

UTILITIES CASE STUDY

Northern Ireland Water

NORTHERN IRELAND WATER RELIES ON PITNEY BOWES BUSINESS INSIGHT MAPINFO PROFESSIONAL FOR EFFICIENT ENTERPRISE-WIDE ACCESS TO PHYSICAL ASSET DATA

NORTHERN IRELAND WATER SHARES NETWORK ASSET DATA ACROSS THE ENTERPRISE.



Challenge

Northern Ireland Water needed to upgrade its network infrastructure management system to allow users and other applications across the business to access the asset data contained within it.

Solution

The organisation successfully migrated its existing GIS application, based on Pitney Bowes Business Insight's MapInfo Professional v6.5 engine, to a new, more widely accessible system based on Pitney Bowes Business Insight MapInfo Professional v10.5 and Oracle 10g Spatial Database.

SUMMARY

Northern Ireland Water delivers 625 million litres of clean water every day to the 1.7 million residents across Northern Ireland as well as treating 134 million cubic metres of wastewater every year. In order to deliver this service, the company maintains a huge network of water and wastewater assets. This includes 27 major water treatment works, 40 impounding reservoirs, 382 service reservoirs, 372 treated water pumping stations, 1,114 wastewater treatment works, 1,339 wastewater pumping stations, 26,775 km of water mains and 14,656 km of sewers. To help in the management and maintenance of these assets Northern Ireland Water, like all modern utilities, is an extensive user of geographic information systems (GIS).

In 2000, the utility had created an electronic network management system to replace its old paper-based mapping systems. Now, the need to realise internal efficiencies has led it to upgrade this GIS system to allow users across the business and other related applications to easily access the network asset data contained within it. This entailed the creation of a centrally-accessible Corporate Asset Register (CAR) to store details of every inch of the company's water infrastructure network and to assign a unique identifier to each of its below-ground assets – from pipes to individual valves and hydrants.

CHALLENGE

Under Article 257 and 258 of the Water and Sewerage Services (Northern Ireland) Order 2006, Articles 39 and 40 of The Street Works (N.I.) Order 1995 and The Street Works (Records) Regulations (N.I.) 2004 Northern

Ireland Water (NIW) has a statutory obligation to maintain accurate up-to-date records of its assets. Not with standing these legal obligations it is fundamental to the effective operation of Northern Ireland Water that accurate asset data is centrally recorded in the Corporate Asset Register (CAR) to support the effective running of the business and for regulatory purposes under the auspices of the Northern Ireland Authority for Utility Regulation as well as for compliance with relevant Health and Safety regulations.

A central Network Information Management System (NIMS) was created in 2000 to hold these records electronically, replacing an outdated paper-based system. This provided a central database of records on all the region's infrastructure assets and the location of all non-infrastructure assets (buildings, electronic meters and more).

The original NIMS was built using Pitney Bowes Business Insight's MapInfo Professional v6.5 and a Microsoft Access database. It greatly improved productivity by enabling digital map data to be stored and accessed over the Northern Ireland Water's Intranet. By 2008, however, Northern Ireland Water had decided the system needed a major overhaul in order to support a strategic goal of improving business process efficiency.

In particular, the utility had identified that adopting an asset data-centric approach to asset management could greatly improve operational efficiency. This meant introducing unique asset referencing throughout the organisation to enable individual assets to be pinpointed quickly and accurately whenever required.

“ASSETMAPPER HAS BECOME A CRITICAL INTEGRAL PART OF THE BUSINESS.”

Sean O'Boyle, Asset Information Development Manager, Northern Ireland Water

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It also meant enabling users and other applications across the business to access and make use of a central repository of asset data – a ‘single version of the truth’.

With its flat file structure, inability to share GIS data with other applications, and limited support for concurrent users, the existing NIMS was inadequately placed to achieve these goals. Instead, the chosen solution was to create a new Corporate Asset Register (CAR), a single, geospatially-enabled inventory for infrastructure and non-infrastructure assets that could be accessed and shared across the enterprise.

After a successful proof of concept exercise, Northern Ireland Water's implementation partner WRC built the spatial aspect of the CAR, which consists of a central GIS data warehouse based on Oracle Database 10g Spatial and Pitney Bowes Business Insight's MapInfo Professional v10.5. Named AssetMapper, the new system not only acts as a central repository of GIS data, but also as an integration platform for a number of systems that need to access and work with that data, including applications for Mobile Work Management (MWM), leakage management, telemetry, customer service, regulatory reporting, and Asset Management Planning.

To ensure business continuity, all of the familiar front-end functionality of the old NIMS systems was migrated to AssetMapper. Users can access asset data via any NI Water intranet-enabled PC and view it on a map through a standard Internet browser by utilising the newly introduced CARTomap web GIS supplied by Innogistic, which demonstrates the flexibility of the CAR. Maps can be viewed and printed as a plot displaying the centre coordinate, the level of zoom and the date for general use or with additional information to enable problems to be highlighted.

Updates are submitted in predefined TAB layers supplied by contractors and as electronic redline updates from CARTomap. All map layers can be under laid by digital map backgrounds at various map scales provided by the Ordnance Survey of Northern Ireland.

RESULT

Not only does AssetMapper enable the Northern Ireland Water to continue to honour its statutory obligation of maintaining accurate records of its assets, but it has also created a ‘single source of truth’ about the utility's infrastructure assets that can be shared across the business. AssetMapper now resides at the heart of the CAR, with many other business critical applications relying on the information maintained by the system.

AssetMapper has contributed to the success of two key business initiatives at Northern Ireland Water; the Data Quality project and the Business Improvement Programme. The improvements it has brought to data quality and business process efficiency have facilitated the delivery of cost benefits at a time when budgets within the water industry are being cut by the regulator.

“The implementation of AssetMapper has been hugely successful with the project being completed on time and to budget. All the original project objectives were met and since go-live in October 2008 the system has been running without failure,” said Sean O'Boyle, Asset Information Development Manager, Northern Ireland Water. “AssetMapper has become a critical integral part of the business.”