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Modernising land information processes: HM Land Registry and Ordnance Survey

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Background

Mapping is a core function of land registration the process by which legal title to land is guaranteed in England and Wales. This is a process that underpins so much of day to day national economic activity.

The physical products of registration are:

The Register — the textual document that defines the property, identifies the owner and sets out details of charges that adversely affect the property

The Filed Plan — which defines the legal extent of the property and is itself part of the Register

The Index Map — which relates the stock of some 19 million registered title extents to a single map base

The latter two documents are by definition map based and Rule 280 of the Land Registration Rules 1925 enshrines the Ordnance Survey map as the basis of all registered descriptions.

Inevitably, therefore, there is a strong link between our national mapping agency, Ordnance Survey of Great Britain and LR, as a user of its products.

Both of our organisations are undergoing significant change and our vision statements themselves reflect a changing view of the world and the way we interact with it. Some primary drivers for this are:

- The modernising government initiatives – and the Prime Minister's pledge to make the UK a world leader in e-commerce.
- The need to streamline and improve business processes for the benefit of our customers, and
- The fact that the public is becoming increasingly more aware and wish to deal with us electronically.

Ordnance Survey and LR have a long history of working together and this paper sets out to consider the way in which the business relationship has changed more radically and quickly over the last few years. It also details a number of specific joint projects where there has been strong liaison at both user and technical levels.

Developing the business relationship

Until very recently the relationship was really simply one of customer/supplier. Although LR had an account manager, major customer requirements/concerns tended to be raised through the Ordnance Survey consultative committee channels.

Our longstanding and, sometimes, complex relationship has been managed over the years with varying degrees of success – more recently through formal Service Level Agreements for both surveying services and the supply and licensing of map data.

Picture: LR computer mapping system

Changes in LR's mapping requirements were relatively gradual. Not that long ago LR still acquired paper mapping direct from Ordnance Survey, then moved to purchase through Ordnance Survey Map Agents and more recently to systems where LR accessed updated mapping on CD-ROM through the Promap system.

It is also important to remember that, as well as taking published large scale map products, LR has also taken substantial survey services from Ordnance Survey over the years to supplement the normal supply. These maps contained updated topographic detail needed for registration purposes, but were in advance of Ordnance Survey's normal update regime.

Joint Land Registry/Ordnance Survey Project Steering Group

The introduction of LR's computer mapping system and the move from being a paper to digital user produced both opportunities and challenges on the mapping front. Some of these were common issues that potentially impacted on both organisations and sat comfortably with the current drive towards modernising government and e-delivery.

We both realised that the most effective way of dealing with the issues was to mutually engage in a planned process of change management. In July 1999 a meeting was held at Ordnance Survey where both sides put their business agendas on the table.

For LR this included:

- the development and implementation of an internal land information system,
- the introduction of combined plans and legal operations, and
- realisation that graphic surveys are inefficient in a digital environment

Ordnance Survey's objectives included the need to:

- improve the relationships with customers
- develop a better geographic infrastructure to support joined up government.
- assist LR with the vectorisation of the Index Map

From that meeting a Joint Steering Group was set up involving staff from both organisations including from the LR side representatives from the user and IT disciplines.

The steering group's broad remit was to look at ways in which we might:

- develop technical solutions to problems surrounding data delivery and update
- make the commercial arrangements between us more effective
- develop areas where we have mutual objectives

The group quickly identified a number of themes that we felt could – and should be explored.

The following are just three examples that demonstrate the achievements. They show how both organisations are benefiting from close liaison, understanding the other's requirements and sharing a joint enthusiasm for improving things for the end customer.

Electronic Delivery of Map Data

When the Steering Group was set up LR took Land-Line ® updates from Ordnance Survey in CD-ROM format. As holders of the complete national dataset this meant that every month each of the LR District Registries would receive a batch of CDs with revised map tiles which needed to be imported into the mapping system. This was found to be extremely resource intensive.

Under the project a system has been developed and successfully implemented in which LR are electronically notified of map tiles which have been subject to change and which need to be imported.

This data is imported automatically into the LR system, avoiding the previously resource intensive process, and means that LR are now closely synchronized with the current Ordnance Survey data. This has important advantages for LR because, when mapping applications for registration – their operations, and therefore their customers, are benefiting from that improved access to current mapping.

From Ordnance Survey's point of view, the benefits are obvious – no need to cut updates to CD and then distribute around 24 separate locations. In addition it was also demonstrating the commitment to reducing bureaucracy.

Land Registry use of PRISM

PRISM™ (Portable Revision Integrated Survey Module) is a pen-based laptop surveying system and the current mainstay piece of kit used by Ordnance Survey surveyors. It has already been mentioned that LR commissions survey work from Ordnance Survey.

This now largely covers developing residential estates that do not yet appear on the Ordnance Survey map but which are required for registration as sales are proceeding and applications to register are being lodged with LR.

LR also has a very active team of its own surveyors who make in excess of 25,000 site visits each year to check map detail, occupation or both. Resultant changes to the mapping are usually relatively minor.

The move to computer mapping posed both a problem and offered an opportunity.

Initially the LR survey process was to download mapping for a survey site to paper, carry out the survey and then re-digitise the results for onward transmission to the caseworkers. The logic to remove 'paper' from this chain was compelling and trials have now been successfully completed in LR use of PRISM. Surveyors at two District Offices have already been trained in it's use and LR surveys will in future be carried out totally digitally with the obvious economic benefits.

Picture: An LR surveyor using PRISM

Another major plus is that the revision detail captured by LR surveyors (to Ordnance Survey specification) will now find its way into the National Topographic Database - improving its currency and avoiding potential duplication of effort.

Electronic communications and survey requisitions

In parallel with the above developments we have now jointly explored how we can pursue a full e-business approach in our commercial relationship.

Under one of Ordnance Survey's e-business strategic projects (putting the customer first), LR has recently accepted the opportunity to open the first customer web-site. This will open the way for a much more efficient flow of two way information. It also means that we are now perhaps more able to start synchronising the whole operation.

The possibility of the LR end users – the caseworkers – prompting a survey requisition from their terminal and receiving an electronic response is reasonably well advanced.

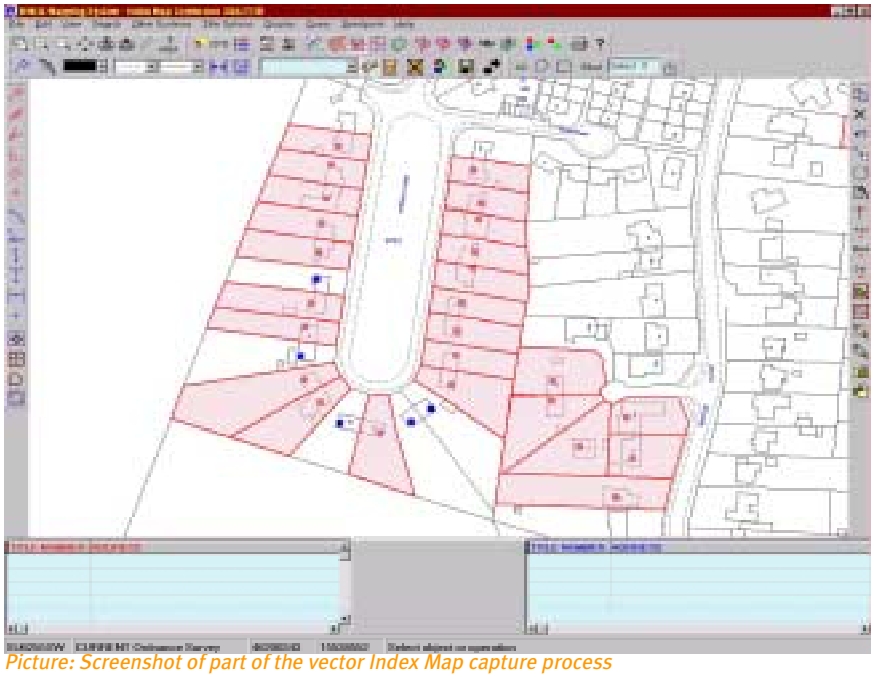
Another project is looking at developing on-line monitoring of progress on surveys and accounting procedures (including e-invoicing).

Furthermore, it has been recognised that a two-way flow of intelligence, on issues as diverse as positional accuracy and phasing of development construction, assists both organisations in dealing with the respective business needs efficiently and in meeting our customers need for accurate, swift services.

What of the Future?

The past two years have really demonstrated the value of having a shared vision with common goals. We have now revisited the work we are doing, and how it's going to be managed. To manage this overall process a group has been set up which will discuss issues, both strategic and technical, that relate to enabling LR to serve their customers more effectively – and the role Ordnance Survey can play in that.

For example, LR is about to embark on a significant programme to capture digital extents – vector polygons - for some 21 million properties.



Picture: Screenshot of part of the vector Index Map capture process

This will create an opportunity to make the Index Map more accessible to both LR's internal and external customers, initially through the LR Direct Service.

Additionally, this will produce an important spatial dataset defining ownership polygons. Although some sophisticated tools have been developed to enable fast capture of these "legal" polygons the process will, in the end, depend on operator intervention: a massive undertaking but an extremely valuable process in which each polygon is individually quality assured. LR and Ordnance Survey are aware of the potential of this dataset in the context of the currently developing Digital National Framework (DNF). While from the LR perspective their immediate customer needs drive this process LR are nevertheless conscious of the value of this type of dataset from a national perspective.

A close eye will be kept on the potential for these ownership polygons to become a useful resource within the GIS industry. DNF has the potential to act as an efficient medium through which this dataset could be exploited for national advantage.