Local authorities’ continuing efforts to improve their customer service levels and to meet e-Government objectives are being aided by GIS software that enables high levels of interoperability with existing systems and data. To those people within local authorities who are charged with the task of delivering IT systems that contribute to greater efficiency and improved levels of customer service, it might seem to be stating the obvious. But it’s worth saying it anyway. One of the major obstacles to efficient e-government is the ‘legacy’ of local authorities’ previous investments in information technology – or more significantly, the data they have created. The problem is that this data is very often in a proprietary format and therefore not readily available to other systems and more importantly, to a wider audience within, or outside, the authority.

The issue is compounded by the fact that different software developers, particularly in the field of digital mapping/GIS where we are dealing with graphic representations of spatial information, use their own, internally-developed data formats to process and store information. Nine times out of ten, one software developer’s data format is incompatible with the next – and so on.

**Overcoming multi-format issues**

It’s not all bad news though. Most GIS software developers offer translators, whether developed in-house or licensed from a third party, to enable their own software to read and write other developers’ data formats. However, these are often provided only as an additional-cost item, with the on-costs associated with the time required to undertake complex translation workflows and on-going data maintenance tasks.
Typically, users are obliged to find additional funds for data translators to convert data from one system into a format that their chosen GIS can handle – or conversely, to export data from their chosen GIS for use in an existing system.

But there is also the work of the Open Geospatial Consortium (OGC). The OGC’s remit is to define and to then publish internationally-agreed interface specifications (as opposed to data translators) that can be implemented by software developers within their own products in order to enable interactive interoperability, at a processing level, between different vendors’ GIS products.

One GIS software developer that has enthusiastically embraced the idea of ‘data interoperability’ is Cadcorp. The company’s digital mapping/GIS software suite, Cadcorp SIS – Spatial Information System, provides the ability to directly read and display and/or write to over 160 native GIS, CAD, graphic and database formats, on-the-fly, as a standard facility within the software. Supported formats include ESRI ArcView Shapefiles, SDTS, MapInfo TAB, MapInfo MIF/MID, Autodesk DWG and DXF, MicroStation DGN, Ordnance Survey NTF and MasterMap, FME, XML and GML, GeoTIFF, MsSID, ECW and Oracle Spatial 9i, among many others. The software also incorporates more OGC-compliant certified interfaces than any other GIS software product.

Because each product within the Cadcorp SIS range is based on the same GIS engine, or core, this complete data interoperability capability is also available to the company’s Internet/intranet GIS solution, Cadcorp GeognoSIS.NET. This product extends the dynamic functionality of Cadcorp SIS for use over the Internet or a company-wide intranet, using the .NET development environment, or other HTTP- and SOAP-based languages, such as Java. It can be deployed in a multiple server and multiple server architecture and operating system setting.

Having identified GIS technology as one of the key enablers of local government electronic service delivery, this data interoperability capability has enabled the London Borough of Hounslow to maximise its earlier investments in spatial data by continuing to use it in its new web-based GIS environment.

**Web-based corporate GIS**

The main business driver for implementing the technology on a corporate-wide basis at Hounslow was the requirement to satisfy e-government targets and to achieve fully connected electronic service delivery. An essential element of the council’s corporate GIS development project was the need to ensure that the existing spatial data that had been created for various projects, in different formats and over many years, could be used and delivered as efficiently as possible through the new corporate GIS.

While development work designed to bring it to an ever wider audience continues today, the London Borough of Hounslow launched its new corporate GIS in 2005. Based on Cadcorp SIS desktop and Cadcorp GeognoSIS.NET web-based digital mapping/GIS software, the system is available via the council’s internal intranet for up to 3000 staff and councillors to enable them to access geographic information stored centrally. The system delivers good quality, reliable, definitive geographic information from one central source and users are encouraged to make the best use of this information to support decision making.

“The ability of Cadcorp SIS and GeognoSIS.NET to read other GIS files and Ordnance Survey files directly enabled us to get our intranet application up and running very quickly,” says Laura Pole, corporate GIS manager for the London Borough of Hounslow. “Rather than having to spend time translating and reformattting existing files, we were able instead to devote our time to checking the quality of the data and specifying the delivery of the information.”

Hounslow’s corporate GIS now provides improved access to services and better data interoperability across the organisation to the benefit of citizens, government and business organisations. For example, frontline staff who
work on the reception desks in the council’s offices can immediately access, through a common user interface, the maps and related information they need to answer queries from customers, irrespective of the origin of the information.

The majority of the demand for the service in the first instance was from the council’s planning and street management and public protection departments. These have traditionally relied upon maps and spatial information to meet their business needs. However, since the launch of the intranet GIS, other departments and services, including education and corporate property, as well as environmental strategy with Heathrow Airport noise contours, have recognised the benefits of sharing and disseminating information from one central, coordinated source and are keen to contribute to the project.

In practice, the corporate intranet GIS is acting as a catalyst in facilitating the creation and sharing of geographic information across the council.

“I get calls almost every day from people throughout the organisation asking for their data to be added and to be made available via the corporate intranet GIS,” says Miss Pole.

Continuing development
Desktop GIS software (Cadcorp SIS Map Editor and Map Modeller) is used in the council’s GIS and Design Centre to enable the unit there, which is responsible for developing the system, to perform the role of managing and integrating geographic data corporately. Desktop GIS licences are also available for the data owners in different departments, who retain responsibility for updating and maintaining their own spatial information. So geographic information is captured once and managed and maintained consistently to agreed standards and is then shared corporately.

This applies equally to departments that have retained their previous GIS facilities from other vendors, such as MapInfo and ESRI. The ability of Cadcorp SIS and GeognoSIS to directly read from and write to these vendors’ internal formats enables spatial data from these systems to be made readily available via the corporate intranet GIS.

The corporate intranet GIS is also directly linked to the council’s local land and property gazetteer (LLPG). This enables users to perform address searches and to find a location quickly and efficiently. A link has also been implemented between the corporate GIS and Hounslow’s environmental protection application (formerly known as Flare). This enables call centre staff to have direct access to maps so that they can precisely locate reported incidents of anti-social behaviour, such as abandoned vehicles, noisy neighbours or fly-tipping, etc., produce reports and analyse the data.

Both the intranet web application and the desktop products link directly to Oracle Spatial (Hounslow’s central data store) to deliver Ordnance Survey MasterMap files both to intranet and to desktop GIS users. Some of the developments that are currently under way, therefore, involve developing links between the corporate GIS and the council’s core business and information database systems, such as planning and CRM.

With the intranet service now up and running successfully, the next major phase of system development aims to widen the audience further and to deliver the corporate GIS via the Internet so as to provide a public gateway to council information, giving all citizens, councilors and staff immediate, user-friendly access to geographic information. “The most beneficial feature of our corporate GIS,” states Miss Pole, “is the ability it gives us to unlock the potential of spatial information and to provide every computer user access to a common source of maps and related geographic information about the London Borough of Hounslow from their desktop, through a consistent, user-friendly web browser – irrespective of the original source of the data”.

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