Kingdom and adjacent areas of the continental shelf. Over this period 336 different editions of maps were published for 106 quadrangles. Up to five map types are available issued for each sheet area to cover solid geology, sea-bed sediments and bathymetry, quaternary geology, aeromagnetic and gravity anomalies, and the series map both land and seabed geology. A solid geology map is published for 72 sheet areas, and sea bed sediment editions are combined with solid or quaternary maps for some sheets. From 1990 digital versions of these maps began to be made available. Data have been captured as vectors, with solid geology themed and attributed into lithological or chronostratigraphical units, and have been reclassified into a seamless geological database of the British Isles.

1:625,000 scale coverage of Great Britain in two sheets is published in quaternary or solid editions. Both are also available as digital vector or raster data. An increasing number of 1:1,000,000 scale themes are also issued, and other recent small-scale coverage includes a 1:1,500,000 tectonic map produced in association with the **Geological Survey of Ireland**. Recent small scale publications are also available as digital data.

Geophysical mapping of the United Kingdom is published at 1:250,000 scale on the same sheet lines as the UTM series described above. Aeromagnetic and gravity maps are available for a larger area than that mapped in other themes, and digital data relating to these and other geophysical surveys are also available. A recent innovation has been the publication of plot-on-demand *Geophysical information maps* at 1:50,000 scale, available for all 1:50,000 scale geological sheet areas in the UK. These summarize all publicly available geophysical data for the area held in **BGS** digital databases, including gravity and aeromagnetic anomalies, contour mapping of actual field values and borehole locations. A number of smaller scale geophysical themes have also been mapped, notably 1:1,000,000 scale coverage of the British Isles, including offshore areas.

Geochemical mapping includes the *Regional geochemistry* program, started in 1968, and involving the collection of data relating to 28 different elements and concentration levels in water and stream sediments. The results of this program are available as digital data and

also published in a series of atlases, mapping element concentration at 1:250,000 scale. These have been issued from 1978, with the first seven volumes published in the *Geochemical atlas* series, and subsequently as the *Regional geochemistry* series. A total of 12 volumes had been published by the end of 1999 with coverage extending southwards and a further five volumes will complete the series for Great Britain. A separate Northern Irish volume is also planned.

Other minerals mapping from **BGS** is published in *Mineral reconnaissance programme reports*, presenting local assessments of metalliferous potential. The local distribution of bulk industrial minerals is mapped in *Mineral assessment reports* and technical reports mapping aggregate availability. These maps are usually printed in multi-tone monochrome at 1:25,000 or 1:50,000 scale. A large amount of hydrocarbon mapping relating to the North Sea and other oil and gas rich areas of the United Kingdom has also been published, by **BGS**, but also by a number of commercial publishers. **Oilfield Publications Limited (OPL)** and **Petroleum Economist (PE)** specialize in these themes and also offer major international coverage. Other small-scale earth science mapping of the British Isles is published by the **Geological Society Publishing House** and **Geco Exploration Services**.

Hydrogeological mapping has also been carried out by **BGS**. Medium scale coverage is available for acquifer-rich areas of the country. A more systematic program of groundwater mapping was initiated in the early 1990s in conjunction with the **National Rivers Authority (NRA)** (now **Environment Agency**) and the **Soil Survey and Land Research Center (SSLRC)**, Silsoe. Fifty-three 1:100,000 scale maps were issued from 1994 to provide complete coverage of England and Wales, with vulnerability data overprinted on a reduced scale (Landranger) topographic base.

A limited amount of geomorphological mapping of Great Britain has been commissioned by the **Department of the Environment, Transport and the Regions (DETR)** under its Geology and Planning Research program. More detailed environmental geological mapping has been published by **BGS** and a number of consultancies, with applied multi-thematic mapping being published for many former coalfield areas to support the needs of land use planners. The more recent commissioned products are designed as geological and environmental information systems, integrating **BGS** digital data with other environmental data sets and include published multi-color mapping.

In addition to these national mapping responsibilities **BGS** operates active international programs and participates with other European earth scientific research centers and in the mapping programs of the **Commission for the Geological Map of the World (CGMW)**.

Northern Ireland

The **Geological Survey of Northern Ireland (GSNI)** was established in 1947 and is funded on an agency basis through the **Department of Economic Development** of the **Government of Northern Ireland**, with staffing from the **British Geological Survey**. The **Geological Survey of Ireland** had completed one-inch coverage of Ulster in the nineteenth century, but these monochrome and hand-colored maps remained unrevised until after World War II. Resurvey was started and continues to be carried out with maps published initially at the scale of 1:63,360, and from 1978 at 1:50,000 scale, in color-printed solid or drift editions using a modified version of the sheet lines of the original all Ireland survey, but printed with the Irish Grid. Just over a third of the province has been published, but Northern Ireland remains outside the **British Geological Survey** core program. Raster scans of all these maps are available and the more recent editions are also available as vector data, structured into solid geology and drift deposit themes. **GSNI** has also published several themes at 1:250,000 scale, including solid and drift maps, geophysical coverage and recent hydrogeological and groundwater vulnerability maps. A geophysical image atlas of the province was published in 1997 based upon gravity and magnetic data.

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Imagery

Image maps of the UK and its regions are issued by the **National Remote Sensing Centre (NRSC)** by **Earth Images** and by the **British Geological Survey (BGS)**.

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Soil

Soil and resources mapping responsibilities in the UK are divided, with mapping of Scotland following rather different patterns from the established scales used in England and Wales. **Soil Survey and Land Research Center (SSLRC)** Silsoe (formerly the **Soil Survey of England and Wales**) publishes mapping carried out by the Survey, including a six-sheet 1:250,000 scale national soil map, issued with separate monographs early in the 1980s. This is available flat or folded, or as a boxed set. National programs of published soil mapping have been scaled down and a 1:50,000 scale map was cancelled with only five sheets published. Existing soil data are held in a digital national soils information system (LandIS). Other small scales of soils mapping are still available and partial coverage at 1:25,000 scale may also be acquired

In Scotland soil and land resource mapping is carried out by the **Macaulay Land Use Research Institute (MLURI)**, Aberdeen (formerly **Macaulay Institute for Soil Research**). Seven 1:250,000 scale sheets are required to cover Scotland and provide coverage in a soil or land capability for agriculture edition, also issued with descriptive sheet monographs. Larger scales of hard copy mapping are more complete in Scotland, with lowland soil mapped at 1:63,360 and 1:25,000 scales, and provisional diazo prints of 1.50,000 scale coverage of the northern and western highland areas. A land capability series covers the main agricultural areas of the country at 1:50,000 scale in 31 sheets, and small scale maps are also available showing climatic information and land capability for agriculture. **MLURI** has also digitized data for the LCS88 project, which offers a digital land cover map of Scotland, available as ARC/INFO vectors or TIFF files.

Northern Ireland

A separate soil survey of Northern Ireland started in 1987 following the establishment of a Soil Survey Unit within the **Department of Agriculture Northern Ireland (DANI)**. The first sheets of full-color 1:50,000 scale soil map were issued from 1994, produced by vectorizing 1:20,000 fair drawn masters of field surveyed lowland areas. Soils are classified using the **Soil Survey of England and Wales** higher soil classification and the series covers the province in 18 sheets, published in association with **OSNI**. Peat-covered areas above 300 m have been mapped by air photograph interpretation. 1:50,000 scale hydrology of soil type mapping has also been derived from the soil data and there are plans to produce associated land capability and other derivative maps. In 1999 a **DANI** soil database CD-ROM was released, with attribute data and a 1:250,000 scale map front-end. Soil data may be extracted and imported into other databases.

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Vegetation/Forestry

Resources mapping for development has been carried out under British overseas aid programs has been administered by the **Natural Resources Institute (NRI)**, Chatham, and its predecessors such as the **Land Resources Development Center**.

A large number of agencies have been responsible for monitoring land use in the UK. Published 1:25,000 scale sheets from the **Second Land Utilisation Survey**, carried out in the 1960s, are still available. The vast majority of the country, however was not taken to full publication. The data were generalized into a 1:400,000 scale two sheet map, published by the Survey in 1991 and issued with an accompanying monograph.

More local and current land use planning maps are prepared by local authorities across the UK. The **Cook Hammond and Kel**l group are the market leader in the compilation of these maps.

Agricultural land classification mapping has been compiled by **ADAS Cartography** within the **Ministry of Agriculture Fisheries and Food (MAFF)**. 1:63,360 scale mapping of England and Wales on *Seventh Series* topographic map sheet lines was completed between 1965 and 1975 to show the quality of agricultural land classified into five divisions. Some explanatory booklets were issued with the 113 published sheets, and while the maps are now out-of-print copies may still be available. Data was generalized and issued at 1:250,000 scale in seven sheets and in a single sheet at 1:625,000 scale. No equivalent Scottish coverage is published. Other small scale mapping of England and Wales from **MAFF** may also still be available, but more recent agricultural mapping has focused upon site specific surveys using GIS.

Mapping of forest land in Great Britain is carried out by the **Forestry Commission (FC)**, including the publication of small scale maps of

forest holdings and local mapping of recreational facilities in the *Forest guide map* series. In the late 1980s the Commission collaborated with **MLURI** in the publication of a 1:250,000 scale *Land capability for forestry* map of Scotland.

English Nature (EN) publishes mapping of protected areas of conservation interest, including digital mapping in support of nature conservation. A series of 77 1:100,000 scale maps shows the distribution of coastal habitats and designated protected areas: each is accompanied by a data sheet. A new 1:200,000 scale national map series was published in 1997, covering England in 14 sheets and depicting **EN** responsibilities with designation boundaries plotted against an AA *Automaps* base map. These data are also published a single-sheet map at 1:1,000,000 scale and **EN** also issues three single-sheet dot distribution maps showing locations of Sites of Special Scientific Interest, National Nature Reserves and Natural Areas. These maps are distributed by **Telelink**. English Nature's sister body in Scotland, now part of **Scottish Natural Heritage**, has published regional results of a *National countryside monitoring scheme*, indicating rates of land class change between the 1940s and 1970s.

Institute of Terrestrial Ecology (ITE) monitors the state of ecosystems in the UK and has been active in the compilation of small scale species mapping. A series of over 20 flora and fauna species atlases have been sponsored by the **ITE Biological Records Center**, Monks Wood, final versions are issued by **The Stationary Office Ltd**. **ITE** also maintains the CORINE biotopes inventory and other digital databases used for environmental mapping. These include a critical loads database, providing 1km resolution data on vulnerability of sites to air pollution, a digital ecological map of the UK and land cover mapping. ARC/INFO is used to maintain these digital map databases. The digital *Land cover map* completed in 1993 identifies 25 cover classes, and is derived from summer and winter Thematic Mapper satellite imagery. Digital data for this map are available at 25 m resolution, and customized color plots may be output. The *Land cover map 2000* project, part of the **ITE** Countryside Survey 2000, will produce more accurate land cover data using Laser-Scan IGIS software. A summary version of the **ITE** mapping is also available, along with the DoE *Countryside Survey* and digital topographic base maps in the *Countryside Information System (CIS)*. The CIS was released in its sixth version late in 1998.

Northern Ireland

A land classification system for Northern Ireland was developed between 1986 and 1991 by the **Department of Environmental Studies** of the **University of Ulster**, for the **Environment Service of the Northern Ireland Department of the Environment**. This included 23-class mapping of parts of the province, including Areas of Outstanding Natural Beauty. Other environmental mapping of Northern Ireland includes rainfall mapping from the **Meteorological Office**.

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Thematic

The **Meteorological Office (MO)** Bracknell provides weather forecast maps in hard copy, by fax and for display in electronic media. Numerous digital meteorological and climatic databases are maintained, with customized map output available in targeted services. It also publishes a number of smaller scale climatalogical maps.

The **Countryside Agency** (formerly Commission) produce mapping of National Parks, Areas of Outstanding Natural Beauty and Heritage coasts, overprinting boundaries onto **OS** map bases. Boundaries are held in a digital form, and the Agency has sponsored a number of landscape mapping projects, including landscape assessments of national parks, and the compilation of a countryside character map.

The **Institute of Hydrology (IH)** were also involved in setting up the **CIS**. **IH** has captured stream network and surface water boundaries, from 1:50,000 scale topographic mapping, as part of a water information system, and disseminates these and other digital mapping data sets, including a DTM of the UK for hydrological applications. A recent project has seen the publication of a flood risk map of England and Wales. Earlier published hydrological mapping from the **Department of the Environment (DoE)**, (now **Department of the Environment, Transport and the Regions (DETR)**), includes 1:250,000 scale 10-sheet water quality mapping and discharge maps, with sheets for water authority areas, as well as smaller scale national hydrological coverage.

Northern Ireland

Two outdoor pursuits maps at 1:25,000 covering the Mourne Mountains and the Fermanagh Lakeland are published in consultation with local authorities and leisure interests. Current general purpose small-scale maps are issued by **OSNI** in three different scale bands. All carry the Irish Grid at 10 km intervals, and all are available in colored and outline editions. An old 1:126,720 scale map is still available. A

single sheet map at a scale of 1:250 000 was published in 1984 by **OSNI** as part of the all Ireland (Holiday map series). This map includes tourist information provided by the **Northern Ireland Tourist Board**; folded editions of the colored version incorporate additional tourist data on the reverse of the sheet. Relief is shown with metric contours and layer colouring and the latest revision was published in 1998, produced from the **OSNI** digital topographic database. The (Holiday map) base is also used in a cultural map of Irish place names, published with English and Irish gazetteer. The *Complete road atlas of Ireland* published in association with **Ordnance Survey Dublin**, also uses this 1:250,000 base material. A single sheet 1:500,000 map is also available and incorporates road air and sea data. The outline edition omits external communication information.

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Atlas

Mapping for the motorist includes the annually published *Motoring atlas of Great Britain* incorporating 1:190,080 scale mapping, town plans, a gazetteer and various tourist and motoring data. A larger scale motoring atlas is also co-published with **Hamlyn**. A series of 1:1,000,000 scale wall maps is also published, by 1999 six themes had been released.

There is no official body in the UK responsible for determining the correct use of place names in Great Britain, but **OS** has served as a source of place name data for many years. The *Ordnance Survey gazetteer of Great Britain* includes all names appearing on (Landranger) maps and is published by **OS** and **Macmillan** in a third edition revised to 1999. Digital gazetteers are also available for the (Travelmaster) 1:625,000 and 1:250,000 scale series and a number of **OS** electronic atlases incorporate these data as a means of spatial search. **Bartholomew** had a long history of commercially publishing lists of place names, and in 1999 a new gazetteer was issued by **HarperCollins** bringing this tradition up to date. This also incorporates an atlas section. A new gazetteer for Scotland was under construction late in 1999, and a planned hard copy and electronic publication program. This project is the result of collaboration between the **Royal Scottish Geographical Society** and the **University of Edinburgh** and will be the first fully comprehensive Scottish gazetteer to be compiled for over a century.

There is no in-print national atlas of Great Britain or the United Kingdom, although several electronic and hard copy products have met this need in the past, or cover parts of the United Kingdom. The *National atlas of Wales* from the **University of Wales Press** provides an excellent thematic overview of the nation, published in three loose-leaf instalments in the 1980s and offering bilingual text explanations of the many maps. Separately published thematic mapping from the **Welsh Office** fulfils a similar role, but there is no comparable single comprehensive atlas publication for Great Britain as a whole, or for Scotland or England. In the mid-1980s the BBC Domesday Project went some way to serving as an electronic national atlas of the whole of the UK, with maps, photographs, gazetteer and interactive color thematic mapping, along with a Community Disk of local data, but this resource was tied to a now superseded technology and was not supported after 1990.

Several British commercial cartographic houses lead the world in the publication of atlases for the education and reference market. **HarperCollins** publishes the Times series of internationally renowned world reference atlases, as well as atlases published under the **Collins** badge, and including school atlases. The digital data used to compile these atlases are also available on CD-ROM. **Dorling Kindersley** publishes a number of atlases, including the *World atlas*, output from the Cartopia Silicon Graphic-based database, including 3D relief mapping of the whole world. **Philip's** continues to publish a suite of atlas products, output from a digital mapping system and aimed at both reference and education markets. **Oxford University Press** produce the Oxford-Hammond series of reference atlases. **Digital Wisdom Publishing** concentrates upon digital mapping for graphics studios with an extensive range of CD-based royalty free global mapping.

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Cadaster

OS data are used as the source for authoritative property boundaries maintained by **Her Majesty's Land Registry** for England and Wales and by the **General Register Office for Scotland** (**GRO(S)**). There are plans for a **National Land Information System (NLIS)**, with a pilot scheme covering Bristol up and running, but as yet there is no nationally published digital or hard copy mapping of land

parcels in the UK. OS has a statutory responsibility to map local government and electoral boundaries which are 'mered' to topographic features. *Administrative area diagrams* at 1:100,000 scale first appeared in 1965. Forty-seven sheets were published for England and Wales, on country sheet lines and with administrative boundaries shown as overprints on a grey-toned topographic base map derived by photographic reduction of *Landranger* base material. Equivalent mapping of Scotland at 1:250,000 and 1:100,000 scale was also published. From 1996 a new series of administrative maps has replaced the 1:100,000 coverage. These eight new 1:250,000 scale sheets use a grey *Travelmaster* base and incorporate administrative changes of the mid-1990s showing unitary and local authority boundaries. In addition two 1:625,000 scale sheets are published showing European and Westminster Parliamentary boundaries. The **Welsh Office** publishes a number of different scales of mapping of Welsh counties, including English and Welsh language versions of some maps. Several commercial publishers, notably **HarperCollins**, **Geographers' A-Z**, **Map Marketing** and **Stanford** also issue small scale administrative mapping of the country.

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Tourist/Reference

OS mapping is also increasingly packaged with other recreational data and co-published with a range of commercial publishers. This trend started early in the 1980s, and current co-publications include walking guides, national trail guides, and recreational path guides, as well as canal guide books, cycle route guides, and car and leisure guide books. A wide range of *County street atlases* is described in greater detail below. A simple statistical atlas of the UK was published in 1995, and several atlas products are aimed at the school market. These include the CD-based interactive geography products covering York and London and the Folens Ordnance Survey UK atlas.

Maps for motorists are produced by **OS**, **HarperCollins**, **Philip's**, **AA Publishing**, **Geographers'A-Z**, **Reader's Digest**, **AND** and **Upside Down Map Company**. The market has become increasingly dominated by large format atlases, including larger-scale regional maps for en-route navigation. Revised on an annual basis each of these publishers releases several different versions, with road maps usually around the 1:200,000 scale. All generate hard copy mapping from digital road databases, often buying in another publisher's road data, and some market products with very different designs from the same data. These databases are also marketed as digital road data in their own right, as medium scale digital databases in competition with **Ordnance Survey**. **AA** digital data is designated as the *Automaps* range and distributed through **Kingswood**, **HarperCollins** market their own 1:250,000 data. **Philip's** 1:100 000 scale *Navigator data* and gazetteer are available as raster data on CD-ROM, and also from **MR-Data Graphics**.

Several competing electronic route-finders also use these digital maps. *Autoroute Express* developed by **NextBase** in the late 1980s and acquired by **Microsoft** in 1994, is the market leader and priced for the home and leisure market. Current versions are released on CD-ROM, with **OS** 1:250,000 scale data as the cartographic backdrop, and support GPS receivers and internet links. **Bartholomew** digital data are used in the route-planner from **Distribution Planning Software**, who market a wider range of Windows-based products, in their *Driveplan* range, with functions designed and priced for different market sectors. The **AA** issues its own *Milemaster* route-planner, now Windows-based and with high quality mapping and driving directions. A number of overseas producers also maintain digital road-planners for the UK, including **AND**.

Two competing consortia now use digital road maps of the UK in CD-based in-car navigation systems. **Tele-Atlas** uses *OSCAR* data in its system, while the **European Geographic Technologies (EGT)** group are using **AA** *Automaps* data.

Mapping of railways is carried out by **Railtrack** and by the different franchised rail operating companies. **The Quail Map Company**, Exeter, is a specialist publisher of railway mapping, with a listing of largely monochrome track layout mapping of the British system, but also of many other countries' railways. **Pindar** and **FWT** have specialized in the production of maps of British public transport infrastructure, and other cartographic houses with expertise in this area include **Cosmographics** and **Map Creation**.

Commercially published maps for walkers are compiled and produced by **Harvey Map Services** whose distinctive *Walkers* and *Superwalkers* ranges cover upland areas, in competition with **OS** *Outdoor leisure* mapping, and are based upon original photogrammetric compilation, rather than derived from **OS** bases. **Shire Publications** and **Stile Publications** issue local rights of way mapping. **Contour Designs** publish a series of aerial panoramic views, **Landshapes** produce three dimensional plastic raised relief mapping, and **Viewfinder** use **OS** digital terrain data to produce mountain panoramas.

Maps for cyclists are increasingly published by **OS**, whose *Cycle tours* range incorporate *Landranger* mapping, and in a number of

HarperCollins publications. Strip maps of long distance cycle paths are prepared by **Footprint** for the network being developed by **Sustrans**. **Goldeneye** publish a range of well-designed conventional tourist maps, overprinted with suggested cycle routes and **Dome Publishing Company** uses **OS** *Strategi* data in its *Cyclecity* guides.

Urban streetfinders are published by a number of specialist producers, often with local or regional monopolies. The largest specialists include **Atlas UK**, with its national *Streetfinder* range of 250 maps, **Barnett**, concentrating upon the mapping of southern towns, **Burrow**, **British Publishing** and **Forward Publicity**, who compile mapping in association with local authorities, **Cityscape**, covering city centers with 3D-based designs keyed in to linked Web sites, **Nicolson** and **R.P.A Smith**, with the most extensive ranges for Scottish towns, **Service Publications**, who concentrate upon the Midlands, **Clifford Utting** and **Viking Publicity**.

Larger cartographic houses cover the more important urban centers, and have tended to publish mapping in an atlas format. **Estate Publications** release a large range of *County red books* including indexed coverage of all significant settlements in the area. **Estate** also produce officially sanctioned tourist and leisure mapping for the different regional tourist boards. **Geographers A-Z** which pioneered the publication of mass-market indexed streetfinders after World War II and whose name has come to be synonymous with the genre, covers all the major conurbations and towns with an increasing range of coloured atlases, and has released a Windows-based CD-ROM version of its London map, including colour coverage and 52,000 street names. Late in 1998 this range was extended to Glasgow, Manchester, and Bristol and Bath. **HarperCollins** releases its town map coverage in the **Collins** *Streetfinder* range, and also markets a digital London atlas, derived from its London database. **Philip's** has collaborated with **OS** in the publication of an extensive range of indexed *County street atlases*, derived from **OS** 1:10,000 coverage and now extending to nearly 30 titles and covering the whole of each county as well as urban areas. These atlases are now released in color and in hardback, softback and pocket editions. The first digital versions of these products were released in 1997, to cover Hertfordshire and Berkshire on CD-ROM. A range of local street atlases covering key town areas was also started in 1999.

Other digital urban coverage is prepared by **Lovell Johns** and by the **XYZ Digital Map Company**.

A number of commercial publishers in the UK issue ranges of tourist mapping of other parts of the world. The most extensive ranges are from **HarperCollins** including the various Collins travel series of relief-based maps and the *Holiday maps* series. **Geocenter International** distribute the *Euro*, *World* and *City* map ranges. **AA Publishing** issue motoring coverage of Europe, packaged as atlases and as flat sheets, and collaborate with **Macmillan** in the publication of the *Traveller's map* series. **West Col** specialize in mountain mapping and in the mid-1990s **New Holland** began to publish a growing range of tourist maps and road atlases of long haul holiday destinations. Guidebook publishers **Lonely Planet Publication**s also issue travel atlases. **GEOprojects** concentrate upon the mapping of the Middle East in its *Arab world map library*, while **Roger Lascelles** distributes Daily Telegraph world wall maps. **Cordee** is Europe's largest specialist wholesaler of recreation and travel books and maps, including the Mediterranean coverage from **Discovery**.

Northern Ireland

There is very little competition from commercial mapping organizations in Northern Ireland. **Causewayside Press** issues town atlases of Belfast and Dublin, reduced from official mapping. **BKS Surveys**, the only other significant survey and mapping company in the Province, is mainly involved in contract work for the export market. Commercial publishers in Great Britain, such as **HarperCollins**, **AA Publishing**, and **Estate Publications** and **Philip's** have published small scale coverage of Northern Ireland. Most of these commercial products, however, are single sheet maps of all of Ireland and incorporate coverage of Ulster with the Republic.

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Census/Demography/Statistics

Census mapping of England and Wales is carried out by the **Office for National Statistics (ONS)**, until 1996, **Office for Population Censuses and Surveys (OPCS)**. It produces hard copy mapping of ward and enumeration district boundaries for the decennial censuses of population, using a 1:50,000 scale index map for each local government district as an index, with 1:10,000 scale coverage of the EDs, and for some urban areas 1:1,250 and 1:2,500 scale coverage. Scottish census boundaries are based upon postcode areas and maintained by the **General Register Office Scotland** (**GRO(S)**). From the 1981 census onwards these boundaries have become increasingly available in digital form.

Census data themselves are published by **ONS**. Commercial and academic publishers have used this data for the compilation of many

census atlases, available in hard copy at a national and regional scale. Notable recent atlases include the innovative *Social atlas of Britain*, displaying data as cartograms, as well as a number of electronic products. For example **Chadwyck-Healey** have used digital data from the 1981 and 1991 censuses and digital boundaries for the publication of electronic atlases of Great Britain using the Supermap software for both censuses.

Specialist retail mapping and databases are maintained by **Experian Goad Ltd**, including coverage output from an ARC/INFO GIS as customized large scale urban shopping centre plans, or available as digital data for over 1,000 centers across the UK.

Northern Ireland

The statistical agency in Northern Ireland is the **Census Office** in the **Northern Ireland Statistics and Research Agency**, and the latest census is 1991. Digital data is available at different spatial scales, but no independent census mapping is carried out. Boundary data sets by **OSNI** are the best source of census boundaries for mapping census and other socio-economic data relating to the province.

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