B02.3 Addressing Northern Ireland: *Pointer* – a common address file

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Introduction

It has been estimated that more than 80% of the data held by Northern Ireland government departments includes some form of address. In many cases, the address is necessary in order to make the information meaningful, or to enable it to fulfil its purpose. However, there is no recognised standard for collecting, holding and maintaining such addresses within the Northern Ireland public sector.

The lack of a standard format for recording addresses has resulted in departments collecting, using and sharing address-based data, which is inaccurate, incomplete and out of date. Even within individual departments, addresses are sometimes stored in different formats.

As a result of these issues, the Pointer project in Northern Ireland is currently working to develop a definitive index of addresses. Pointer will provide unambiguous identification of property and will form the focus for the maintenance and management of address information. In addition it will form a link to geographic entities through spatial relationships that will open up access to public and private sector data management and analysis initiatives.

The widespread use of Pointer will facilitate the use of geographic information systems within the public service, for example, to highlight areas of high social need. Pointer will also be the key to accessing property related data from multiple organisations, through a single service.

Project Background

In 1999 the Central Information Technology Unit for Northern Ireland (CITU(NI)) launched the Land & Property Information Services Initiative in Northern Ireland. The purpose of this initiative was to develop a vision of how land and property information could be more effectively utilised, through the use of new technology, to meet the needs of citizens and businesses in Northern Ireland.

As a result of this initiative, a Project Board was established in November 2000, to create, implement and maintain a definitive index of addresses for Northern Ireland. The board is chaired by the Chief Executive of the Ordnance Survey of Northern Ireland and comprises representatives from the Valuation & Lands Agency, Royal Mail, CITU(NI), Water Service and Ards Borough Council (on behalf of the Society of Local Authority Chief Executives).

Project Drivers

The key drivers for the Pointer project are outlined in the following paragraphs.

Programme for Government

The Northern Ireland Executive has published a Programme for Government (PfG)[1], which sets out the priority policies and programmes required to create effective government in Northern Ireland. The current PfG for states:

"We need to improve co-ordination between our departments, agencies and local government, ensuring that services are delivered in a way that meets the needs of the public and that policies are designed for our own local circumstances."

As highlighted earlier, the standardisation of address data will be a key enabler to increasing co-ordination within the Northern Ireland Public Sector. Pointer's importance in this area has been recognised by the Executive through the allocation of funding from the Executive Programme Funds.

Modernising Government in Northern Ireland

CITU(NI) has published a Corporate Strategic Framework (CSF)[2], which outlines the basis for building electronic government services within Northern Ireland. The CSF proposes a vision of a modernised and efficient government, alive to the latest developments in e-business, and meeting the needs of citizens and businesses in Northern Ireland.

The CSF outlines the four basic principles underpinning the delivery of information-age government services in Northern Ireland:

- **Choice** - The customer chooses which access method to use.

- **Convenience** - The customer decides when and where to interface with government.

- **Simplicity** - People should not need to understand how government is organised; or which Department or Agency does what; or whether central or local government exercises a function. Services should be organised around how people live their lives including, for example, life episodes such as the birth of a baby, travelling abroad or moving house.

- **Inclusiveness** - New services should be developed so that they are available to all and easy to use. This means making it easier for anyone who wants to, to get access to electronic services, including those in minority language groups and those with disability or limited mobility.

The CSF states that the public sector in Northern Ireland will move no less speedily than other parts of the UK in delivering online services, and specifically that:

- 25% of key services will be capable of being delivered electronically by 2002; and

- 100% of key services will be capable of being delivered electronically by 2005.

The development of Pointer will make a significant contribution to the promotion of efficiency and innovation in the delivery of modernised services by departments and in the wider public sector through:

- Joined up electronic Government - As a citizen accesses government services there will be no need to re-input address information as Pointer will have that in place for all Public Sector bodies, in a standard way;

- Tell Government once - As addresses are created or changed (for example, street re-naming or post code changes) there will be a single point of entry into Pointer thus keeping all bodies as up to date as possible; and

- Future proofing – As new systems are introduced throughout the public service, Pointer will ensure that at all times these systems will be provided with agreed Public Sector wide addresses, including links to a geographic location for use within geographic information systems.

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[1] http://www.pfgni.gov.uk
[2] http://www.cituni.gov.uk/consultation/index.htm

The use of Townland names in Northern Ireland

In October 2001, the Northern Ireland Assembly debated a motion that called on each Government Department to adopt a policy of using and promoting townland names in all Government correspondence and official documents. The motion gained cross-party support and was supported unanimously[3].

In addition, in May 2002 the Northern Ireland Assembly, on behalf of the Committee for Culture, Arts and Leisure, published a report of their inquiry into cultural tourism and the arts[4]. In particular, the Committee heard evidence about the use of townland names in Northern Ireland:

" The resonances of history and place, which Northern Ireland's townland names encapsulate, are even now almost lost to the next generation. Furthermore, the old birth, marriage and death records, which are the [...] tourist's main source of information about his or her ancestors, tend to refer to the townland in which the relevant event took place. The gradual erosion of familiarity with townlands and their boundaries will, if not halted, eventually result in stalling the development of [this form of tourism].

As a result, the Committee recommended that:

"Government departments, district councils and other public bodies, as well as the public utilities, should include townland names on all postal communications."

Pointer includes the townland name within its specification. It will also provide a central and cost effective means of maintaining the townland name within the standard address held by the Public Sector. Most importantly for the Emergency Services, Pointer will provide a link between an address and an accurate geographic location on the ground.

What is Pointer?

Pointer is a comprehensive and standardised address database, which will hold address information for every property in Northern Ireland.

Pointer is a collaborative venture between Ordnance Survey of Northern Ireland, the Valuation & Lands Agency and Royal Mail. The Project Board comprises the organisations shown in Figure 1.

A full-time Project Team was established in October 2001, to progress the creation of the Pointer dataset. This team, comprising staff from Ordnance Survey of Northern Ireland, Royal Mail and the Valuation & Lands Agency, and supported by external consultants, has made significant progress during the subsequent period.

Key phases of the project which have been undertaken by the Project Team include:

- Development of a Technical Address Model Specification which describes the data to be held within Pointer, and the relationships between the individual entities;

- Cross matching of thoroughfares from Ordnance Survey of Northern Ireland, the Valuation & Lands Agency and Royal Mail;

- Cross matching of addresses from Ordnance Survey of Northern Ireland, the Valuation & Lands Agency and Royal Mail;

- Population of the Pointer database with matched and unmatched address records;

- Planning of the ground validation of unmatched address data across Northern Ireland;

- Ground validation of unmatched address data in the Greater Belfast area; and

- Development of ongoing maintenance procedures to retain and improve integrity of data.

A number of these phases of the project are discussed in more detail in the following paragraphs.

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[3] http://www.ni-assembly.gov.uk/record/011001.htm
[4] http://www.ni-assembly.gov.uk/culture/reports/report1-01r_main.htm

Technical Address Model Specification

The latest draft of the Technical Address Model Specification, which defines the fields proposed for inclusion in Pointer, was issued in April to approximately 160 personnel in 115 organisations throughout the Northern Ireland public and private sectors. The document incorporates and makes reference to existing standards relating to different aspects of addressing, particularly BS 7666-3:2000 Specification for Addresses.

The high-level entity relationship diagram for the Pointer database is shown in Figure 2 overleaf.

It should be noted that these attributes represent the base data to be stored for each address – products of Pointer will not necessarily include all the above attributes. In addition, user front-end screens and end products may merge attributes or present the information in different ways that may be more intuitive to users.

Data matching and database population

In order to create the Pointer database, the Project Team has carried out a complex data matching exercise on the datasets from three of the primary sources of electronic address data in Northern Ireland, namely:

- COMPAS (maintained by Ordnance Survey of Northern Ireland);

- PAF (maintained by Royal Mail); and

- Addresses from the Valuation List (maintained by the Valuation & Lands Agency).

The data matching exercise was conducted in two steps:

- Thoroughfare matching; and

- Building and sub-building matching.

Automated address cleaning and matching procedures were used wherever possible, with bespoke software solutions being used to optimise the degree of match. The matched data from the data matching exercise has been used to populate the Pointer database.

Ground validation of unmatched data

The unmatched data has been used to determine the number and location of addresses requiring ground validation.

Ground validation has already commenced in the 'Greater Belfast' area, encompassing the Belfast City, Lisburn City, North Down Borough, Castlereagh Borough, Newtownabbey Borough, and Carrickfergus Borough Council areas. The second phase of ground validation will take place in all urban areas outside 'Greater Belfast'. The third phase will see the ground validation of all rural areas.

Maintaining Pointer

Maintaining the accuracy and completeness of the database over time will be crucial to ensuring the ongoing usefulness of the address data. During the initial phase of the Pointer project, the maintenance processes will be semi automated, however once the full Pointer system is in place fully automated processes will be introduced.

During the initial phase of the project, updates from Ordnance Survey of Northern Ireland, the Valuation & Lands Agency and Royal Mail will be applied to the Pointer database on a monthly basis. In addition, it is envisaged that Pointer will receive details of new and changed address data direct from all local councils in Northern Ireland. The local councils are the originators of building numbers and road names; therefore their role will be key to initiating the address life cycle.

The Pointer database will hold multiple address fields, which will provide the basis for a range of address data products based on subsets of address data fields. In addition, it is envisaged that the Pointer data will form the basis for a range of value added address products, which will facilitate:

- Address location and route planning;

- Network planning and analysis;

- Marketing;

- Demographic analysis.

Figure 3 illustrates the key features of Pointer.

The benefits that organisations may derive from the creation and implementation of Pointer will vary according to the speed and scope of implementation. A range of benefits and uses are outlined in Figure 4.

Common benefits that will accrue at all levels include:

- Reduction in duplicated effort expended on the maintenance of address related information across multiple organisations;

- Protection of investment in data collection through the use of standards to ensure that the quality and value of the data are preserved across evolving systems and services;

- Economies of scale as application system providers and Geographic Information System (GIS) suppliers recognise the benefits and adopt standards, which facilitate the sharing of data between users;

- Improved access to information, internally, in support of the decision making processes; externally, through easier dissemination of information to the citizen; and commercially, through access to a rapidly growing market for geographic information; and

- Inclusion of townland name for every address in Northern Ireland.

Links between Pointer and other computer systems are currently still under discussion. However Pointer will provide organisations with an opportunity to maintain a Unique Property Reference Number (UPRN) in their system. The UPRN will not change over time.

Conclusions

An accurate and commonly understood address is at the heart of the ability for government services to be 'joined-up', and to facilitate and promote collaboration. However the lack of consistency for the recording and storage of address data has resulted in departments collecting, using and sharing address-based data that are inaccurate, incomplete and out of date.

The creation, implementation and maintenance of Pointer in Northern Ireland will significantly benefit both the public and private sectors, through the provision of an accurate, consistent and up to date definitive index of addresses.

More information about Pointer is available at http://www.pointer-ni.gov.uk. In addition, the Pointer project team can be emailed at: info@pointer-ni.gov.uk.

Figures

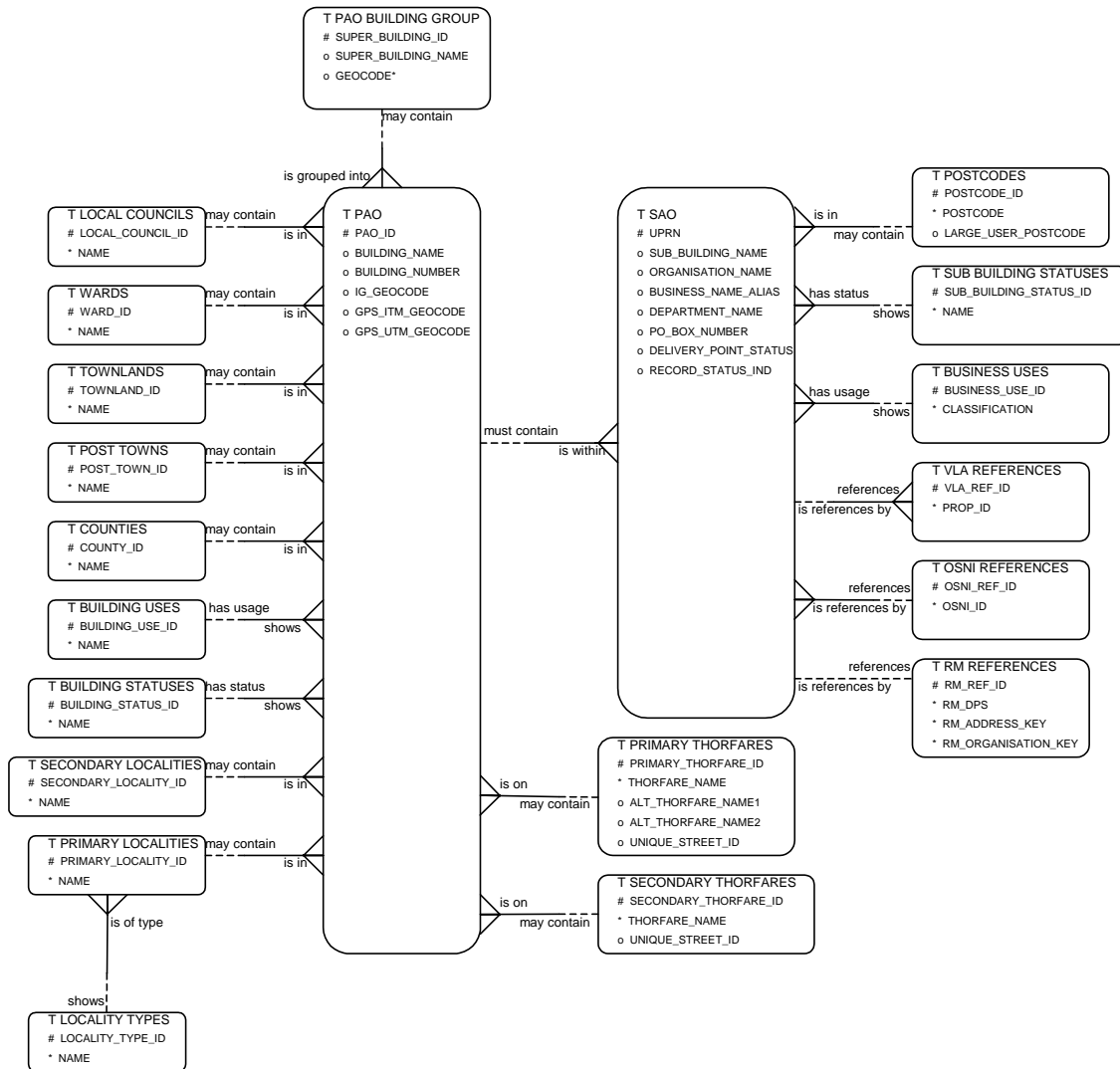*Figure 1: Membership of the Pointer Project Board*

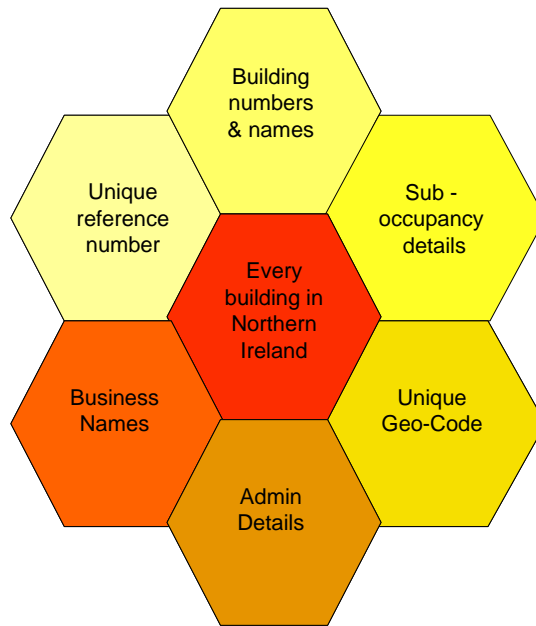*Figure 2: High-level entity relationship diagram for the Pointer database*
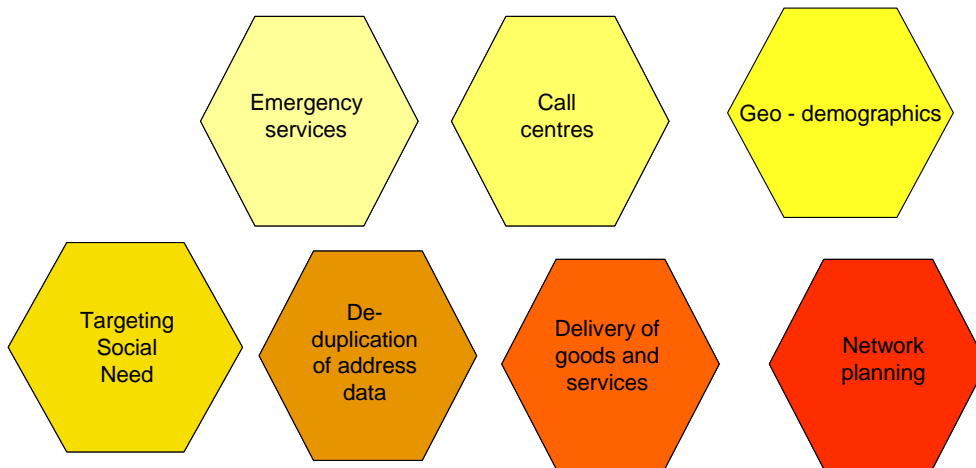
Figure 3: Key features of Pointer

Figure 4: Key benefits and uses of Pointer