

Iain Greenway, Chief Executive Officer, Ordnance Survey of Northern Ireland OSNI - Enormous Potential in Expansion

In the middle of 2006 Ordnance Survey of Northern Ireland (OSNI) has appointed Iain Greenway as its new Chief Executive Officer. He joined OSNI after being General Manager of Ordnance Survey Ireland (OSi) and has held a variety of posts in geodetic and topographic survey at Ordnance Survey Great Britain (OSGB). We discussed several key strategic professional topics with our interviewee to bring you answers, knowledge and experience of top value as well as to share with you his professional visions and enthusiasm.

By Joc Triglav



OSNI CEO Iain Greenway.

policy of 'user pays' for the products and services that they deliver. Given these large areas of commonality, the three organizations continue to work closely together in a number of areas, from geodesy to technology, to ensure that we learn effectively from each other and that we serve those customers we have in common as effectively as we can. So I see the similarities as being larger than the differences.

How is OSNI adapting to the changing business models due to evolving customer demands, changes in funding arrangements, new partnering opportunities, rapidly changing technology and competition?

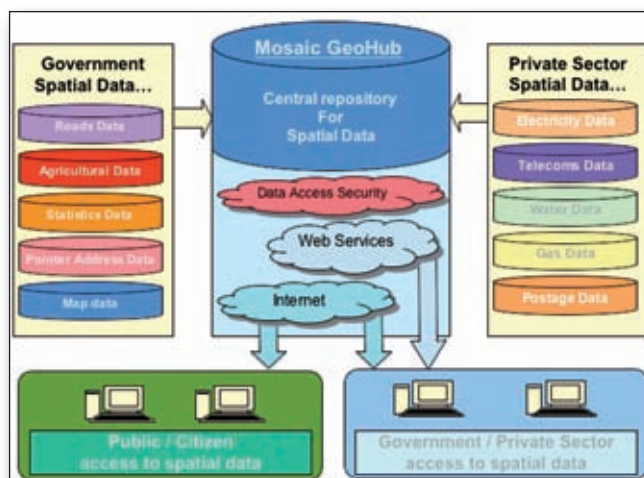
IG: OSNI has made some significant changes to its business in recent months. This has been possible and appropriate because of the signing of a Northern Ireland Mapping Agreement (NIMA) in March 2006. This agreement provides access, free at the point of use, to a range of OSNI datasets by all Northern Ireland civil and public servants. The central financial transfers within the agreement brought OSNI to financial breakeven, which had been its key goal for a number of years. Reaching this goal allowed us to reassess priorities. The outcome has been a more explicit focus on our public good activities, now that funding for them is secure through NIMA. OSNI has always seen such functions as important, our role at the centre of MOSAIC, the Northern Ireland GI Strategy which is seen as the leading example of such a strategy in the British Isles, is one example; and our collaborative work to develop POINTER, the Northern

Based on your knowledge of details on how the wheels of Ordnance Survey organizations in the UK and Ireland spin and as an experienced key person, which are the main differences between Ordnance Survey Great Britain (OSGB), Ordnance Survey Ireland (OSi) and Ordnance Survey of Northern Ireland (OSNI)?

IG: I believe that I'm only the second person to have worked in all three Ordnance Surveys since they divided in 1922. Given their common heritage, it is not surprising that they still have much in common. For instance, the core specification of the content of their large-scales databases was largely developed as mapping requirement became articulated more clearly in the nineteenth and early twentieth centuries. Of course, since 1922, each has developed in

slightly different ways, to reflect their circumstances. OSi, for instance, is now a State Body, outside the civil service, and this required a number of changes.

They are also different sizes, OSGB about 1500 people; OSi about 300 people; and OSNI about 175 people, and size is a key element in how organizations function, decision making processes and so on. But the core remit of each of the organizations, to 'map the nation' and through so doing to meet customer and national needs, remains and is enshrined in their missions, visions and values. And all work within a Government



GeoHub, a central portal for all spatial data in Northern Ireland.

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Ireland common address file, is another. MOSAIC will move into another exciting phase in 2007 with the go-live of GeoHub, a central portal for all spatial data in Northern Ireland. Another area we are able to bring more focus to, is the development of a new core data model for OSNI large-scale data, moving from a cartographic model to a real-world model, a process we intend to complete over the next 3-4 years.

In terms of customer relations, we are focusing strongly on the requirements of NIMA customers, both for data and for end-to-end solutions, delivered through OSNI commercial partners; and are building our commercial partnerships to ensure that our data can be used effectively by the private sector. To support this, we have decided that we will not compete directly with our partners for sales of digital products to customers outside the NIMA block and the utilities sector. Instead, we will focus our energies on ensuring that our core data holdings meet customers' needs and are collected efficiently and effectively, building on our modern data collection platforms to achieve this. We have enshrined all of this in a new Mission – to place OSNI data at the heart of a vibrant Northern Ireland.

Where do you see the main drivers, opportunities and necessities for public sector productivity improvement of ordnance survey and geoinformation business in the UK?

IG: I think the central part of this is about joining up geography. Joining up is a key theme of a number of key UK Government publications recently, including a report entitled Transformational Government that reminds readers that Governments are there to serve citizens, not the customers of individual units of government, it cites the 150 plus interactions someone whose father died in a car crash had to have with different government bodies. A big step in this for Northern Ireland is the GeoHub, allowing datasets to be brought together. 'Collect once, use many' is a key principle of INSPIRE, and is therefore both necessary, under the Directive, but also an opportunity to remove effort from duplicative data collection and divert it to data improvement and other tasks. As an example, a MOSAIC pilot has seen NI utilities sharing data on cable and pipeline locations in a common database. This has allowed utilities

to view the locations of existing infrastructure in an area where they need to undertake work in a much shorter time – six minutes rather than six weeks.



OSNI historical map sample.

Another key step in joining up will be the formation, on 1 April 2008, of an NI Land and Property Services Agency encompassing OSNI, Land Registers of Northern Ireland (LRNI), Valuation and Lands Agency (VLA), and the Rate Collection Agency (RCA). We are already finding opportunities for closer collaboration as we work together, including moving to a situation where valuers don't need to leave their offices to complete capital valuations of domestic properties, because all of the data is available to them, including oblique aerial photography, which OSNI will shortly be procuring on behalf of the NI public sector, with valuation as the first key user. Close links between the three Ordnance Surveys and their respective land registries have been in place for many years, but this expansion of scope shows the enormous potential, and remember that OSNI activity underpins £7 billion of activity annually in Northern Ireland. Another step we are exploring in the joining up I have mentioned, is building linkages with the building control sections of local government. Their staff are going onto building sites to measure and assess properties. So are OSNI and VLA staff. Is there any reason for more than one organization to go on the ground, for the majority of developments?

Through joining up geography, not only will we make OSNI and related organizations more effective; we will also make a significant financial difference to the national economy, given

the significant swathes of activity relying on geographic information.

Promoting institutional and organizational development in surveying and land administration is one of the business key points. Please, outline some of the key tools and techniques to be used for capacity building and for the institutional reform process.

IG: I mentioned the fundamental change in Northern Ireland, with the creation of the LPSA, in my previous answer. I have also worked in Eastern Europe and Southern Africa, assisting with the development of institutional infrastructures in those countries. My overall watchword for such activity is 'sustainability', it is vital that changes implemented can continue into the future, including when the consultants have left, and when circumstances and priorities have to change. In my experience, this is very often down more to instilling confidence in the local managers, than needing to build their competence, at least in technical matters. I think we still have some way to go in our industry to train early and often enough on the management skills to run an organization, whether a large government agency or a small private practice.

Another key element is the financial model. Here, my views have changed over the years. The theorists, including those traditionally viewed as 'right wing', consider mapping a public good that should be funded through taxation. My practical experiences of this model have led me to the view that no charge becomes equivalent to no perceived value, and therefore that, in practice, 'user pays' is the more appropriate manner in which to allow users to understand the cost and investment necessary in geographic information collection and management. Another key element, is for organizations to work very closely together. Sometimes this might most appropriately be achieved through merger, in other cases by remaining independent but closely allied.

The theme of organizational and institutional development is a key one for the new FIG President, Professor Stig Enemark, and I have agreed to lead an FIG Task Force on this subject. After all, it is only if the solid foundations of effective institutions are in place, that effective land management policies can be applied,



OSNI Large Scale Vector map as one of the digital products available 'of the shelf' in a number of formats.

and such policies are fundamental to national economic development.

In your opinion, which factors have to be considered primarily in the present accelerated strategic moves towards establishing and implementing the GNSS national control networks in most European countries? Is everything clear to us surveyors regarding the "passage" from local classical to satellite-based geodetic networks?

IG: I have worked with GPS since 1988. In those early years, there was a four hour observing window, the receivers were powered with car batteries, needed two men to lift them and often had to be taken to the tops of towers because that was where the survey control was. I well remember attempting kinematic GPS measurements on a Nottingham housing estate in the middle of the night, with one man carrying the receiver, another carrying the battery and me with the antenna and a stop watch. How things have changed in less than 20 years – we now have active networks meaning that a single receiver, which can be carried rather more easily than 20 years ago and costs a fraction of the price, can achieve centimeter precision in seconds, at any time of the day or night. The new infrastructure provides surveyors with a vital surveying tool. But it also presents us with challenges in our role as professional advisers/interpreters. What is the difference between accuracy and precision? How has the offset between the old mapping and the GPS observations come about? Is the difference important? And, of course, what does a GPS height mean? In addition, there is the challenge of adapting our old coordinate reference systems to cope with the new-found accuracy. In Ireland (north

and south), we have designed a new reference system, Irish Transverse

Mercator, to support this. But many users are very reluctant to make the transfer, as they have large amounts of data (often in paper and raster form) linked to the old, Irish Grid, system.

This reinforces my view that our challenges are more in the

professional aspect of our work, as many of the technician aspects are now managed very effectively by technology. We have to ensure that our professional skills and knowledge are sufficient for the challenge.

Which are the most important needed steps of national mapping organizations in communicating this knowledge of changes in geodetic networks to our wide user community? Which best practice approach should be applied?

IG: I guess that the fundamental message, as in any time of change, is to communicate early and often. I regularly challenge my staff that I want to hear customers and stakeholders complaining about too much communication. I have yet to hear such a complaint! A communications challenge is that the underlying issues are complicated, geodesy was once a complex cousin of land surveying, but is now at its heart. A key element is therefore to remove the human element from much of the work. If a coordinate reference system change is required, the customer doesn't need to know much about this as long as we can be confident that the firmware and software will handle it correctly and accurately. Once the human element is involved, we can become divided by language and terminology. ISO 19111 on positioning by coordinates was published three years ago, and took a great deal of trouble to agree a standard set of terminology, but I still hear many in our profession using terms in a manner inconsistent with the standard, often leading to confusion or worse. So we need to ensure that we use agreed definitions of terms in our language, and observe the basic rules of communications as to when verbal or written communication is most appropriate.

Which knowledge and best practices are most required among your beneficiary partners during your several international consulting tasks, especially in the fields of land reform and management? What did you learn from such consultancies?

IG: I should start by saying, of course, that every situation is different. I have worked, for instance, in both Swaziland and Lesotho. Many may think that, because they are geographically close to each other, the same techniques and approach could be applied in both countries. But this is not the case.

In Southern Africa, the very different model of land tenure requires European consultants to take time to understand it first. The power of the Chiefs, for instance, and the informal social welfare system that their actions ensure, is a major factor. It can be tempting, for a European, to see such a system as unnecessarily complicated or too open to abuse. But, when it works, it is extremely effective and I have seen examples where a more bureaucratic model has failed completely when people have attempted to introduce it. I attended an excellent lecture by Paul van der Molen of the Dutch Kadaster recently, and he reinforced my view that African countries have done tremendously innovative work to ensure that land tenure is secure, whilst working within very challenging resource constraints.

All that said, there are perhaps some generic lessons from my experiences. One is that 'mapping' is the bedrock of almost everything else. Its value is often ignored, in part because lack of investment for a number of years doesn't cripple the system immediately, its effects are longer term. Look, for instance, at the funding shortfalls for the Ordnance Surveys in the first third of the twentieth century. This led to short cuts that are still causing difficulties for users of our data, and which have led to the need for extensive re-engineering of data through, for instance, positional improvement campaigns. The main requirement is to make a difference on the ground – 'quick wins' may be a cliché, but most clichés are based on experience. My experiences in Swaziland were that short consultancy visits, with clear action plans to take the local managers to the next visit, were very helpful, with the time between visits increasing from three months initially up to nearly a year by the end of the project.

Are lifelong learning methods generally applied sufficiently among the professionals in surveying and land administration business? In which fields do you see still a lot of space and new possibilities for improvement?

IG: This is a growing theme, with Continuing Professional Development (CPD) being required by most professional bodies. I have a sense, though, that we don't take it as seriously as we should. It is too often seen as a distraction from the 'day job', and becomes counting hours rather than a meaningful professional development plan. Working in a public sector organization, we have organizational performance management systems, including developmental aspects. But too often the requirements of the professional body are to do everything in their format, ignoring (or duplicating) the organizational systems.

So how can we improve matters? Fundamentally, we have to sell the benefits, use the carrot rather than the stick. Technology is developing rapidly. So is business practice, very significant changes in corporate governance have occurred very quickly. But many GI professionals work in small (often singleton) practices and have a steady income stream. How many of the changes are relevant to them? So, we have to reconsider the models we are using: one model certainly does not fit all. And constantly 'beating people up' about recording hours of CPD is not the full answer to improving professionalism. One model that might have some relevance is the public service concept of 'head of profession'. Such a person, in addition to their line management duties in a particular role, is responsible for considering how staff in their professional discipline need to develop (across a range of organizations), including possible career paths to address this. Such a model, of course, cannot simply be lifted into small private practices. But maybe this reinforces my point that one size does not fit all, maybe this gives a model that could work in larger firms, with 'heads of profession' providing assurance to the professional body about professional development, with the professional body then able to spend more time developing appropriate models for the rest of the sector.

How do you see the future of the surveying profession in Europe and worldwide? Will our profession gradually blend in a wider geolocation and geoinformation business? Do you feel the danger that our skilled users "take over" most of our current business as a real one?

IG: In a sense, I am agnostic on this. I see our key facet as professionalism. Technology will come and go, but our professionalism will continue. Indeed, as technology becomes more complex to the lay person, our skills in providing professional and unbiased advice will become more and more important. So I therefore don't worry too much about what industry

badge is put on me. But, of course, to be a competent adviser, I need to stay aware of the capabilities (and shortcomings) of the different technologies. And I have to ensure that I do not stray outside my field of competence. Our profession has constantly changed as developments have occurred. In the UK, the RICS is a very broad body, from quantity surveyors to land surveyors. New specialisms have been added. As long as we remember what our key skill is, in broad ranging advice, based on sound technical and professional knowledge, I don't see a particular threat to those in the profession who update their skills. The threat comes for those who believe that their technician skills will be sufficient – because technology will continue to take over these technician duties. I remember writing about this in 1997, and it is even truer today.

Why is standardization in surveying and geoinformation business so important? How does the FIG Task Force on Standardization under your leadership cover this crucial topic?

IG: This is, as you may be aware, a passion of mine. I have coordinated FIG work on standards since 1998, first through a Task Force and more recently through a Network. This has done very good work in raising the profile of standards to FIG members, and of the skills and experience of FIG members into the standardization community. This latter community is a very specialized one, with experts showing great skill in wording standards so that they are not open to misinterpretation. But they have developed a language (and acronyms) all of their own, which can make it hard for a newcomer to get involved.

But, to put the local difficulties aside, here are some facts and figures: The benefit to the German economy of standards amounts to more than \$15 billion per year. A NASA study found that GI projects using open standards saved 26.2% compared to projects using proprietary standards. UK Government research found that 13% of the recorded growth of UK productivity in the period 1948-2002 was associated with standardization.

I believe that such figures prove beyond any



The Management Board of OSNI: (back L-R) Trevor Steenson, Leonard Brown, Michael Camplisson; (front L-R) Iain Greenway and Lorraine Conlon.

argument that standards are important to everyone. Recently, as you will know, ISO standards for the GI arena have been published, in the series ISO 19100. These include model standards, with that for metadata (ISO 19115) being particularly well known. More recently, standards on registries of items, including Geodetic Codes and Parameters, and Data Quality Measures, have been completed.

For those of us in Europe, CEN standards are equally important but, in the GI field, CEN is adopting the ISO standards without change and creating a small number of additional standard profiles for Europe. The most far reaching of these are likely to be the INSPIRE implementing rules, which will be based on CEN standards. So, whether we like them or not, very few of us will be able to escape standards! More seriously, an ambitious data sharing project like the NI GeoHub would be impossible without standards to ensure that data could be shared seamlessly.

FIG recognized the importance of the standards agenda in 1997. Since then, we have been very active in ISO and other standardization bodies, particularly IVSC in the valuation field. This has included not only ISO/TC 211, on geographic information, but also ISO/TC 172, on survey instruments, which is currently developing a standard for testing/ calibrating GPS receivers. A key piece of FIG work has been the development of a Core Cadastral Domain Model, where key players have included UN-HABITAT. We hope that this work will move into the ISO domain shortly.

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