

# GIS

## Professional

issue 46 : June 2012

...joining the geography jigsaw



It's called "terroir" or just geography!

Esri: Looking for heroes and guinea pigs!

Geo-enabling with Microsoft

GIS education 'never stands still'

GI helps bin the news in the City

Banff's mobile solution 'a big win for GIS'

Ordnance Survey's digital history

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## Call for heroes and guinea pigs

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## Binning the news in the City

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## Converting Britain's mapping to digital

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## GIS education and training opportunities

We highlight the leading providers of education and training services because 'career development never stands still'.



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## Grape Expectations!

How digital devices and data are helping vineyards gain higher yields and better wine. Dr **David R. Green** is our digital sommelier.

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**Next Issue: AUGUST 2012**

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**Front cover:** Grape expectations indeed! Mechanised harvesting as well as geo technologies are making the difference in vineyards, explains Dr David R Green. Read more on page 24. *Front cover image courtesy of Greg Kovacevich, Vineyard Ops. Inc., USA.*



**to subscribe to GISPro, turn to page 34.**

**read on...**

# Leica Zeno

## For maximum accuracy & productivity



The Leica Zeno GIS series includes the rugged Leica CS25 ultra-mobile PC. The CS25 is used for handheld data capture with 2-5 metre GPS positioning accuracy, providing efficient data transfer & effective communication with the office.

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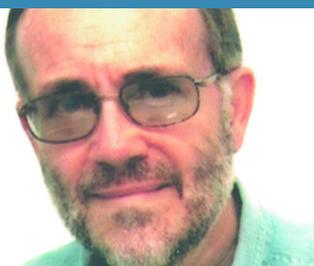
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- when it has to be **right**

**Leica**  
Geosystems



welcome  
to the June issue of *GIS Professional* . . .

## Technofile or technophobe the pace has rarely been glacial

There hardly seems an aspect of our lives that digital technology does not invade. **Adena Schutzberg**, no technophobe, wonders in her column this issue whether it's getting in the way of enjoying the great outdoors as hikers and walkers are encouraged to take GPSs, iPads, 3g phones and other digital paraphernalia with them to record their travels and experiences. She's right. These activities do not need much technology beyond a mobile phone; unless you're going seriously off-piste then a GPS might be advisable.

Meanwhile, the onward march of technology by companies and organisations is making ever more people redundant. Two examples are the troubled UK Border Agency, which has placed high reliance on iris recognition and other software solutions with little success and to the detriment of intelligent human resources - "humint" as the military call it. In the high street the introduction by supermarkets of scan-it-yourself checkouts (which all require human oversight close by) are an irritant to users and more importantly threaten low paid jobs, which goodness knows we need.

Returning to this issue, we have some intriguing examples of the breadth of GIS application. For many years Dr **David R Green** of the University of Aberdeen has taken a keen interest in viticulture. With yields and quality on the up across many wine producing regions of the globe, he provides a timely reminder of how geo technologies can help vineyards.

Technology certainly is making the difference to many lives and businesses. But *GiSPro* also looks back in a review by **Robin Waters** to the at times glacial pace of digital adoption at Ordnance Survey. This is a remarkable history (which we are assured will be available online via the Public Records Office) by **Peter Wesley** of "Converting Great Britain's basic-scale mapping to a digital form, 1962-95". It is one that spans the introduction of main-frame computing with reel tape storage, to the server-driven networked desktop PC. Although the pace may have seemed slow to the technophiles of the 1970s and 80s, Britain still beat any other country to have a nationwide large-scale database, which today underpins so much of our infrastructure. An asset that is still not recognised as widely as it should be.

Finally, we have reports on seminars and conferences held by key players in the GIS market: Esri UK, Microsoft and Intergraph. The latter has partnered with the Sterling Power Group for the sale of its software to utilities. **Richard Groom** reports on an interesting day that sounded what for some might be an alarming note. A report by ARC advisory group ([www.arcweb.com](http://www.arcweb.com)), a US based technology research and advisory firm for industry and infrastructure, indicates that the GIS market sector will largely cease by 2015 as GI moves into the mainstream. An interesting conclusion and one that I recall predicting more than a decade ago to masters students on UCL's GIS science course. I thought that GIS would become like wordprocessing, just another tool on the desktop. Thanks to Bing and Google to some extent this is now true but understanding how to apply geo-based analysis to data with all its limitations and caveats, is always likely to require specialist knowledge.

Enjoy the Olympics and the Jubilee. I'm off to France for a bit!

Stephen Booth, Editor



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market sector  
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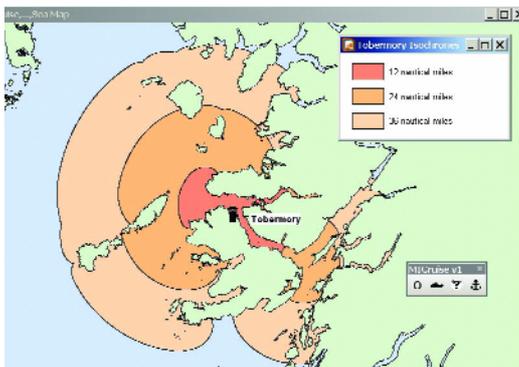
## Runners raise £25k for MapAction



On Sunday 22 April six lovely people took part in the London Marathon in aid of MapAction. Christopher and Sarah Egerton-Warburton, Chris Holcroft (above), Ian Holt, John Lyon and Naomi Morris (inset) together raised over £25,000 for the international emergency mapping service charity. A big thank you goes to the team and also to everyone who lined the streets to cheer them on.

Chris Holcroft, one of our runners, commented: "Doing the 2012 London Marathon was a life enriching experience that was full of fun, emotion, hardship and achievement. It gave our team of six runners a chance to make a vital contribution to MapAction, a unique charity that uses geographic information to save and improve the lives of those affected in humanitarian crises and natural disasters. It demanded a heck of a lot from us, but at the same time MapAction supported us and helped us very well at every stage of the process. I would certainly do it again."

## Mapping lifeboat ranges



CDR Group has been helping the Royal National Lifeboat Institution (RNLI) in mapping the cruising ranges of lifeboats. The RNLI has over 330 active lifeboats based at 235 lifeboat stations around the coastline of the UK and Ireland. The boats can travel at speeds of 25 knots and have a range of up to 250 nautical miles. Determining the areas that can be serviced by each lifeboat is a critical factor in the RNLI's operations.

Calculating isochrones (lines of equal distance or time) from points on a linear coastline such as parts of Eastern England is relatively simple. But in complex marine geography, such as the north-west coast of Scotland, the task is significantly more difficult. Following detailed discussions with the RNLI, CDR Group developed MICruise, a MapBasic application running within MapInfo Professional that rapidly calculates marine isochrones from any given coastal location or set of locations.

## GeoVation finalists

Ten finalists are now in line to win a share of £115,000, as part of Ordnance Survey's GeoVation Challenge, which is aiming to improve local neighbourhoods in Britain.

Budding entrepreneurs across Great Britain could see their ideas turned into a reality when they go before a Dragon's Den final. The ten were selected from a shortlist of 17. Dr Chris Parker, a GeoVation facilitator, said: "What impressed me most was to see 17 strong ideas being developed collaboratively and openly with other teams, into prototyped ventures pitched competently to the judging panel in just two minutes!"

## Inspire-compliant view service

GeoPlace has developed an INSPIRE compliant view service to publish data from the National Street Gazetteer (NSG) as part of the Inspire Transport theme. Having previously worked on the European Address and the Buildings Thematic working groups that originally defined the themes, GeoPlace has been leading on Inspire regulations for these themes within the UK Location Programme. Both the NSG, National Land and Property Gazetteer (NLPG) and AddressBase are registered as Inspire datasets on data.gov.uk

GeoPlace's view service allows users to make a request to view data via a web-mapping service or GIS application. An image of the street network is served up allowing an overlay within the user's own data. Access to the service is via a secure login for registered NSG users only. Further developments are planned by GeoPlace to help meet the next stages of the Inspire initiatives due in mid-2012.

## OS backs 3D in Newcastle

Working with the City Council, Ordnance Survey is to demonstrate how 3D mapping can help make Newcastle one of the most sustainable cities in Europe. The partnership is aimed at showing how 3D city models can provide valuable information to enable effective solar power generation. Both organisations

are members of a European project consortium called i-SCOPE (the catchy Interoperable Smart City Services through an Open Platform for urban Ecosystems), which will run for three years and involve 11 cities across Europe. Peter ter Haar, OS director of products, comments: "The i-SCOPE project will provide Ordnance Survey with an opportunity to test and validate the value of 3D city models in a practical way. We anticipate a rich future for 3D data and this is an excellent collaborative vehicle for sharing expertise across a European consortium."

## UN joins OGC

The UN Geographic Information Working Group (UNGIWG) has joined the Open Geospatial Consortium. UNGIWG addresses topics related to geospatial information sharing and quality of location information across the UN to improve the use of GI for better decision-making, to promote standards and norms for maps and other geospatial and location information as well as providing a forum for discussing common issues and emerging technological changes. The move coincides with the launch of the Centre of Excellence for UN Spatial Data Infrastructure.

## Scotland addressed

Ordnance Survey has announced the inclusion of over 3 million Scottish addresses in the AddressBase suite of products produced through GeoPlace. Available to all commercial customers and subscribers to the Public Sector Mapping Agreement and the One Scotland Mapping Agreement, the Scottish addresses will be available via the online ordering portals from 25 May 2012. Richard Mason, GeoPlace MD, adds

'This is a major achievement from all parties involved. The Improvement Service Ltd working on behalf of Scottish Government, the 32 Scottish local authorities, Forth Valley GIS, as Scottish Gazetteer Custodian and GeoPlace have worked together to ensure this release of the Scottish address information contains the most accurate data available.'

*There is more news of companies and organisations on our website at [www.pvpubs.com](http://www.pvpubs.com)  
To get your company featured on these pages call Sharon Robson on +44 (0)1438 352617*

### AddressBase events

Gazetteer specialists Aligned Assets has announced two free of charge events to promote the Ordnance Survey's AddressBase range of data products. Titled 'AddressBase – All you need to know', the first will be held at Cardiff University on Thursday 14th June 2012, with the second at Minster Exchange in London on Wednesday 20th June 2012. Presentations will focus on how AddressBase products can be used in GIS as well as address-based systems such as CRMs, plus more generic looks at the benefits, the use of UPRNs, technical specifications, licensing and migration. More at [www.aligned-assets.co.uk/events](http://www.aligned-assets.co.uk/events)

### GIS company marks 20 years



GGP Systems is celebrating twenty years of trading. Established in 1992, following a management buyout from IT company Hoskyns, GGP was an early pioneer of desktop GIS and the National Land and Property Gazetteer, developing award-winning geospatial software specifically designed for the local government market. The company has gone on to develop solutions for the emergency services – securing a national contract with the Scottish Police Services Authority (SPSA), Fire and Rescue Services, housing and environmental service organisations.

The first version of GGP's GIS was developed by the current MD and founder Tim Maxwell (above with fellow director Prim Maxwell) while working within the Greater London Council and was developed as a PC-based GIS. "The idea of GGP was to

offer a real alternative to the expensive mainframe and Unix solutions that were common at the time," explains Maxwell. "By offering better functionality at a fraction of the price we were able to support and promote the take up of PC based GIS in councils across the UK helping them to save millions of pounds."

### CityGML 2.0

The OGC has adopted version 2.0 of the City Geography Markup Language (CityGML), a community defined information model and XML-based encoding for the representation, storage, and exchange of virtual 3D city and landscape models. Providing a standard model and mechanism for describing 3D objects' geometry, topology, semantics and appearance CityGML defines five different levels of detail. The mark-up language is highly scalable and datasets can include different urban entities therefore supporting the general trend toward modelling not only individual buildings but also whole sites, districts, cities, regions, and countries.

CityGML also allows users to share virtual 3D city and landscape models for analysis and display in applications from environmental simulations, energy demand estimations, city lifecycle management to location-based marketing. In National Spatial Data Infrastructure programmes in the Netherlands, Germany, France, Malaysia, Abu Dhabi and other countries, CityGML provides an important platform for the transition from 2D to 3D data. It also plays an important role in bridging Urban Information Models with Building Information Models (BIM) to improve interoperability among information systems used in the design, construction, ownership and operation of buildings and capital projects.

### BRIEFS

Innogistic, now part of Civica, is the focus for a new GIS offering. The move sees the integration of Innogistic into Civica GIS. Tony Hughes, managing director, public protection, Civica adds: "the launch

## Solar mapping helps reduce energy bills



**Solar mapping from Bluesky has been used by Kier Harlow to support installation of solar panels on council owned properties in Essex. Aiming to save residents money on their energy bills, provide a valuable income stream for the council and reduce carbon emissions, the scheme offered free installation for qualifying properties.**

Bluesky used the most up-to-date aerial photography, 3D computer models and specially developed algorithms to accurately calculate the energy potential of individual roofs. These helped Kier's energy solutions arm identify those properties with the greatest potential.

Bluesky uses photogrammetric techniques to accurately measure and record factors that may contribute to the suitability for solar power. The energy potential is calculated by using aerial photography combined with 3D data to determine the size, aspect and gradient of individual properties. The suitability of each roof element is then considered, taking into account roof shape and other impediments such as sky lights or dormer windows, as well as potential obstructions such as neighbouring properties or trees.

of Civica GIS provides a clear focus to build on the company's track record and to provide customers with access to an extended range of leading products and services which help organisations to maintain and improve services."

**The UK Government has handed responsibility to local highway authorities for the management of the roads classification system. While authorities had previously undertaken the majority of the work involved in reclassifying a road, they always needed to secure agreement of the Department for Transport. Now, local authorities fill in a single form, submit it to GeoPlace along with any associated documental evidence and then enter it into the**

**National Street Gazetteer. Once entered, the designation will become valid.**

1Spatial has announced the successful completion of the initial 'data discovery' phase of the Linear Asset Management (LAM) Programme for water company United Utilities (UU). The programme is concerned with implementing a new GIS across UU's business, enabling enterprise-wide access to its linear asset information.

Natural England has made its publicly available GI datasets available under the Open Government Licence. Datasets about areas of significance for the natural environment such as our protected site boundaries, habitat

# news & people

**inventories, open access land and scheme agreements are now available under a perpetual licence for commercial and non-commercial reuse. Details of datasets and the licence are available at**

<http://www.naturalengland.org.uk>

The Landmark Information Group is launching a charity partnership with international charity WaterAid. The move includes an initial donation of £22,000 from Landmark parent company DMGT. WaterAid is an NGO that helps the world's poorest people in Africa, Asia and the Pacific region to gain access to safe water and sanitation. The money donated by Landmark will be invested into a free tool - the Water Point Mapper - a mapping tool to produce maps showing the status of water supply services, in rural and urban locations throughout sub-saharan Africa and Asia where there is little internet connectivity.

**The Open Geospatial Consortium has adopted the OGC Sensor Observation Service (SOS) Interface Standard Version 2.0. Sensor systems contribute most of the geospatial data by volume used in geospatial systems. The standard provides an open, well-defined API for**

**managing measured data as well as metadata from deployed sensors.**

Intergraph has announced that specialist aquatic science consultancy APEM Ltd has selected Erdas Apollo software to manage and distribute terabytes of aerial photography and vector mapping data currently being acquired across the UK. Intergraph distributor Sterling assisted with the original selection of the software and will provide on-going support throughout the implementation process.

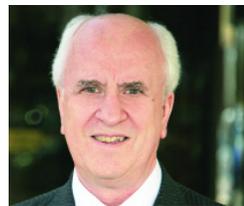
## PEOPLE

**Lovell is choice for GSDI**



Members of the Global Spatial Data Infrastructure (GSDI) Association have chosen EuroGeographics' secretary general and executive director, Dave Lovell OBE, FRGS, CGeog as president-elect. Lovell is expected to draw on his experience leading EuroGeographics' transformation to

an international association to help grow GSDI's membership and deliver tangible benefits to both members and society as a whole. He adds: "These are exciting times for the geospatial community. Thanks to greater availability and technological capability, geo-information today touches more people's lives than at any other time in history and users have a far better understanding of its benefits."



**McAusland joins GGP**

GGP Systems has appointed Stewart McAusland as account and business development manager. Stewart is an experienced GIS professional with more than 20 years experience in the UK GIS industry. He will be responsible for managing existing users of GGP's desktop GIS and gazetteer management software as well as developing new opportunities in both existing and emerging markets.

Stewart has held positions with Esri UK, Dotted Eyes and IMASS and also runs his own consultancy delivering projects on behalf of local

authorities and utility companies. "I am really excited by the opportunity to build on my experience to date developing and introducing GGP's innovative geospatial software solutions to the public sector market and beyond," he said.

**Home for Rollo at COWI**



Rollo Home has been appointed as senior market manager for the mapping division of the International consultancy firm COWI. He will be focusing on the development of the data capture services including aerial imagery, LiDAR, mobile mapping and thermal sensing, image and cloud point data processing and product sets (cartographic outputs and modelled data including 3D city modelling) in the UK and Ireland.

The appointment follows the renewal of COWI's framework contract with Ordnance Survey. Rollo has over 15 years experience in geomatics consultancy applied around the world, and sits on the AGI Council.

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I LEARNED OF THE American Recreation Coalition back in 2007. The organization's goal is to get people outdoors. Back then a variety of factors (preference, safety, working parents, homework, 6.5 hours in front of screens per day for young people and others) had conspired to keep young people indoors. Those factors are still with us and the news about young people and the outdoors continues to be disappointing in 2012.

A 2011 Nature Conservancy study of 602 US students between 13 and 18 revealed why they don't spend much time outdoors in natural areas.

- 80 percent** said it was uncomfortable to be outdoors due to things like bugs and heat
- 62 percent** said they did not have transportation to natural area
- 61 percent** said there were no natural areas near their homes

I will not deny that the outdoors can get buggy and steamy especially in the summer. I suppose young

new exercises and using GPS devices to map various features in and around a school or youth centre.

These days, as I see the proliferation of mobile devices in the hands of children and adults, I'm a bit cooler to the idea of them being "friends" of the outdoors. Maybe, I say with some sadness, these devices have returned to "enemy" status.

Why? In short, because the focus of these activities can become the interactive technology, not the outdoors. The QR code example noted above was implemented at a middle school as part of the physical education curriculum. Groups of students jog around campus and one student carries an iPad or similar device. The group stops to scan a QR code to watch a video of the gym teacher demonstrating an exercise. The students then perform that exercise. The interaction focus could be swayed to the technology, not the rocks and roots, or the exercises.

The interactive focus on the technology rather than the environment can happen with "big kids" too. I have more than one friend who is far more

## Technology: friend or foe of the outdoors? GIS and GPS technology is impinging into all sorts of outdoors leisure activities. Does it help to enhance the experience, asks **Adena Schutzberg**, or is it just getting in the way of enjoying nature?

people who spend a good deal of time in a bug-free air conditioned school, home, or YMCA would be especially sensitive to these elements. The geography problems of transportation to and proximity to natural areas is real, especially for city dwellers, but only if you tightly define natural areas. I live in one of the most densely populated cities in the United States. We do not have a huge green forested park, but we do have a bike path with bunnies and deer and trees, some lovely wooded private colleges to explore, and even some "pocket parks" with all kinds of creepy crawlies just like I had in my suburban yard when I grew up. My point is, nature is out there, if you look for it.

Back in 2007 the president of the ARC, Derrick Crandall, explained a sea change regarding technology and the outdoors. At one time, technology was thought of as an "enemy" of nature, he explained at a GIS conference. But in time it became a "friend." He cited a study that showed young people rated a "treasure hunt" activity with GPS higher than one without.

Technology as friend of the outdoors has proliferated as reported in the mainstream media. I regularly read about Boy Scouts, schools, 4H\* and other groups searching for geocaches, building and documenting nature trails, using QR codes to learn

interested in the total length and speed of a run or bike ride than where we went or what we saw. The technology can "steal" away at least some of the outdoor experience.

Maybe we need to take off or put away our watches, cell phones, iPads, iPod, GPSs, digital cameras and any other digital device meant to measure, enhance or capture a natural experience. Instead of interacting with these devices, we can interact with nature and one another. If we have a strong urge to document the journey, it's possible to do so on old fashioned pen and paper. Alternatively a visitor to nature can think back on where she went, what she saw, smelled and felt. She can guess at how far she hiked, how high she climbed and what the temperature was. She can try to describe the beautiful colour of blue on the bird that flew by. My fear is the more you interact with technology while outdoors, the less nature you truly experience.

**\*4H is a youth organization run by the US National Institute of Food and Agriculture with the mission of "engaging youth to reach their fullest potential while advancing the field of youth development".**



**Maybe we need to take off or put away our watches, cell phones, iPads, iPod, GPSs, digital cameras. . .**



# conference report: Esri UK



Above: a record number of delegates attended Esri UK's 2012 user conference at Wembley.

drive/USB memory stick and install/uninstall it so that there is no trace once the stick is removed. He also introduced ArcGIS Online, a multi-tenancy hosted platform for sharing maps and data that extends to the cloud – Wilkinson marketed this as a new business model not just a collection of new tools.

Next, **Charles Kennelly**, chief technology officer, expanded on Waite's theme of expanding the use of GIS – ArcGIS v10.1 aims to 'put mapping and geospatial analysis in the hands of more people'. Kennelly shared his own experience back in 1991 when he was advising a building company during a project in Wales to build a new road – they had to choose whether to go through an industrial area or cut through countryside. He needed a range of data at his fingertips as he wanted to impress upon the company the environmental impact of choosing the countryside but the technology to do this easily

**Help for heroes (and guinea pigs!)** Esri UK called on customers and non-customers alike to Wembley Stadium in May to "inspire or be inspired" at the company's 2012 annual conference, reports **Hayley Tear**. The new venue and one-day format was clearly a success when a grinning Richard Waite, MD of Esri UK, opened the conference with 'Hello Wembley!' to address a record number of delegates.

RICHARD WAITE EMPHASISED HOW GIS is changing rapidly and the importance of its ability to co-evolve with other enabling technologies, pulling them all together. He particularly sees 'exciting possibilities' in web maps, seeing them as a new medium that 'can be shared to just about any platform you can think of'. He also argues that consumers now expect location intelligence, pointing out that they know and use GIS but just don't call it by that name. He shared a number of examples of different customers integrating GIS in to their organisation, from Veolia Water for utilities, The Crown Estate for central government and City of York Council for local government to RBSI for insurance, The Co-op for retail and Joint Aeronautical and Geospatial Organisation (JAGO) for defence and national security. His key point: 'to succeed we must make it easier for everyone to engage with GIS'.

Cue ArcGIS v10.1 – Esri's latest technology expected to be released at the start of June. The company was keen to stress that ArcGIS is 'a complete system'. Many on-screen demonstrations showed how the platform can be applied in different ways to maximise and extend the use of GIS – Waite encouraged delegates to 'be a hero of GIS' and unlock its benefits for their whole company.

**Pete Wilkinson**, head of customer Success, briefed delegates on the new 64-bit server for better, faster performance and runtime – a new family of products for developers that can be easily deployed. Developers can use the application from a thumb

didn't exist back then. Now there is a better understanding of the process "Data – Information – Knowledge – Understanding" and how 'geography pulls everything together'.

Again, we heard how ArcGIS is 'very much a system' offering 'data in different forms' and 'the technology to interact with it in different ways'.

Kennelly summed up the cloud as 'I want to share, I can share' but acknowledged that not all companies would be able to use it, e.g for security reasons. ArcGIS is available to companies either connected or disconnected on a standalone device. The system offers online cloud components, on premises enterprise components or as a hybrid solution for organisations to tailor to their requirements.

So what's on ArcGIS Online? Content including data and services such as mapping like OS MasterMap as well as free data. Portals allow access to organisations who in turn can build catalogues that control who can access certain data and information on different Business Models such as subscriptions, licensing and credits. Kennelly also expanded on core capability enhancements in v10.1 including: support for the scripting language Python across the whole product; a focus on improved sharing and publishing of data; and support for lidar data and point clouds. Also, a new add-on option in the pipeline is the Spatial Data Server, described as a 'small footprint server' for geometries, attributes and symbols and template information for vector data stored in a database.

**Ismael Chivite**, ArcGIS server product manager



**Portals allow access to organisations who in turn can build catalogues that control who can access... on different Business Models**

...



for Esri Inc in the US, described a vision of providing powerful GIS capabilities delivered as web services that 'help real people solve real problems'. He demonstrated on screen how performance speed has been improved, explaining that the native 64-bit provides more memory and code optimisations have also boosted performance. He also argues that ArcGIS is now simpler to use but offers more capabilities, saying as an example that ArcGIS.com can be tailored to your organisation – your content, your maps etc.

After a brief break in the bustling exhibition hall, the next session "Showcasing a cloud-ready solution" demonstrated how Esri UK and Esri Ireland have worked with customers who need to deliver services to their own customers or citizens using a cloud-based infrastructure.

**Eamonn Doyle**, chief technology officer for Esri Ireland, began by telling 'a quick story about a short project'. In December last year, following his rule 'if I can't tell someone how to make something better, faster and cheaper I shouldn't open my mouth', he wanted to take a customer on to ArcGIS Online to see if it lived up to the hype. Derry City Council was the guinea pig to test his promises – they wanted to use maps as a way to communicate with community groups about activities going on in City. Doyle argued that 'web maps are the key to communicating now across the web' and summarised the project details as:

*Timeline:* Dec 2011 – January 2012

*Resources:* x1 person from Derry CC.

*Budget:* £(p)eanuts

Using ArcGIS Desktop (Basic) and ArcGIS Online (medium plan), the outcome was an online portal and a public map gallery. The issues encountered included:

1. Viewer with many layers vs. many viewers, few layers. In GIS, says Doyle, we normally over complicate – 'if you don't have at least 20 layers, you're doing something wrong, right?'. But web maps are not like that, he argues. You need to think carefully about your aim.
2. Sharing vs. Securing. The need to make sure that viewing of certain things is controlled. Following problems with public editing, the ownership editing feature was introduced to make sure that not just anyone could make changes.

Next up, **Val Hindson**, opportunity delivery manager for Esri UK, and **Mike Ray** emphasised that it is easy for customers to publish their own online GIS services.

In the next session, "ArcGIS in Action", we heard from customers how they are using the software and its capabilities.

**Iain Sterland**, senior portfolio analyst from retailer Boots, discussed how they use GIS for store location

*In the exhibition area there was plenty to interest delegates.*



planning, to make sure they are in the right place for (and of course attracting) customers. He explained that GIS helps effective decision-making as maps are better than charts at immediately providing context and allowing analysts to see and understand company performance, competitors' position etc. He concluded that GIS provides insight and 'showcases the importance of being in the right place'.

**Kendall James**, senior GIS practice lead at consultancy Critigen. He explained that the Thames Tunnel Project in London has been using GIS to manage and analyse data and visualise information. 'GIS is central to information access' for the project, saving time by providing real-time integrated access to data.

**Bruno Moser** is an urban designer at Foster and Partners, who use GIS in combination with their CAD technology for architectural projects. GIS allows them to look at environmental aspects of projects 'bringing together all elements of a site', for example when planning where to put ski slopes on a mountain side or the restaurants for skiers – GIS helps provide an understanding of the spatial conditions that is key to providing an intelligent site design.

**Will Rivers**, housing data manager for The Energy Saving Trust, explained how GIS helps the Trust with its objective to reduce emissions of CO2 and improve energy efficiency in UK homes. The challenge has been the lack of comprehensive data on housing stock. The data is fragmented and much is not representative as it concentrates on homes already insulated whereas they need to target those with energy problems. However, GIS helps solve the 'disconnect between data and delivery', filling in the gaps in the housing stock data. The Trust has gained insights from using OS MasterMap, developing a model to calculate the solar potential of every address in the UK using Esri software. However, Rivers argued that MasterMap is expensive for the private sector so they have also used OS Streetview, for example in identifying building polygons, and are happy with the 85% accuracy they are getting. Working with Esri, the Trust is creating an integrated GIS viewing portal so that data can be accessed more easily, saving time when putting together reports or delivering energy efficiency schemes.

“  
*...if I can't tell someone how to make something better, faster and cheaper I shouldn't open my mouth...*  
 ”

# conference report: Esri UK



*There was plenty of time for networking.*

After lunch, the conference split in to three tracks and I headed off to a quiet corner of Wembley's south west wing for the Geographic Business Intelligence track. The track proved popular with many delegates judging from some enthusiastic tweets, the only distraction proving to be the conference room's floor to ceiling window view of the pitch.



**Analytics turns insight into action. . .**



### Think of the money (and the chocolate!)

However, the highlight for many of us was the sight of IBM Business Analytics' **Tony Boobier** shaking a bag of chocolate coins at his audience to emphasis his points - 'Think in terms of tangibles not maps' – as he urged his audience to think as analysts not geographers. He argued that GIS has too many names – 'It's no wonder stake-holders get confused!' The industry is very inward looking and never talks about money, 'including most of the speakers I've heard today'. The future is not simply mapping but converting many different types of data in to information and then crucially, insight. A point that was made by Boots' **Iain Sterland** when he spoke on GIS improving revenue. Boobier conceded but added that he felt it was still implied rather than explicit.

He continued, 'everyone wants data now, so they know what's happening? Why? What to do about it?' Data allows business buyers to answer but 'today's world is moving so fast that hindsight is no longer acceptable'. Analytics 'turns insight into action' and location is a key component – but to get results 'don't show people the maps, show them the money!' he shouted (chocolate coins bouncing wildly in agreement). In his business, location is in every component, so it is

easy to "show managers the money". But Boobier argues that many organisations have yet 'to recognise the importance of location in decisions' and a cultural change is necessary in order to not just manage and understand data but know how to act on it – this is how analytics provides a competitive advantage. He concluded that some organisations need 'to resist the urge for perfection' – 'accept imperfection as a solution to gain faster benefits' but know the inaccuracies and factor them in. 'Look through the other end of the telescope' he urged, and think about the money!

**Karl Mullins** of Assimil8 Ltd, a business partner of Esri and IBM, professed himself a beginner in GIS but experienced in using IBM's Cognos, a business intelligence system, which he demonstrated. The consultancy considers itself to be a geospatial business intelligence company and concentrates on using the integration capabilities of Esri GIS products with Cognos to deliver insight. He believes that the combination of GIS with business intelligence helps companies to understand customers better.

Next up, **Will Thompson**, business intelligence specialist at Microsoft, began by explaining that he 'won't claim to be a geographer' but is a business intelligence expert with an academic interest in geography. He took us through industry trends like data explosion and the consumerisation of IT and made the point that growth of digital data will only continue, faster. The vision for the future is to improve organisations by providing business insights to all employees in an organisation for better, faster and more relevant decisions. He summed this up as 'right information, right time and right format'.

The conference concluded with a session on future developments. **Charles Kennelly** described the company's vision as 'all of ArcGIS being available all of the time, on all platforms' as an integrated part of your business rather than simply a dedicated one. **Pete Wilkinson** spoke on the importance of sharing and collaboration, arguing that if everyone in the room could find just one piece of data to share, 'think how we can start to benefit'.

Future direction for the company obviously includes the cloud and its use in making new ways of working possible. And there was also mention of intelligent web editing in development whereby rules are provided for a web browser to follow when, for example, editing map data, and potentially allowing users to move away from the traditional desktop editing.

**Richard Waite** closed with the promise of a faster, better and stronger ArcGIS to extend the reach of GIS and give users 'freedom' before delegates retreated to the exhibition hall for drinks and networking –perhaps relieved that Waite managed to resist the urge to say, "They think it's all over? It is. . . for another year".

• More at:

<http://www.esriuk.com/ukconference/resources/conference2012>



**Below: iconic Wembley with Captain Bobby Moore standing proud above a frieze of England's winning World Cup team of 1966.**



when you're running low on mayonnaise and, since it knew where you lived and worked (and therefore your route home, Bing could locate a shop close to your route that had a deal on mayonnaise and redirect you accordingly. Admittedly it could be considered a little creepy, but pretty impressive nonetheless.

Aside from the future of mayonnaise, Microsoft showcased some of the new features for Bing Maps, including Blockview and Streetside, showing that Bing could be a serious competitor for Google Maps. As well

## Location 2012 Futurology, mayonnaise, empowering fridges and Big Data were all on the agenda at Ordnance Survey's annual Location event, reports **Neil Waghorn**.

OUT AT THE MADEJSKI STADIUM in Reading, the Ordnance Survey (OS) hosted their Location 2012 event. Designed to showcase the importance of geographic information, the event highlights the impact that it can have on businesses through increasing efficiency and streamlining processes. Despite being hosted by OS, **James Bradshaw**, director of sales and market development, stressed that the day was 'all about location, it's all about information and it's all about data – it's not just all about maps'.

Rather than giving a blow-by-blow account of a whole day's worth of presentations, this piece will focus on my personal highlights of the day. While a lot of the presentations stayed true to its remit of showing the advantages of geospatial technologies, for me the highlights were when people started looking ahead to where the technology might lead us.

as showing off their progress, Chris gave us an overview on how they went about building a geospatial platform, with the additional heading of 'and why you don't want to!'. One of the reasons being purely financial, commenting that Google reportedly spends over two billion dollars a year on mapping!

Another issue is the political problems that go hand in hand with mapping or as Chris phrased it: 'Geopolitics are Fun'. Border issues and claims of sovereignty, e.g. Kashmir or Argentina's claims over the Falkland islands, can potentially lead to the loss of business so multiple versions might be needed to comply with individual nations' stances.

**Advertising – Big Data Style** As with everything, perspective is key. **Paul Thomas** from Experian started with this key reminder, noting that the 'Big Data' of today might just be small fry next year: it's all about perspective. From this, he proceeded to show the real power of data and how information can be utilised for businesses. He illustrated, through examples, how using data and multichannel advertising could help reach consumers. Examples included how data can be used to help know where to put stores, where to put advertising and even likely statistics of certain underground stations' customers. The ability to target customers geographically as well as demographically offers huge advantages in campaigns.

After impressing the room and showing that companies have a lot of information on consumers (worryingly his presentation was 'We know where you live!'), Paul ended on the need to ensure that 'Big data does not turn into Big Brother' The key thing is to remain 'sensitive' to customer's privacy.

A day of interesting talks aimed at introducing and highlighting the potential importance of locational information to businesses. It could have been overly technical, with the risk of switching visitors off; but the presenters successfully managed to avoid being dry. There were also several of OS's partners showing their products throughout the day and there were numerous opportunities for networking – including a little forced networking during the talk by **Ben Allan** of Dotted Eyes.



**... and even likely statistics of certain underground stations' customers.**



**Looking Forwards** Dr **Ian Pearson**, a full time Futurologist (someone who tracks and predicts technological developments), spoke about how locational positioning will allow a huge range of possibilities impacting all levels of society from medicine through to communication and appearance. In the wake of the recent unveiling of Google's Project Glass the focus has very much been on Augmented Reality (AR) and the possibility of digitally overlaying information on glasses (with Oakley and other companies planning to release AR products), but Pearson went beyond this, talking about 3d contact lenses that remove the need for cumbersome headsets. From this he explored the potential for projecting overlays on buildings that change depending on the user, digital makeup and digital bubbles that broadcast information about you to people nearby. The key thing with AR is location. Without the ability to accurately pinpoint the position of the user, the technology is wasted.

**Bing in your fridge** Talking about where technology may take us in the future, **Chris Pengleton** from Microsoft gave us an insight on how he sees the future of Bing. In short – Bing in your fridge. The idea is that Bing would know your shopping patterns and know

• Presentations from the day online at: <http://www.online-webpresentations.com/OrdnanceSurvey2012/presentations.php>

# case study: positioning



household wheelie bin and can collect around 1.5 tonnes of recyclable material, mainly paper, in a year. Plans are being made to roll out enhanced wireless connectivity throughout the network to provide additional interactive capabilities between the pods and passing mobile devices on the street.

**The need for geographic information** The pods are the result of Renew, a 21-year contract with the City of London to develop and expand the network across the Square Mile to help reduce the litter of 'free' papers. The initial 25 pods (50 screens), covering key thoroughfares such as Cannon Street, Fenchurch Street and Moorgate, will grow to around 100 pods (200 screens) during 2012.

It was recognised early in the planning phase that geography and location would play a critical role in successful delivery of the project. A number of

## Binning the news in the City

How do you cut down litter, much of it from 'free' newspapers, and reflect the City of London's vibrant financial status? The answer it seems is electronic news displays on litter bins!

CITY WORKERS AND COMMUTERS in the financial heart of London have begun to see breaking news on pavement recycling bins. The 'pods' have front and back screens that display content such as financial and corporate news, general news headlines and weather updates. From 6 am to midnight every market day, the editorial team behind the project provide a stream of transmissions about sport, fashion, travel, the arts and entertainment to the pods.

In the event of major transport disruption or a civil emergency, live updates can be posted direct across the network to maximise public awareness. Each bomb-proof pod is about the size of a typical

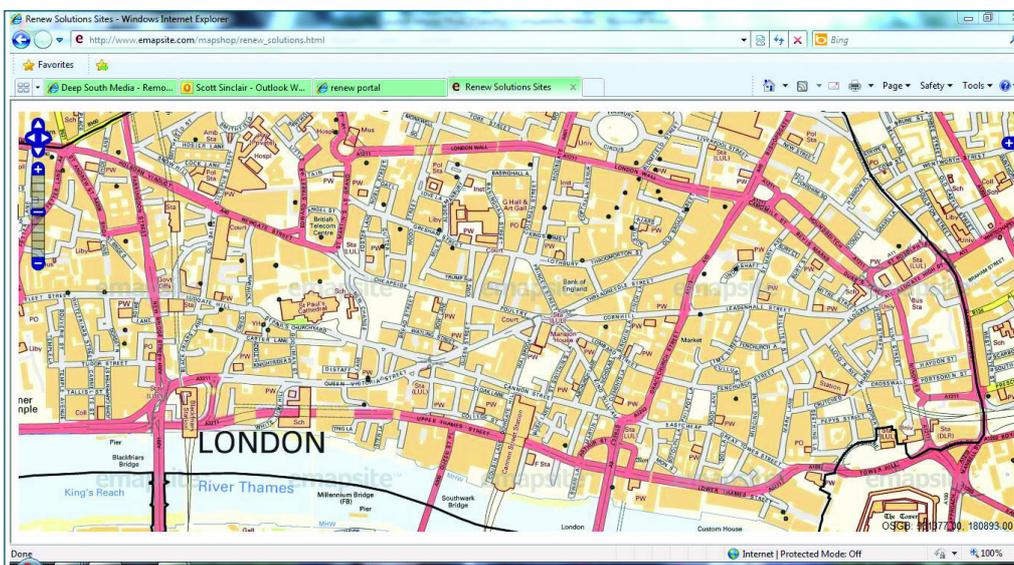
factors come into play when choosing the best locations. The Renew team needed to go through the formal planning application process with city planners and ensure there was sufficient passing footfall and message exposure to engage investors and advertising partners. There also had to be scope for providing different, relevant content from one location to another.

Renew's chief operating officer **Brian James** explains: "Renew is all about highlighting London as a vibrant financial centre with a sustainable ethos. We wanted to put that message on the street, offering relevant news content and at the same time managing the positioning of sustainable rubbish

collection. When it came to deciding where to site our pods, we knew we needed input on the technical, geo-information side so we could present our case to planners and optimise location options."

Renew turned to emapsite, as a source of online digital mapping and location intelligence solutions.

**From data provision to bespoke consultancy** As a Premier partner of Ordnance Survey, emapsite was able to license the use of OS MasterMap, which is detailed enough to show the outlines of buildings and street corners and ideal for the extensive planning process. Consultants



worked closely with Renew to develop a dedicated web portal outlining prospective sites that could easily be analysed in the context of the city confines.

The Renew team had access to up-to-date OS MasterMap direct from emapsite servers and high-resolution aerial imagery enabling easy recognition of real features. This provided a perfect complement to the detailed mapping in a single interface.

As well as providing data and designing the web portal, emapsite also provided access to its online Plans Ahead solution. This enabled the Renew team to collaborate and share access to the mapping and generate the required site location and block plans at specific scales for the multiple planning applications. Plans Ahead is a ready-made tool available on the government's Planning Portal, enabling users to search, mark-up, style and annotate a plan before producing a pdf file for their application right on the desktop.

**Data licensing** emapsite also ensured that all map data was correctly licensed for use by the Renew project's partners such as Technics Group, a geospatial survey consultancy. They provided much of the detailed site survey work for the pods, the utility services the pods could plug into and where to position feed-in pillars.

Key to the partner licensing process was emapsite's Contractor Link service, a self-service portal for contractors working on behalf of the public sector. As Renew are a partner of a public body, the City of London, their use of Ordnance Survey data in the project is governed under the Public Sector Mapping Agreement (PSMA). The PSMA subcontractor terms are integrated into Contractor Link, so enabling fast, easy access to data and licensing for Renew, Technics Group and all other contractors on the project.

**Benefits** James identified a number of benefits of using emapsite: "Their input helped us navigate a hugely complex planning process and dramatically reduced the man hours required to source the data we needed. We have also avoided spending precious time researching copyright and licensing issues around data. The Contractor Link service simplifies and speeds up the whole licensing process. In short, emapsite are a critical partner in the project."

• For more information from emapsite, visit [www.emapsite.com](http://www.emapsite.com). For Renew and a video about the 'on the go' network see [www.renewsolution.com](http://www.renewsolution.com)



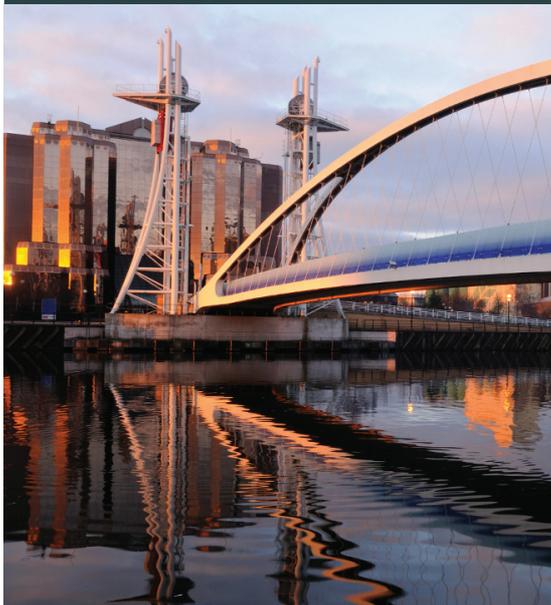
**... enabled the Renew team to ... generate the required site location and block plans at specific scales for the multiple planning applications.**



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# mapping: digital history

Converting Great Britain's basic-scale mapping to a digital form, 1962–95

A personal account by Peter Wesley



TODAY WE TAKE DIGITAL MAPS and the software which delivers them to our full colour screens completely for granted. Since Google Earth/Maps came on line in 2005 we just assume that aerial/satellite images and intelligent vector maps capable of showing points of interest, route-finding, and a myriad of map styles are available at the click of a button. Some of this data comes from national mapping agencies and this account describes, in great detail, how Great Britain created the first national digital topographic databank.

In 1962 the Ordnance Survey had an exclusively Army senior management of 24 Royal Engineer

through map and digital data sales. There had been no military Director General since 1977 and the Royal Engineers beat the final retreat in 1983.

**From map factory to digital flowline** The period covered by this extraordinarily detailed history saw a complete revolution in management, culture, recruitment and training as well as in technology and marketing. In 1962 Ordnance Survey 'did its own thing' – it was a map factory with relatively simple techniques geared to a 30 year programme of renewing the nation's mapping to an internally mandated specification. In 1995 Ordnance Survey was much more responsive to the market and had a completely digital flowline delivering nationwide detailed topographic data to several important customers who had directly influenced the content.

Peter Wesley describes all of these aspects of change in this account. He was one of the first civilian graduates to be posted to Ordnance Survey in the late 1960s when it had just set up a research and development unit for the first time in its history. He came back again in the 1980s as manager of the Research and Development Unit managing a wide

## Converting Great Britain's basic-scale mapping to a digital form, 1962-95

Over four decades Ordnance Survey moved its basic scale mapping from tentative work on large mainframe computers to networked desktop PCs. **Robin Waters** reviews this personal account by Peter Wesley, who held several posts including director of sales and marketing.

officers; priced its maps just to cover the cost of printing (recovering less than 20% of its costs); and used a (just one!) mainframe computer for survey calculations and accounting. All maps were produced by hand scribing of plastic coated films with photo-mechanical processes leading to lithographic printing on paper. The process of re-surveying or converting the old County series of large scale plans to the National Grid was far from completion. Digital mapping and geographic information systems simply did not exist. At this time there were some 4000 surveyors, cartographers and support staff working for Ordnance Survey with a headquarters in Chessington.

In 1995 the 25-year old Southampton headquarters were already too big for a completely civilian Ordnance Survey with under 2000 staff. There was a computer on every desktop and the majority of maps were either delivered digitally or printed on demand through commercial agents around the country. Lithographic printing was reserved for high volume colour mapping at medium and small scales. Ordnance Survey was no longer a straightforward government department but an Executive Agency recovering some 80% of its costs

range of projects to improve the technical processes of data capture and manipulation and to initiate suitable market research.

He was promoted to head of Topographic Surveys responsible for national field survey operations of map reconstruction and map revision. He employed external mapping contractors to spread the load and planned the design, development and deployment of digitising and plotting systems in OS field offices to capture digital revision data ready for merging with the database at Southampton. In the early 1990s Wesley was appointed Director of Sales and Marketing on the Board of Ordnance Survey with responsibility for market and customer development, sales and the thorny issues of pricing and copyright as well as managing the essential changes in corporate culture. He retired in 1996 when he started on this magnum opus – his labour of love – with the encouragement of his successor **Tony Black** and the then Director General, **David Rhind**.

The Director General of Ordnance Survey in 1962 was Major General **Dowson** who, in 1962, in the 'white heat of the [premier Harold Wilson's] technological revolution' responded to a government initiative on the potential for automated cartography with:



**In 1962 Ordnance Survey 'did its own thing' – it was a map factory with relatively simple techniques...**



*"As regards possible applications to Ordnance Survey, I think I can conceive of our putting on to tape (magnetic) the topographical information from field sheets of our basic large scale surveys at 50 inches, 25 inches and 6 inches to the mile and subsequently mechanically fair drawing the information for basic scale maps and plans, provided the machine can work to the accuracy we need and still maintain economical results compared with manual drawing.*

*If it were possible also to incorporate subsequent field revision on the tapes and thus produce new editions by much the same process, it would be a great advantage."*

The Ordnance Survey response continued:

*"We might also be able to use basic topographic data for the production of smaller-scale maps, including their revision. Though much of our work since World War Two is nearing completion, there would still be some scope for the future, especially at the 25 inch scale and the revision of both this and the 50 inch scale.*

*My own feeling is that this development may very well lead to more economical mapping and probably an acceptable accuracy but with some less elegant results. Even so, there would be a clear gain, so I recommend proceeding with the development at least to a point where its future application can be assessed."*

### Energetic leadership beats lukewarm welcome

The above was a very prescient summary of much that has been achieved since. But it was 1966 before OS set up a working party to investigate further. In 1967 the Experimental Cartography Unit was created at the Royal College of Art – and despite a lukewarm (at best) welcome from Southampton – it definitely stimulated developments in OS and in other government establishments. Early experiments at OS were energetically led by Col **Gardiner-Hill** and were sufficiently encouraging to lead to the Director General formulating a digital mapping policy in 1971 that set the scene for the pilot production project deemed necessary to prove the necessary procedures and to establish the costs and benefits. The policy also touched on how copyright might be maintained in a digital environment.

Some readers will remember that, at this time, digital mapping was a very tedious process. Digitising – by manually following of lines from an enlarged negative – was carried out blind. The result – several hours mainframe processing and several transfers of magnetic tape reels later – was a check plot for comparison with the original. Interactive editing was in its infancy with a single 12-inch monochrome display (light green line on darker green background) using 'storage technology' – no instant refresh – and costing several times more than today's high end PCs! Plotters were slow and invariably line drawing – with pens or light beams. Raster scanners, screens, and plotters were far too

crude and expensive for any cartographic use and did not make any real impact until the late 1980s.

The Janes' Committee recommendations, published in 1973, heralded the change from a production to a market-led operation and removed the obligation to produce paper printed maps if the market preferred other options. Wesley describes the trials and tribulations of setting up the 'pilot' project which had to overcome problems with new technology, previously unnoticed spikes in the electricity supply and the antipathy at all levels of the Ordnance Survey establishment.



**Above: 1:1250 mapping from the 1980s.**

**National interest needed** Here and elsewhere Wesley mentions several individuals who made outstanding contributions to the digitising programme. It is at this stage that first interest was shown by potential customers for the direct use of digital data. All developments so far had been seen in the context of in-house production processes – speeding them up or improving the output of conventional mapping. However the pilot showed persistently greater costs – almost by a factor of 2 – as compared to conventional production and it was apparently in the mid '70s that other customers or 'the national interest' would be needed to justify a full nationwide digitising programme.

Your reviewer joined OS Development Branch in 1977 at which time Wesley notes that:

*'real complacency overtook the pilot project and it simply became a routine aspect of Ordnance Survey's task. The 'stalemate' in any real financial or technical justification simply left the project in limbo, neither accelerating in a revitalised mode nor stifled out of existence.'*

One hopes that these were not cause and effect! The 'restructuring project' is well covered – this was way ahead of its time in trying to create structured data (similar in concept to OS MasterMap) using existing crude digitised data and an ICL 1906 mainframe computer. Wesley fairly notes that this project probably had its most significant impact on customer relations – it forced both Ordnance Survey and its potential digital customers to think very critically about the requirements for the content and structure of digital data and showed that further developments would have to await much more coverage of digital data and improvements to the software and performance of the systems.

The Serpell Committee report produced in 1979 suggested three options for the way forward: suspend



**Interactive editing was in its infancy with a single 12-inch monochrome display...**



# mapping: digital history



**Above: MasterMap 2012. Note the area of interest!**

the programme until user needs were better established; embark on a major programme immediately in anticipation of user demand; or take a two-stage approach by continuing the 'pilot' while investigating improvements and then expanding to complete the programme.

In fact the 'pilot' programme continued, effectively, until 1984 (over twelve years) when ministers finally responded to Serpell and to the House of Lords Select Committee that recommended a ten-year programme with contracting out of much of the digitising required. However, OS did not think this feasible – they considered 15 years as the fastest possible programme – even with private sector contractors. The government did 'urge' all public sector bodies to cooperate with OS rather than to do it themselves. Many of these public bodies were of course privatised within the following five years!

So, in the mid 1980s, with Mrs Thatcher's government in full privatisation mode, with increasing pressure on the Ordnance Survey support from the Treasury, and in the teeth of opposition from the cartographer's union, the first digitising contracts were let to the private sector.

**No specification?** According to Wesley it was also found that "no formal and comprehensive specification for the digitising task itself had ever been produced"! The first contracts raised many issues which required revisiting the scheduling, costing, specifications and quality control at each of the contractors (all of which were small businesses) and significantly at Ordnance Survey itself. The load placed on the system in Southampton required a new Mapping Contract Services Branch and the redirection of much in house effort from initial digitising to quality control. Pressure from the major utility companies led to a simplified specification (mainly a reduction of feature codes) and to a revised quality assurance procedure that leaned more towards normal industrial practice than towards the '100%' checking supposedly practiced by cartographers.

By the end of the 1980s there were a group of 13 companies that could be relied upon to deliver digital maps at an acceptable quality and, by ensuring that there was constant competition for relatively small batches, the prices were kept well under control. The utilities, which cooperated and interfaced with Ordnance Survey through the National Joint Utilities Group (NJUG), also initiated 'third party' digitising by letting digitising contracts themselves using OS provided originals and with the maps being accepted, after checking, for the national databank. This brought increased resources to bear on the task with suitable financial arrangements between OS and the utilities concerned.

The final burst of digitising contracts in the mid 1990s were much more efficient than anyone anticipated. Increasing experience, an economic recession, lower density rural maps and an innovative 'digitise now and pay later' initiative from a group of the contractors led to final completion in 1995. This was 5-10 years earlier than predictions made in the mid 80s and actually what the various review committees had 'unrealistically' demanded!

**Opportunities missed?** Various critics have written about Ordnance Survey and its digital mapping programme and perhaps the opportunities that may have been missed or delayed. This history shows how, and in many cases why, decisions were made against the very complex political, economic and sociological environment in which OS operated. In fact this is much more than the story of digital mapping; it is a very comprehensive, if somewhat confusing and repetitive narrative description of organisational change in a national institution. It will be read with great interest and even nostalgia by many of those involved. It documents the technology and the organisation of a programme lasting 30 years and costing over one hundred million pounds. It lays bare many flaws that bedevilled the programme at least until the early 90s – at one stage requiring complete revalidation of all digitising to date with only a 3% pass rate!

Most importantly for those interested in 'lessons learned' Chapters 20 and 21 cover pricing and copyright respectively. These are timeless issues with which Ordnance Survey, and other public sector data providers, have wrestled continuously since (and arguably long before) the advent of digital data. And we are still struggling with these issues – who pays, how much, and what rights does a user have? The reader will not find any simple answers here – or anywhere else – but there is merit in looking at how Ordnance Survey handled the issues in the context of changing government policies and user expectations.

The one addition to this history – that would also have saved some repetitive text – should be a 'timeline' showing, in parallel, the different events, reviews and decision points against the progress with the digitising task itself. Your reviewer was involved at Ordnance Survey and at one of the major software suppliers and digitising contractors for much of the period covered and it is a tribute to the author that the narrative corresponds to the reviewer's memory wherever they overlap! Wesley pulls no punches but hindsight in this case is very close to 20/20.

• **The author stresses that this work is a personal account and not an official Ordnance Survey history. Nevertheless it is understood that the document will be available from the National Archives. In the meantime, to read the full report please email the editor, editor@pvpubs.demon.co.uk**



**...decisions were made against the very complex political, economic and sociological environment in which OS operated.**





Rockies is extreme with summer highs of 25°C to lows of -35°C. Combine these temperatures with large amounts of snowfall, and the impact to the town's infrastructure, such as road surfaces, is immense.

To assist with locating and repairing spring-time potholes, Banff's GIS department has implemented a mobile reporting tool that works on the public's mobile devices. 'We specifically chose to go with a product created with HTML5 so that it would work on any mobile device – phone, tablet, most desktop browsers', explains **Steve Nelson**, Banff's Geographic Information System Coordinator. The tool is platform independent and allows visitors and citizens to report the location of a pothole directly to the town's Operations department by 'tapping a map' and allowing users to include a photo or even video of the pothole.

Each reported location is forwarded and tracked inside the town's GIS system to show the public when the repair is scheduled and when it has been repaired. The system also allows Town staff to indicate those potholes that are not scheduled for repair due to planned road resurfacing in that location.

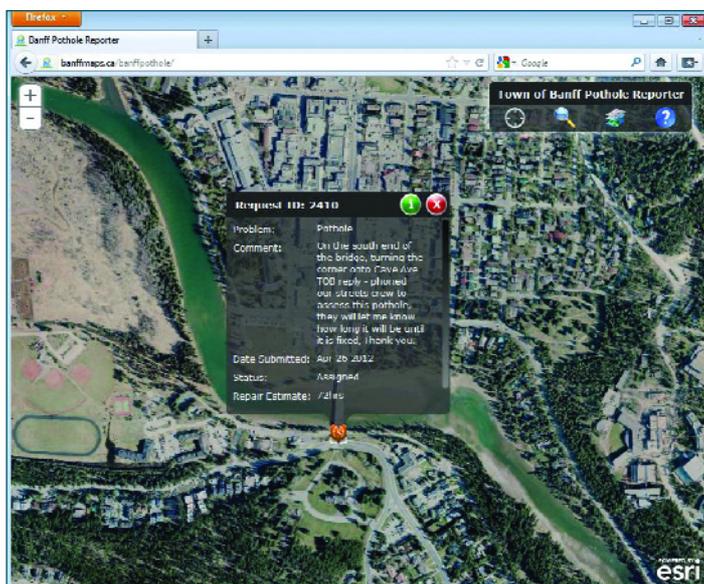
The GIS department uses Esri's ArcServer with

## Public mobile solution is 'huge win' for GIS

Migrating data capture of local infrastructure issues to citizens is a logical move that can combine crowd sourcing with cloud hosting. For cash-strapped local authorities it can bring quick benefits and a win-win result with citizens.

**The Pothole Reporter provides an easy-to-use interface.**

THE TOWN OF BANFF, Alberta is located inside Canada's first ever National Park on the edge of the Rocky Mountains. The town has a resident population of approx. 8500 and can increase to 30,000 during the busy summer and tourist season. Weather in the



SDE to manage the back-end data within a file geodatabase and has deployed a modified version of Esri's freely available Citizen Service Request mobile template. The mobile service and the SDE geodatabase are all hosted on Amazon's Elastic Cloud Computing (EC2) web service.' The modifications to the existing mobile template only took a few days, and the tool was ready for testing and then deployment within a couple weeks!' explains Steve Nelson.

'By offering an easily modifiable GIS based mobile solution to the Town of Banff's residents and visitors, we're able to cost-effectively capitalize on and promote crowd sourcing potential for the town' adds Steve.

In the future, Banff plans to expand the service to include the ability to report on graffiti, street lighting issues, deteriorating infrastructure, etc. 'Being able to provide affordable, agile, 24-hours-a-day access to these kinds of services to members of the public is a huge win for GIS in Banff' concludes Steve.

• **Steve Nelson, GISP Geographic Information System Coordinator, Corporate Services, Town of Banff, Banff Town Hall, 110 Bear Street Box 1260, Banff, Alberta, Canada T1L 1A1 phone: 403.762.1112 fax: 403.762.1260 e:steve.nelson@banff.ca**

## “Career development never stands still”

*GiSPro* highlights the range of further education and training opportunities available for GIS professionals in the UK.

WHEN SPEAKING to GIS professionals, attending industry events or simply browsing opinion on LinkedIn, one topic that is continuously raised is the importance of spreading the word about GIS. Only at the recent Esri UK User Conference in May (report begins on page 10), Esri UK MD **Richard Waite** argued that consumers know and use GIS but simply don't know it by that name.

Our industry is developing at a rapid pace but the importance of focusing on education, and not just for attracting the next generation, can not be understated. Of equal importance, is continuing

training and further developing your skills. The AGI's website sums this up well – “career development never stands still”. So *GIS Professional* sent out a call to universities and organisations who provide GIS courses, offering them the chance to highlight the range of education and further training opportunities available. The below “GIS Training Directory” includes the responses we received and highlights the varied ways of continuing your professional development. From introductory workshops, online training and Masters level courses, we hope this helps you to decide on your next step in GIS education!

## GIS TRAINING DIRECTORY

### Association for Geographic Information (AGI)

The AGI operates a free Continuing Professional Development (CPD) recording and certification scheme and offers AGI course accreditation to companies and institutions running GI/GIS training and education. CPD is defined as the systematic maintenance, improvement and broadening of knowledge and skill, and the development of personal qualities necessary for the execution of professional and technical duties throughout one's working life.

#### Course Details:

The CPD scheme is available for all AGI members, whether they are maintaining Chartered Geographer status or not necessarily seeking Chartered Geographer status, but would like to have an annual official record and AGI certificate of their professional development. The scheme is designed to mesh well with the CPD requirements for gaining and maintaining Chartered Geographer (CGeog) status from the RGS. AGI members will be able to use their annual AGI CPD certificates to enhance their CGeog application. On the other hand, members can use this certification for evidence of professional development at their place of work.

**Contact:** For further information, email [cpd@agi.org.uk](mailto:cpd@agi.org.uk)

### Bath Spa University

Geographic information technology is changing the ways we share information and conduct business. In every type of organisation and in every part of our lives, Geotechnology helps people to do a better job and make a difference. Today, it is a multibillion-dollar industry employing hundreds of thousands of people worldwide.

#### Course Details:

The BSc degree in Applied Geographical Sciences will enable you to gain the knowledge and skills expected by employers in the geosciences sector. It will provide you with the practical training and the vocational and problem-based learning to give you the best chance of securing a good career.

The course is grounded in geographical concepts, principles and data, and enables you to personalise your degree to specialise in areas like: international development, public health nutrition, environmental sustainability or hazards, criminology, coastal and river management and business and management. Throughout the course there are opportunities to demonstrate your skills and knowledge in real-world situations; on work placements, volunteering experiences, and during residential fieldwork.

You will be trained in small groups to use Leica Smart Rover and Laser Scanner technologies, besides more conventional tachymetric survey equipment. The latest version of ArcGIS provides the medium of analysis and visualisation, in maps, graphs and images. This degree provides a supportive environment, specialist staff and opportunities to gain real-world, professional skills.

**Contact:** [www.ssmbathspa.com](http://www.ssmbathspa.com) or book to attend an open day at [www.bathspa.ac.uk](http://www.bathspa.ac.uk).

### Cadcorp – Training in SIS Product Suite

Cadcorp is a UK based developer and supplier of Spatial Information System® software (SIS) – a suite of desktop, developer, and web based GIS and mapping products. Cadcorp provides training in all SIS products and for all levels of ability. Our students range from casual and novice users, through to advanced users, administrators and developers. We run training courses at Cadcorp HQ in Stevenage, at customer premises, and at neutral venues. We can deliver generic as well as bespoke courses, depending on customer requirements. We are happy to discuss and advise on the options available for customised training, and can undertake a formal training needs analysis if requested.

All standard Cadcorp training courses are accredited by the Association for Geographic Information (AGI) and can contribute to the award of Chartered Geographer status.

#### Course Details:

- An Introduction to Working with Cadcorp SIS 7.1  
10-11 July 2012 – designed for people new to Cadcorp SIS.
- Upgrading to Cadcorp SIS 7.1  
12 July 2012 – designed as a fast track for existing users of Cadcorp SIS who want to upgrade to SIS 7.1
- An Introduction to Working with GisLink  
– Extending Cadcorp SIS 7.1 Desktop using VB.NET,  
13 September 2012 – provides the ability to build your own GIS tools & applications by customising our desktop products.

**Contact:** [cadcorp@cadcorp.com](mailto:cadcorp@cadcorp.com) or [www.cadcorp.com](http://www.cadcorp.com)

### CDR Group

CDR Group offers training at many different levels of GIS. As a Pitney Bowes Software Premier Partner, we are able to provide thorough training on MapInfo products, from our Foundation course, through the Advanced level to the MapBasic essentials course for more experienced users. We also offer training on Data Capture and for those interested in grids and the third dimension there is Vertical Mapper. We even provide a workshop on Open Source software and code and its impacts on GIS. All our courses are delivered by qualified IT trainers and product specialists and are “Hands On” and include training materials. All these courses are available at our Peak District office or at customer premises. Or why not look at our un-scripted, one-to-one training service to help with specific projects, problem areas or “refresher days”!

#### Course Details:

- MapInfo Foundation Level – 17/07/2012 / 14/08/2012
- MapInfo Advanced Level – 04/09/2012 / 06/11/2012
- MapInfo MapBasic Essentials – 10/07/2012 / 16/10/2012

**Contact:** 01433 621282 or [www.cdrgroup.co.uk](http://www.cdrgroup.co.uk).



**Esri UK – Developing GIS Skills**

Esri UK Training helps you develop the best possible route to acquiring GIS knowledge and skills to benefit you and your organisation. Training courses will help consolidate and enhance your current use of GIS and demonstrate new capabilities and efficient ways of utilising your mapping and geographic information. Trainers are Esri Certified and experts in their field, so you can have total confidence in their ability to deliver the most up to date GIS skills and knowledge.

**Scheduled GIS Training:** Instructor-led traditional classroom courses at training facilities throughout the UK, combining modern training facilities, small class sizes and one student per computer.

**Virtual Training:** Delivered in real time over the internet and allows you to take a training course from your own desktop, saving budget whilst still getting hands-on, instructor-led training.

**On-site GIS Training:** A cost-effective training delivery method designed for the needs of your team.

**One2one Training:** Trainers are skilled in the development and delivery of bespoke ArcGIS courses to meet your requirements. These are designed in consultation with the client.

**Course Details:**

- New – Migrating to ArcGIS 10.1 for Server
- New – Esri Technical Certification: Skills Review for ArcGIS Desktop Associate
- New – Esri Technical Certification: Skills Review for Desktop Professional
- Data Management Courses
- ArcGIS for Desktop part one and two
- ArcGIS for Server Courses

**Contact:** [training@esriuk.com](mailto:training@esriuk.com) / [www.esriuk.com/training](http://www.esriuk.com/training)

**exeGesIS – GIS & training consultancy**

Who is the biggest GIS and training consultancy you've never heard of? We have: 17 years of GIS consulting, training and development; 2,000 people GIS trained in the last 10 years; 95% 'excellent' feedback rating; comprehensive training packages; free follow up support; low cost; MapInfo & ESRI partners; Microsoft Certified; public, private and charitable sectors.

We are exeGesIS SDM Ltd, a well-respected software development and environmental consultancy specialising in Geographic Information since 1994. Our trainees say:

- "Very stimulating. Probably the best training I've ever received", Gwent Wildlife Trust
- "Well run, well presented, thoroughly enjoyed and learnt a lot", Ordnance Survey
- "Very good, nice small group, very approachable teacher", PFA Consulting

We offer low cost, small group training of the highest quality for all levels of MapInfo, ESRI and open source GIS users. Courses can be run from our training suite or client offices anywhere in the UK. Standard courses include free follow-up support and cost from just £135 per person per day – including lunch.

**Course Details:**

- MapInfo Foundation Training  
21st & 22nd June / 10th & 11th July / 7th & 8th August / 18th & 19th September
- MapInfo Intermediate Training  
12th July / 9th August / 20th September
- Mapbasic Foundation Course – 14th August
- ESRI ArcGIS Foundation Training  
26 & 27 June / 15 & 16 August / 5 & 6 September
- ESRI ArcGIS Intermediate Training  
17 & 18 July / 29 & 30 August / 13 & 14 September

**Contact:** [www.esdm.co.uk](http://www.esdm.co.uk) or call Carol Bateman on (01874) 711145 to discuss your requirements.

**GIS247 – Online GIS training**

GIS247 is a comprehensive eLearning solution for ArcGIS and MapInfo Professional users which is completely flexible and affordable. It is a single portal of on-line learning modules, course exercises, video and training materials that can be accessed 24 hours a day, seven days a week. It is suitable for all users from beginners right up to the experienced professional.

We offer a range of flexible licence options that can cater for an individual, a set number of users or even hundreds of users through an Ultimate licence that has no limit on user number. A licence is for 12 or 24 months.

Our accredited GIS training courses provide an e-learning solution tailored to suit users at all levels of technical ability. Users learn to use mapping software at their own pace, supported by our specialist training team. Once subscribed, users have access to all training materials. There are no limits to the number of times licenced users can access GIS247, or any of its resources, including new materials added during a licence period. Users can submit training assessments and repeat training material.

**Course Details:**

- ArcGIS courses for all versions – available anytime, on demand
- MapInfo courses for all versions – available anytime, on demand

**Contact:** [www.GIS247.com](http://www.GIS247.com) for information and a free trial.

**Kingston University**

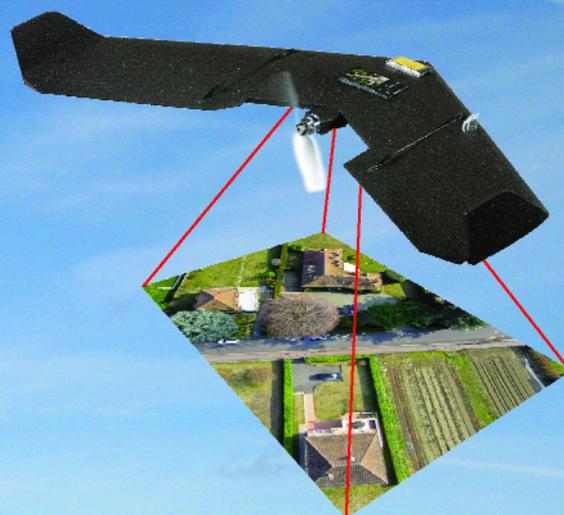
In 1989 Kingston became the world's first university to offer an undergraduate degree in Geographic Information Systems (GIS). Since then we have continued to develop expertise in GIS teaching and research. We have been described as a "world leader in GIS



Kingston  
University  
London

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Tel: (01874) 711145

Email: [xginfo@esdm.co.uk](mailto:xginfo@esdm.co.uk)

education" by the Times Higher Education Supplement as a result of our successful graduation of over 600 students from our cutting-edge courses. As one of the fastest growing branches of geoscience, the demand for GIS skills is increasing and Kingston University's undergraduate and postgraduate courses continue to evolve to ensure students remain as employable as possible.

### Course Details:

In addition to our BSc undergraduate course, we also offer an MSc in Applied GIS (on-site) and an MSc in Geographic Information Systems and Science (distance learning). The AGIS course comprises five core modules in GIS with a further three available as options and an emphasis on the application of GIS. Option modules encourage you to develop themes of geographical and environmental interest to sit alongside your core GIS course. The MSc GISS course is targeted more towards those who prefer a full GIS programme but with options to specialise in areas of the discipline that are of particular interest.

**Contact:** <http://www.kingston.ac.uk/>

### Newcastle University

The Geomatics group (School of Civil Engineering, Newcastle University) offer continuing professional development (CPD) courses in GIS. Using state of the art computing and GIS software we offer two-day courses on "Introduction to GIS" and "Intermediate GIS" that introduce the concepts and skills involved in using and applying modern GIS systems. We offer a two-day course on "Network Analysis using GIS" that introduces the use of GIS to build, manage and analyse infrastructure and transport networks. We provide one-day courses on "Spatial Analysis" and "Mobile GIS" which cover the use of GIS software for more advance analysis of geospatial data and the emerging role of real-time GIS location based services to improve organisations work flow and efficiency. Our CPD material is delivered by a series of inter-related lectures and practical exercises that allow attendees to gain confidence in using GIS for geospatial data management, analysis and presentation. Practical exercises are based around real-world problem solving, using examples from the fields such as urban planning, civil engineering, environmental science and transport operations management.

### Course Details:

- Introduction to GIS  
10-11 September / 7-8 January 2013 / 10-11 June 2013
- Intermediate GIS  
12 - 13 September / 9 - 10 January 2013 / 12 - 13 June 2013
- Spatial Analysis – 11 January 2013 / 14 June 2013
- Introduction to GIS using Open Source  
29 - 30 October 2012 / 13 - 14 May 2013
- Mobile GIS – TBC September 2012

**Contact:** [www.ncl.ac.uk/cegs.cpd/cpd/giscourses.php](http://www.ncl.ac.uk/cegs.cpd/cpd/giscourses.php)  
[www.ncl.ac.uk/cegs.cpd/cpd/introgis.php](http://www.ncl.ac.uk/cegs.cpd/cpd/introgis.php)  
[www.ncl.ac.uk/cegs.cpd/cpd/mobilegis.php](http://www.ncl.ac.uk/cegs.cpd/cpd/mobilegis.php)

### The GeoData Institute

GeoData Institute at the University of Southampton is a provider of GIS and spatial data analysis, Continuing Professional Development and applied research services. Our trainers and researchers offer scheduled courses and bespoke training to help build your GIS, geospatial and data understanding and skills. These courses are built on our higher education/ Master's level University training experience, international capacity development activities in Africa and Asia. As a practically-focused research organisation we have access to a range of disciplinary expertise, spatial statistics, natural and socio-economic environment skills that can help develop bespoke courses to meet your needs.

### Course Details:

We offer introductory, intermediate and advanced courses in industry standard GIS packages. We have introduced new courses in Open Source GIS (Quantum QGIS) and in VB.Net /ArcObjects. Popular thematic courses are offered in Marine and Coastal GIS and Demystifying Map projections. Most of our training courses are validated by the Association for Geographical Information and delegates attending these courses receive points towards the AGI continuing professional development (CPD) scheme.

**Contact:** 023 80592719 or  
[www.geodata.soton.ac.uk/geodataweb/technologies/training/](http://www.geodata.soton.ac.uk/geodataweb/technologies/training/)

### Snowflake Software – Get up to speed with GML

Learn GML with Europe's only GML training provider. Geography Markup Language (GML) enables the interoperable exchange of geographic data. If you are a GIS professional, software engineer, data modeller or manager working with geographic data then you need to understand GML and with EU INSPIRE Directive deadlines looming, GML is becoming more important than ever.

Snowflake Software provides AGI accredited training courses in GML. Start with the basics or learn advanced techniques with hands-on training and gain CPD points at the same time. Want to start today? Snowflake's GML Fundamentals course is also available via their online training portal as elearning. Study at your own pace with interactive slides, quizzes and assessments. Available online from £250.

### Course Details:

- *GML Fundamentals (one day)*  
Discover: Core OGC Standards; Core ISO TC211 Standards; The GML Standard; Building GML Application Schema; Profiles; GML in OGC-web services; and Examples of Adopted GML Application Schema.
- *Hands-On GML (two days)*  
Need something more advanced? This hands-on course takes you through: GML Resources & GML Schemas; Model Driven Architecture and UML; Geometry; Extending Existing Schemas; Tagged Values, Complex Properties; Feature Relationships, Measures; Web Feature Service; GML Simple Features Profile.

**Contact:** [www.snowflakesoftware.com/training/](http://www.snowflakesoftware.com/training/)

### UNIGIS UK

UNIGIS is a network of universities co-operating in the design and delivery of part-time distance-learning in GIS. The UNIGIS programme was founded in 1990 and currently includes sites in ten countries. UNIGIS UK is a partnership between the Division of Geography & Environmental Management at Manchester Metropolitan University and the Department of Environment and Life Sciences at Salford University. Our programmes support the personal development, career advancement/ change ambitions of students typically already in employment.

### Course Details:

The Postgraduate Certificate, Postgraduate Diploma and MSc courses in GIS are presented to professional standards. Designed to meet the needs of industry and commerce, they will provide an understanding of the technical, geographical and organisational aspects of GIS, plus hands-on experience. We provide a theoretical and practical background in the design and implementation of GIS projects. Our courses satisfy career development needs and are ideal for in service training.

**Contact:** [UNIGIS@mmu.ac.uk](mailto:UNIGIS@mmu.ac.uk) or [www.unigis.org](http://www.unigis.org)





Above: Korec's CEO Alan Brown began proceedings with an amusing dilemma. Above right: David Philp in full swing on the wonders that BIM will bring.



FROM UTILITY COMPANIES to local authorities location-based information systems are essential in delivering cost-effective services to cash-strapped customers. It was therefore informative to catch up with the latest technologies for our sector at a recent Korec Technology Day held at the Institution of Civil Engineers (ICE) in Westminster. Korec is Trimble's dealer for the UK and Ireland and there was much to see.

**Beckerson**, presented Trimble's 4D software for monitoring. The extra dimension is of course time; monitoring is all about measurements over time to predict movement and if possible prevent it.

**Lee Braybrooke**, Trimble's GIS specialist for the UK, spoke on "Asset Management: maximising value", citing billionaire **Warren Buffet**: 'Price is what you pay. Value is what you get'. The lesson of course is that price does not equal value. Braybrooke stressed economy, efficiency and effectiveness in gaining the maximum benefit with the resources available.

Assets have conditional information. 'Mispositioned data can invalidate a GIS dataset and all analysis based on it', observes Braybrooke. In simple terms this means getting it right so you can easily return to it or find it if buried. He gave some case studies.

Heathrow can be a source of eye-watering asset statistics. But Braybrooke gave a new one for this writer. There are over 40,000 manholes and utility access points on the site. More than most medium size

## Technology all day at the ICE

Asset management is at the core of what GIS is about. But you cannot manage your assets unless you know precisely where they are, what they are and in what condition they're in. *GISPro* reports from Korec's Technology Day.

Korec CEO **Alan Brown** opened the day with a cartoon that perhaps demonstrates the frustration as well as the enthusiasm of the company's sales team. A medieval knight is heading out to battle fully kitted up, while a salesman loaded with missiles and machine guns is dismissed with 'I've no time to see you. I have a battle to fight!' The conclusion says Brown is Darwinian: "the one most responsive to change is the one that survives".

The rest of the day was taken up with a mixture of presentations from company personnel and invited speakers. **David Philp** of the Cabinet Office (on his second of six BIM talks that week) and **Paul Shilcock** of Transport for London, both spoke on BIM. Philp is an extremely lively rapid fire speaker with a stream of quotes and slides ('a metaphor for change'), while Shilcock ('I want one!') is less frenetic.

A calmer note was Trimble's **Anthony Mills**, who introduced the latest technology and noted the company's latest acquisition, Google SketchUp. With the arrival of robust tablet PCs, full calculations are possible in the field. Trimble has also introduced software development kits (SDK) so third-party apps can be developed. One already available helps utilities trace cables and pipes based on signal strength.

**Tor Erik Djupos** (known to all as Ted) introduced Trimble's latest photogrammetric solution: a total station with integrated metric camera. With images that can be geotagged, these instruments account for over 50% of total station sales by the company. Meanwhile Ted's colleague, **Andy**

towns I would guess. Operators BAA have been using Trimble's GeoXT GNSS-enabled data collectors equipped with FastMap software (originally a Korec development) to keep track of all these manholes. The Service Protection Team can now go into the field with detailed CAD plans and quickly locate assets.

Another example is the Rural Protection Agency, which amongst other things is responsible for tracking agricultural subsidy payments from the EU. The RPA needed to increase accuracy and decrease the time taken to capture data, data which had hitherto been captured with land wheels, paper forms and re-keying. The answer was 194 rugged Juno tablet field PCs with GNSS and loaded with bespoke software. 'This can halve or more the cost of data collection' says Braybrooke.

Dr Waldemar Krebs of Trimble Geospatial emphasises that 'our goal is automation'. To help in achieving this Trimble has acquired eCognition and inpho; the former is object-based image analysis software and the latter a photogrammetry solution. He argues that using an integrated mobile system – optical, LiDAR, GNSS plus INS (inertial navigation sensor) – highway data can be captured very quickly. But the tricky bit is image recognition and feature extraction. The processing chain can include raster, vector and point cloud data as inputs.

eCognition can be used to detect cadastral change. Dr Krebs believes his native Germany should be using it to update their cadasters, which are up to six years out of date and therefore of little use for planning. Using inpho software, the savings, says Krebs, can be six times.

Plenty of interest in the Aibot X6 from Aibotix. This is an AUV that can hover and carry a sensor payload up to 2.5 kgs.

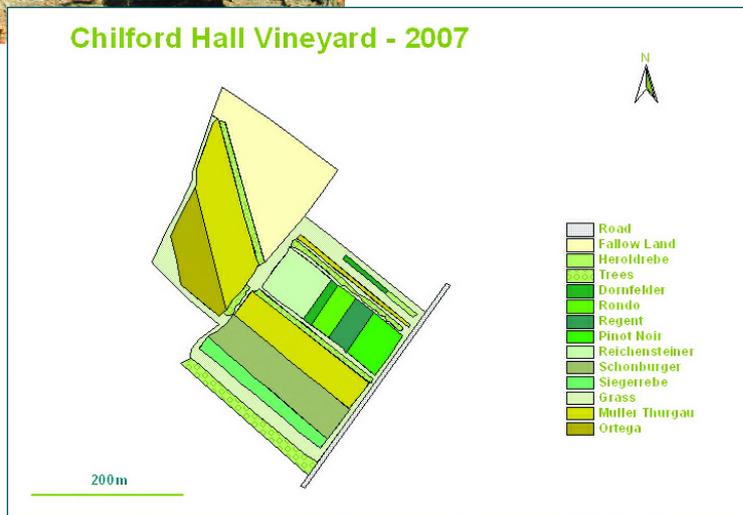


# GIS apps: viticulture



Left: Figure 1 - Mechanised Grape Picking (Harvest Pro Mechanical courtesy of Greg Kovacevich, Vineyard Ops. Inc., USA).

Below: Figure 2 - GIS-based map of a vineyard.



**Precision Viticulture (PV)** PV is the use of geospatial technologies to study and exploit the geographical and temporal variability in the vineyard, providing a more objective basis for many management practices. PV is most often associated with vineyards in the USA, Australia, and Canada but in recent years it has been used in Spain, Slovenia, New Zealand, and even the UK.

A number of different spatial technologies and applications fall under the heading of PV.

**GNSS, GPS and GIS** Global Navigation Satellite Systems (GNSS – increasingly the successor to standalone GPS) in the driver's cab are used to help navigate machinery around the vineyard. GNSS-enabled equipment is also used to position the trellis posts supporting the vines, and to provide centimetre accuracy in the positioning and spacing of the plants and rows. In addition, GNSS guided equipment can help deliver doses of fertiliser, pesticides, and herbicides exactly where they are needed in the vineyard as well as helping to prune vines and pick grapes (Figure 1).

GPS-based mobile mapping units running geographical information systems (GIS) enable vineyard managers to undertake detailed mapping of a vineyard. An accurate, detailed and professional map for display at the vineyard, in brochures, and on the website is very important in an increasingly professional industry. The GIS provides a toolbox to input, manage and visualise both map and image data and an efficient way to manage vineyard databases and information. Google Earth (GE) can

## Grape Expectations - digital data in the vineyard

GIS guided by satellite navigation, explains **David R. Green**, is helping vineyard owners develop better wines and manage their terroir more efficiently.



**Satellite imagery is used to acquire information about the vines**

...



WINE IS A VERY POPULAR ALCOHOLIC beverage all around the world. Vineyards and wineries are tourist attractions with tours, wine festivals, and wine tastings becoming regular features on many calendars. Consumers are also far more aware and better educated about the many different wines from different countries, their origin and quality, the many different grape varieties, the vineyard environment (the "terroir" as our neighbours across the channel would say), the process of wine production, and the taste of the wine in the bottle.

But how many of us are aware that vineyard managers are increasingly using digital data and mobile geospatial technologies to assist in managing the vineyard, helping to grow better grapes and to produce better quality wines?

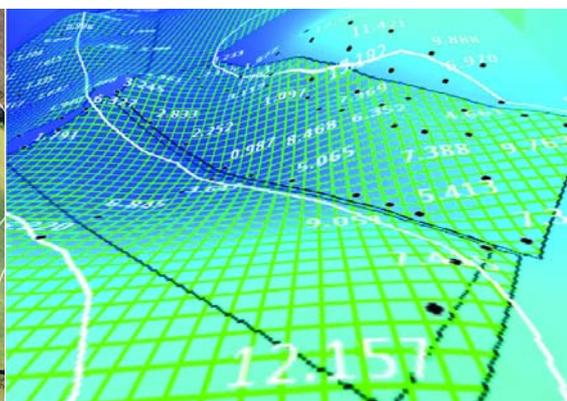
also be used to create a simple GIS. (Figure 2).

**Imagery** Colour and colour infrared aerial photography and satellite imagery have both been widely used with digital image processing software to yield up-to-date vineyard information on soils, soil moisture and grapevine condition including biomass and yield. Satellite imagery is used to acquire information about the vines from 'normalised vegetation difference indices' and airborne LIDAR can provide detailed digital terrain models and digital surface models of a vineyard site.

Acquisition of low-cost photographic and digital imagery is now also possible with miniature and larger UAVs (unmanned aerial vehicles) fixed-wing and helicopters (Figure 3).



Left and below: Fig 3 - Model Airborne Platforms to fly Airborne Video Imagery of a vineyard.



Left: Fig 5 - Draping a Soil Moisture Map over a Digital Terrain Model (DTM)

**Ground-based environmental data** PV can also involve the acquisition of ground-based data including information about the vineyard microclimate (minimum and maximum temperatures, light intensity, wind speed, and relative humidity), helping to optimise grape crop management during the growing season. Low-cost micro-meteorological sensors can be operated in an automated mode, providing wireless data collection from multiple locations in the vineyard. With their exact locations known, these measurements become useful to monitor the variability of different aspects of the vineyard microclimate. They can be correlated with slope, aspect and topography of the site to study soil moisture and drainage patterns, cold air drainage (the effects of physical barriers such as tree shelter-belts, terracing, and ditches, on cold air pooling and potential frost pockets), and to help maximise exposure to the sun for ripening the grapes (Figure 4).

**Visualisation tools** Most GIS have visualisation tools to display spatial information in the form of semi-realistic 3D views and fly-throughs. Additional layers of information can easily be overlaid on the terrain models to provide a visual



Right: Fig 4 - Field Data Collection Kit for Monitoring and Mapping in the Vineyard.

# GIS apps: viticulture



**... they lead to better grape yields and ultimately a better vintage of wine.**



correlation between the different layers, e.g. soils and slope (Figure 5).

**Modelling** Plant growth, canopy reflectance and inversion models, have been developed to provide estimates of 'leaf area index' and biomass. Computer-based simulation models of vine plant growth can help to develop greater insight into canopy development as well the sun-shade relationships that exist in the distinctive vineyard rows.

**A grape future** Precision viticulture techniques clearly offer many benefits for aspects of vineyard management. However, they are not yet universal due to potentially prohibitive hardware and software costs, lack of expertise, and the scale of operation required to justify them. The acquisition of greater knowledge and understanding about the

vineyard is important because they lead to better grape yields and ultimately a better vintage of wine. There are also many other benefits such as a improved and more complete records of vineyard information that can be updated, mapped and studied, providing the basis for a comprehensive decision support system. In an industry worth many millions of dollars each year this investment in new geospatial technology is very important to ensure the harvesting of the best quality grapes and the production of the very best wine.

• **David R. Green of University of Aberdeen, Scotland, UK has been working with Chilford Hall Vineyard, Cambridgeshire and the Camel Valley Vineyard, in Cornwall to explore the potential role of Precision Viticulture in UK vineyards.**

## Sparkling opportunity for England



The Royal Institution of Chartered Surveyors (RICS) has already been researching how GIS can assist in finding the best sites in England for viticulture. A recent report in their FIBRE series, Champagne comes to England, assesses the potential of GIS in the identification of prime vineyard sites in south east England.

There is a strong UK market for high quality sparkling wines, most of which are currently imported. RICS believes that improvements in wine production techniques, allied to a changing climate and to the presence of geological formations similar to those found in the

Champagne region of France, mean that it is increasingly possible to grow and produce such wines in south east England. Not only will this reduce wine

imports to the UK, but it will also offer diversification potential to farms in south east England, while creating new employment opportunities.

The report explores the use of GIS to help find the best locations for growing vines. This can be achieved by analysing where in the region particular combinations of geological, topographical and meteorological factors combine to reproduce the conditions likely to produce quality grapes.

The authors, **Chris Foss** and **David Morris** of Plumpton College and **Niall Burnside** and **Neil Ravenscroft** of the University of Brighton used a standard GIS package to map 11 parameters according to their threshold values; i.e. the point at which the parameter was judged to become marginal from a viticultural point of view. Although there is a lack of field scale datasets a hard logic approach was employed and areas were deemed to be either suitable or unsuitable for viticultural purposes (a 'Boolean approach'). The maps were then digitally overlaid to identify prime vineyard areas.

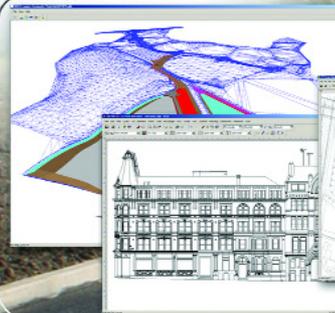
They found that the prime areas in the region were:

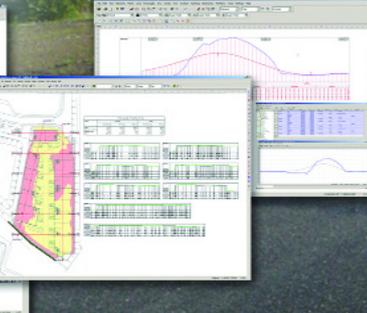
- **The southern edge of the Weald in Kent and East Sussex**
  - **The southern slopes of the Chilterns north west of London**
  - **Chalk outcrops in the western South Downs and southern Hampshire.**
- More information from <https://communities.rics.org/connect.ti/Wikigeo/groupHome>

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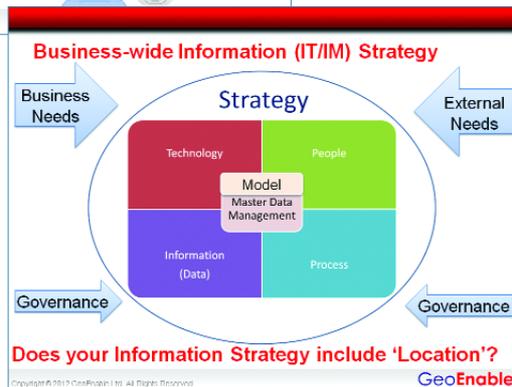
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## From Geo-Centric to Geo-Enabled

- From a focus on Geospatial Technologies & Tools
- To embedding Geospatial Information in Business Processes



integrated with existing IT environments. There is a complimentary SQL Azure product that Brundritt believes will help Esri reach new markets through its MapIt product. 'It's a lightweight offering for users to connect enterprises to spatial data that doesn't need infrastructure or dedicated staff'. This has already brought benefits. The City of London authority felt they couldn't afford ArcGIS but MapIT was a more affordable approach.

Moving on to MS's core geospatial product, Brundritt believes SQL Server 2012 Spatial is 'a game changer'. It offers enhanced spatial support through circular areas, a new aggregating tool that can combine multiple spatial objects, higher precision and improved spatial indexing. Driven by 48-bit technology, a SQL object can be as large as 2Gb – the maximum size of an Esri SHAPE object.

Steve Eglinton, managing director of GeoEnable, a geospatial and information management (IM) strategy consultancy, is keen to understand how people from different backgrounds can use GIS. His presentation was entitled "Towards Geo-Enablement for GIS Professionals". He has worked with London Underground managers Tube Lines, to geo-enable an Asset Management System to improve decision

## Geospatial Convergence

*GiSPro* attended a seminar recently in Microsoft's plush open-plan UK headquarters in Victoria, London. Entitled *Geospatial Convergence for GIS Professionals*, it was an opportunity to catch up on what the software behemoth is up to in our field. Quite a lot as we shall see.



**Microsoft's Ricky Brundritt**

RICKY BRUNDRITT is technology solutions professional for Bing maps, Microsoft's flagship competitor to Google. He told us about the Global Ortho Project which aims to capture the whole of the US and Western Europe at 30cm resolution using Microsoft company Vexcel's cameras. To give an idea of scale, Brundritt told us each shot at this resolution captures nine sq kms. Already 8.6 million sq kms has been released.

Concurrent with the Global Ortho Project, Microsoft also has Venue maps. Designed to run on mobile devices, this app aims to put detailed mapping in the hands of visitors to major sites like shopping malls, stadiums and other indoor public places. So far they have captured 786 sites in the US, 60 in the UK, 51 in France and 20 in Germany. They are also adding venues in Spain and Germany.

Projects like these are clearly also an opportunity for Esri, who Microsoft claim to have been working with since 1986 (ArcGIS in MSDOS would have been interesting back then. . . !). Today that relationship encompasses the .NET framework, SQL server and Windows Mobile.

We next switched to MS's cloud offering, Windows Azure. The offering is scaleable on demand depending on the application. MS claim a 99.95% availability, it is OGC compliant and can be fully

making through real-time asset condition information. He is also a Portuguese speaker and has worked in Brazil as a volunteer with the rainforest conservation charity Amigos de Iracambi using his GIS and survey skills.

Eglinton wonders whether IT managers really 'get it' where GI is concerned. One way of helping them grasp the benefits of GIS is through apps like mobile mapping: 'it's a good way of getting the conversation going' he says. But personal expectation is a key driver in creating a culture of change. His advice is 'get champions'. GIS professionals need to engage with mainstream IT to understand the rapid changes that are taking place in ICT so they don't miss opportunities. He believes the IT industry is in need of Business Process Management (BPM) integration rather than process workflow led initiatives i.e. defining business processes first, IT/GIS then enables these processes. With this in mind, GeoEnable has partnered with Apex Business Improvements, who specialise in BPM, to ensure IT, IM and GIS form part of robust processes that really do 'geo-enable' the whole business.

• For more information about 'Geo-Enablement' visit [www.goenable.com](http://www.goenable.com) or email [Steven Eglinton-steven.eglinton@goenable.com](mailto:Steven.Eglinton-steven.eglinton@goenable.com)



**Steven Eglinton, MD of Geoenable Ltd**



SAILING IN OTHER PEOPLES' BOATS has always appealed to me. I can join the crew wherever they happen to be, have a week or two of excitement, good company and good wine and then leave all responsibility for a very expensive bit of hardware to the owner(s). But I haven't been on the open sea for a long time – since before the days of GPS and electronic charts so it was a bit of an education to sail from Barcelona to Majorca in a 50ft yacht with this kit on board.

Instead of trying to keep a compass course – relayed from the chart table below – I was able to see my exact speed and course on a large digital display right in front of me alongside a 20" display of the chart with our position and destination highlighted and with zoom and pan at the push of a button.

It was a pity about the wind – all but two hours of our passage was a flat calm with a noisy diesel engine for

that berth bookings are now much easier to come by. Of course the euro is now falling relative to the pound and our Eurozone holidays are a little bit less expensive. If Greece does go back to the drachma I can see a huge rush of boats heading for that country for cheaper winter moorings which might just earn them a bit more foreign exchange and tourist business.

**Conversion and funding key registers** Elsewhere in this issue you can read my review of 'Converting Great Britain's basic-scale mapping to a digital form, 1962–95' which has a very useful chapter on the history of the pricing of said product. Coincidentally I recently received an email alerting me to the equally snappily titled *Funding of a system of key registers in a PSI-conomics (sic) and contemporary perspective – the Dutch experience in a Danish context*.

## Navigating the Med... and looking for the Eurozone crisis

Our Eurofile columnist has been busy sunning himself in Europe's playground. But what is PSI-conomics and what has it got to do with the Danes and Dutch beating the Swedes in 1660?

company. Still the joy of watching for other ships and flashing lights on shore as we approached the vertiginous cliffs of Majorca's north coast was well worth it.

Just as with flying or driving it is the beginning and end of a trip that is most difficult to navigate. This is where expertise, experience, judgement and local knowledge can make all the difference. An electronic chart does not show you where the other boats are moored or anchored; the hourly weather forecast doesn't tell you what the wind is doing right now but at least, in the Mediterranean, there is no significant tide to complicate matters as it does around British shores.

Sailing into Barcelona or Majorca you would be hard pushed to spot the Eurozone crisis. Gin palaces by the wharf everywhere and millions of pounds worth of yachts in the smallest marinas. Though rumour has it

The cover has an image of the Beerstraaten painting of the 1660 Battle of the Sound when the Danes and Dutch jointly beat the Swedes with, apparently plenty of wind to go round! In this document, which can be found at [www.mbbi.dk/publikationer/funding-system-key-registers](http://www.mbbi.dk/publikationer/funding-system-key-registers) and is written by **Marc de Vries**, there is also a very useful discussion of the issues around the pricing of public sector information (the PSI above). The PSI being considered is the set of public 'key registers' – companies, cadastral registers, topographic mapping, addresses and – in the Danish context – the civil (individual) registration system.

A 'trilemma' over pricing is postulated: registration fees; user fees; or government budget financing. The Danes are looking to the Dutch for guidance and, interestingly, the Dutch have just ditched 'user fees' and are re-considering current registration fees with the shortfall being made up by government funding. The thesis is that this maximises the benefit to society as a whole. This article should certainly be brought to the attention of the cabinet office and the relevant institutions in the UK.

**Congratulations** We should all congratulate **Dave Lovell**, the current Secretary General and Executive Director of EuroGeographics, on his election to President-elect of the Global Spatial Data Infrastructure in succession to **David Coleman** from Canada. Dave is the second ex Ordnance Survey employee to have this honour – **Mike Brand** was the third president of GSDI in 1997. I understand that the task of organising the GSDI13 conference falls to the incumbent but where in Europe will it be held? Watch this space.

Next time I should be able to report from Istanbul on the INSPIRE conference at the end of June. If you are going I will see you there.

*Below: Majorca's spectacular North coast is far removed from the busy holiday destinations on the island. This idyllic cove is near Cape Formentor*





THE LONDON TRANSPORT MUSEUM in Covent Garden was the venue for a one day event hosted by Intergraph and Sterling Power Group. Entitled *New Dimensions to the UK Geospatial Industry* it was an opportunity for an update on the latest from Intergraph and their new industry partner – Sterling Power Group.

**A post GIS-centric world** Leica's parent company Hexagon acquired Intergraph in 2010. The acquisition came just as the GI industry started to go through a profound period of change, in which the focus has moved from technology-driven solutions that put GIS at the centre of things to an approach in which geospatial technology serves business processes. The reasoning behind this is that, although 80% of data has a spatial component, that component resides in

however told that it is early days. One early result of the integration process is a system called Live Link. ERDAS and GeoMedia windows can now appear in the same screen and any changes made to the Intergraph vector data are replicated in real time in the ERDAS screen. Clearly, the aim is a single system, but that goal is some way in the future and Intergraph are determined to get it right.

**Smart Client** GeoMedia Smart Client is an interesting idea. It has been around in Europe for a decade but version 7 will be receiving a global launch. It fills the gap between desktop GIS and web mapping and is intended for people who are not GIS experts – a kind of GIS-Lite, in that it's simple to use, but incorporates control of who sees what with validation and life-cycle management to ensure that data is accurate and reliable. It also lends itself to being delivered as Software as a Service (SaaS).

**Industry business partner** As part of the merging process between Intergraph and ERDAS, the organisation has reviewed how each interacts with its customers and have come up with a model in which Intergraph / ERDAS will lead on the larger

**Intergraph: the sleeping giant stirs** The growing application of GI technologies to the utility sector and closer working between Hexagon bedfellows Intergraph and ERDAS, may bring benefits to the big solution providers. But is the focus really moving from hardware and software to business processes, asks **Richard Groom**?

business systems – not the GI environment. Intergraph has recognised a move towards wider use of GI at a lower technical level and has geared development towards capturing this new and potentially large market. The strategy follows the conclusions of a report by ARC advisory group which indicated that the GIS market sector would largely cease by 2015 as GI moves into the mainstream.

Intergraph's Security, Government and Infrastructure division is also the home of another Hexagon acquisition – ERDAS. So we have vector-based Intergraph, with ERDAS, a raster GIS. Hexagon also owns Leica Geosystems which means that the group can supply solutions from data capture right through to complex data analysis. This was presented as a huge benefit, but in an interoperable world, one wonders if it is a benefit for those letting big contracts (usually the public sector) but not always a good one for taxpayers and consumers.

**Intergraph and ERDAS** There were some inconsistencies in the message as presented because, for all the talk of business processes taking the lead, there was a lot of talk about GI hardware and software. Clearly, the long term aim is to end up with merged Intergraph and ERDAS products. We were

projects and their "geospatial distributor / partner" will deliver to the wider market, focusing on off-the-shelf software.

Sterling Power Group is Intergraph's geospatial distributor / partner. The company was previously the Midlands Electricity Board, which started operating as a survey company in the utilities sector in 2006, but now sees its future further up the 'value chain'. As an example of their innovative thinking, they have been taking part in a mobile laser-scanning trial for survey of underground utilities in open excavations.

They image each site at the start, during and after excavation. The start and finish scans are used to ensure that the work has been reinstated adequately and as evidence to assess claims from members of the public (and others). The 'during' scan is used to survey the trench in 3D and exposed utilities. **Phil Cooper** from Sterling was quite bullish about this technique. We were told that the cost of scanning is 50p per metre as opposed to £2 per metre if carried out with a GPS unit, and that the client ends up with much more information. The economy of scale comes from scanning many excavations during the same day and is a potential service to all utility companies. The 'during' scan could also be used as a health and safety audit – sure to please the workers!

“

**... the cost of scanning is 50p per metre as opposed to £2 per metre if carried out with a GPS unit...**

”



Chris Holcroft is Director and CEO of the AGI.

PREPARATIONS FOR AGI GeoCommunity '12 are coming along well. The conference committee met at the conference venue in late May to construct this year's programme of content. Twelve themes across five streams of papers will be delivered along with plenary and keynote sessions and a varied mix of social and networking activity. The twelve themes are as follows:

- **Who, What, Where?**
- **Environmental Impacts**
- **Emerging Technologies**
- **Data**
- **Sharing Best Practice**
- **Social Geography**
- **Engagement**
- **Health Geography**
- **BIM**
- **Opening UP**
- **Cloud Solutions**

buildings and urban areas. His work explores how social, economic and environmental value is created by the movement, interaction and transaction of people in space. He advises governments, private organisations and communities worldwide. His approach combines robust analysis and visionary thinking. Tim is Managing Director of the strategic consulting firm Space Syntax Ltd, which he founded in 1996. A director of the Academy of Urbanism, Fellow of the Royal Society of Arts, winner of the prestigious Harvard Loeb Fellowship and Advocate for the EPSRC, he is a visiting professor at University College London. He speaks regularly at conferences throughout the world.

The AGI can also announce three further sponsors for GeoCommunity '12. Civica has taken gold sponsorship, whilst Cadcorp and Océ have opted for silver packages. The three companies join a number of leading organisations that have already

## 12 themes, 5 streams for GeoCommunity'12

AGI director **Chris Holcroft** introduces plans for this year's conference, but first there's plenty on the agenda before the autumn.

To see the whole programme go to: [www.agigeocommunity.com](http://www.agigeocommunity.com)

**Prof Stoner is plenary speaker** We are also pleased to announce **Tim Stoner** as an AGI GeoCommunity '12 plenary speaker. Tim first spoke to an AGI audience earlier this year at the AGI Environmental SIG event in March 2012. There he was extremely well received for his engaging style and extremely pertinent look at the role of GI to support creativity in urban planning. Tim is an expert in the analysis and design of human behaviour patterns in

sponsored this September's event including: Esri UK, Ordnance Survey, GGP Systems, Leica Geosystems and UNIGIS. We will keep you posted on further developments as GeoCommunity '12 moves nearer.

### Also on the agenda

Other pending AGI events (for further information and bookings go to [www.agi.org.uk](http://www.agi.org.uk)):

**AGI Northern Ireland Conference** (in association with South East Regional College) *Date:* 14 June *Venue:* SERC, Lisburn Campus, Castle Street, Lisburn, BT27 4SU

*Information:* This years' event will be based around the themes of the INSPIRE directive and Open Data; How Inspire impacts on organisations; how to prepare for it; examples; and benefits of compliance. *Cost:* Student Member: £35+VAT; AGI Member: £69+VAT (discounts available for corporate members); Non Member: £195+VAT *CPD:* 4 points *Exhibiting and Sponsoring:* If you are interested in exhibiting at or sponsoring this event, please contact Claire Huppertz ([claire.huppertz@agi.org.uk](mailto:claire.huppertz@agi.org.uk))

### Better Mapping I

*Date:* 19 June *Venue:* The Queens Hotel, City Square, Leeds, LS1 1PJ *Information:* Entitled 'Better Mapping', these one-day seminars, featuring a number of expert presenters, introduce a range of topics and easy methods that will demonstrate how good cartographic practice can greatly improve the quality, accuracy and effectiveness of your digital and hard copy maps. *Cost:* AGI Member: £69+VAT; BCS Member: £69+VAT; Non Member: £150+VAT *CPD:* 4 points

Right: The different conference prices for AGI GeoCommunity 2012.

Member Type	Delegate Type	Early Bird	Standard
Member	Full Conference (Including Icebreaker)	£380	£480
Non Member	Full Conference (Including Icebreaker)	£535	£635
Member	Full Conference (Including Icebreaker) PREMIUM PACKAGE	£520	NA
Speaker	Full Conference (Including Icebreaker)	£340	£340
Member	Full Conference (Excluding Icebreaker)	£265	£322
Non Member	Full Conference (Excluding Icebreaker)	£375	£449
Member	Full Conference (Excluding Icebreaker) PREMIUM PACKAGE	£335	NA
Speaker	Full Conference (Excluding Icebreaker)	£210	£210
Member	1 Day Pass	£110	£145
Non Member	1 Day Pass	£160	£185
Student Member	1 Day Pass	£49	£60
Student Non Member	1 Day Pass	£69	£80
All	AGI Party Only	£50	£50

**Interoperability Day 2012** – Open Government and Open Standards *Date:* 22 June

*Venue:* Met Office, Fitzroy Road, Exeter, Devon, EX1 3PB  
*Information:* The Open Geospatial Consortium (OGC) and the AGI have joined forces to offer you the chance to learn more about open standards and interoperability.

*Cost:* Free, but registration is required *CPD:* 4 points  
*Exhibiting and Sponsoring:* 1Spatial are sponsoring the refreshments. Astun Technology Ltd is exhibiting at this event. If you are interested in exhibiting at or sponsoring this event, please email Claire Huppertz ([claire.huppertz@agi.org.uk](mailto:claire.huppertz@agi.org.uk))

**AGI North Conference** *Date:* 4 July

*Venue:* The Manchester Museum, The University of Manchester, Oxford Road, Manchester, M13 9PL  
*Information:* By popular demand...The AGI Northern Group Conference has been re-launched. It will be held in Manchester on Wednesday, 4th July and will focus on "Innovation and Value in Geographic Information".

*Cost:* Student Member: £20+VAT; AGI Member: £69+VAT; Non Member: £195+VAT *CPD:* 4 points  
*Exhibiting and Sponsoring:* If you are interested in exhibiting at or sponsoring this event, please email Claire Huppertz ([claire.huppertz@agi.org.uk](mailto:claire.huppertz@agi.org.uk))

**AGI North Meeting** *Date:* 19 July

*Venue:* Newcastle

*Title:* You mean you still use servers?

*Speaker:* Matt Toon, Google

*Information:* Google Maps helped build awareness for geospatial technology for consumers and in the wider commercial world. It's easy to put data on a google map, but we want to make it even easier and also add spatial query, analysis and lovely cartography without the need to spend lots of money or worry about servers and software.

*Cost:* This is a free networking event. Non-AGI members are very welcome to attend one meeting of the Northern Group as a taster *CPD:* 1.5 points

**Better Mapping II** *Date:* 26 July

*Venue:* British Computer Society, The Davidson Building, 5 Southampton Street, London, WC2E 7HA  
*Information:* Entitled 'Better Mapping', these one-day seminars, featuring a number of expert presenters, introduce a range of topics and easy methods that will demonstrate how good cartographic practice can greatly improve the quality, accuracy and effectiveness of your digital and hard copy maps.

*Cost:* AGI Member: £69+VAT; BCS Member: £69+VAT; Non Member: £150+VAT *CPD:* 4 points.



The AGI exists to "maximise the use of geographic information (GI) for the benefit of the citizen, good governance and commerce".  
Membership details are available from [info@agi.org.uk](mailto:info@agi.org.uk) or by calling: +44 (0)20 7036 0430

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# products

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To get your company featured on this page call Sharon Robson on +44 (0)1438 352617

## Update for Leica's GIS tablet



Leica Geosystems has updated its rugged tablet computer the CS25 with the addition of long range Bluetooth technology. The CS25 LRBT can wirelessly connect to a remote device, such as a total station, equipped with the RH16 sensor long range Bluetooth radio handle, a feature requested by many Zeno GIS users. It is now possible to perform an object-oriented survey in one-man operation mode, together with Leica's MobileMatriX, without the need for external wireless radios, over a distance of up to 350 metres. The entire solution operates without the need for an external antenna, and partner applications can easily connect to the long range Bluetooth module via a virtual COM port.

## Drones + computer vision = low cost air photo mapping

UAV (unmanned aerial vehicle) technology is creating new air photo mapping possibilities for civil applications. exeGesIS SDM Ltd a well-established GIS and environmental consultancy has been using one such device since 2011 and has completed dozens of flights covering construction, agriculture, nature conservation, recreation and archaeological subjects.

exeGesIS use a hand launched UAV that weighs just 500g and is powered by a quiet electric motor. Fully autonomous, a sophisticated inertial navigation system allows the plane to capture overlapping images along a pre-programmed flight plan. Post processing uses computer vision derived techniques ('SIFT' feature matching) to generate geo-referenced orthomosaics and digital elevation models. Tim Taylor, an exeGesIS, CAA licensed 'pilot' says that at this time of year, he can arrive on site, be in the air within 30 minutes and cover up to 6km<sup>2</sup> in a day. The images are then processed into an orthomosaic and made available for download as Tiff, ECW and KML in WGS84 or OSGB projections.

## Night sky mapping

Bluesky is funding research into the development and use of a system to map Britain's cities and towns at night. Earlier night sky mapping developments have generated interest from local authorities and the company has now teamed up with the University of Leicester to look at solutions using new high sensitivity camera sensor technology. It is expected that the system, mounted on survey aircraft, will accurately record the location of street lights, illuminated road signs and other night-time sources of light, providing an accurate resource for asset inventories, light pollution assessment and energy optimisation measurements. Dr Roland Leigh, University of Leicester, says: 'we will be applying techniques from astronomy, space engineering and spectroscopy to counter the challenges of night-sky mapping from survey aircraft'.

## Marketing solar power

A solar power marketing service has been launched to pinpoint properties with the greatest potential for solar power generation. With Bluesky's

service, pre-addressed postcards sent to home owners show their property from the air and include predicted power generation from solar panels. The customisable mailing campaigns can be produced for companies and organisations promoting solar energy, such as local councils. The potential for energy generation from solar panel installations on individual properties is calculated using the company's countrywide aerial photography and 3D computer models.

## Zeno GIS series updates

Leica Geosystems has updated its Field v3.0, Office v3.0 and Connect v1.2 software for the Zeno GIS series. Included are support for Esri ArcGIS 10 and simplified use of transformations in the field. The Zeno GIS provides a simple dataflow between the field and office. It simultaneously checks in features and

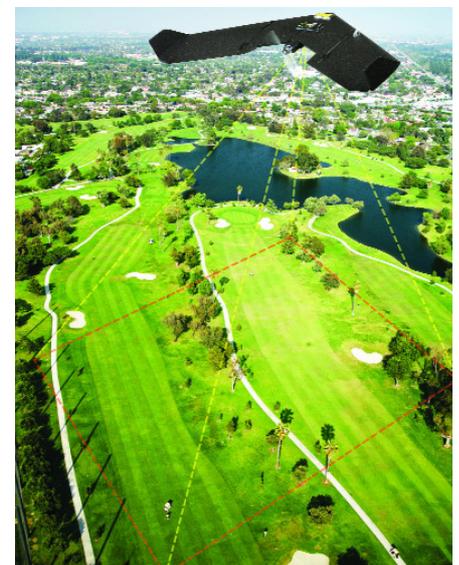


*Leica's Zeno handheld GIS series is GNSS enabled and supports ArcGIS10.*

GNSS raw data, automatically post-processes GNSS observations and updates feature vertices to the most accurate location in one automated step.

## Fast response UAV service

Bluesky has launched a fast response aerial survey service using unmanned aerial vehicles (UAV) or drones. The technology, originally developed by the military, includes guided autopilot, integrated camera and rechargeable propulsion. Autonomous take-off



and landing ensures the system is easy to use and with a wingspan of less than a metre it can be easily transported without the need for complex assembly.

'Using UAV's we can respond quickly to demands to collect site specific images and data in a very cost effective way,' says James Eddy, technical director at Bluesky. 'The integrated camera captures high resolution photogrammetric images that can be used to create map accurate aerial survey data including height models. The system is compact and lightweight making it easy to store and transport and can be launched by hand from virtually any location. Flight planning software and an Artificial Intelligence guided autopilot make it easy to control.'

In Field v3.0, different transformations methods, as well as geoids and country-specific coordinate systems (CSCS), are now supported. Features in Office now include support of file-based geodatabase and relevant GNSS sensor information being stored with every GNSS observation. Connect is an application as well as an SDK for third-party software applications to manage and configure the Zeno GNSS sensors and receive NMEA messages. New features include: the messages GST (2D + 1D quality), VTG (course over ground and ground speed); the definition of the elevation mask (also available in the SDK); and a new auto-connect RTK function.

### BRIEFS

The ITIS road speed data, which is processed by UK-based MapMechanics for use in drivetime and vehicle routing and scheduling software, will now be known informally as INRIX data. The change follows the acquisition of ITIS Holdings plc by INRIX Inc. MapMechanics markets the data under the brand name GB Speeds and has also developed a new way of processing the data. The company can now provide detailed speed information for each link in a street-level network such as those found in Navteq map data and Ordnance Survey's ITN products.

**Blue Marble Geographics has released Global Mapper version 13.2 featuring updates to the DigitalGlobe premium imagery in both speed and coverage. This service will give users faster access to more up-to-date and higher resolution imagery in most locations.**

POSPac MMS V6, the latest version of Applinix's post-processing software package, is now available. The software supports mobile mapping from airborne, land and marine platforms. Customers under a product maintenance agreement can download the installation files and release notes from the support

section of the company's website.

**Users of Erdas 2011 software can now download Imagine v11.0.5 from the product webpage. Enhancements include more Live Link connections between Imagine and the GIS data management and analysis package, GeoMedia.**

Intergraph has also announced the LPS 11.0.5 upgrade, a service pack for customers of the LPS 2011 photogrammetry system, which extends the product's support for orbital and airborne sensors by adding the Pleiades Rational Polynomial Coefficient (RPC) model, the DEIMOS RPC model and the VisionMap A3 Super Large Format (SLF) model.

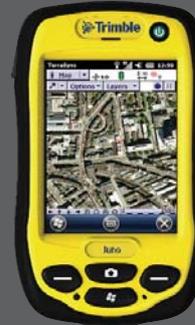
**Getmapping has added the OS MasterMap imagery layer to its data offering. Customers can now order offline, select and download image files via the webshop or stream the imagery direct to their CAD or GIS applications via WMS.**

Getmapping has also launched its own 'Maps API' enabling customers to introduce interactive maps to their websites, or web-based applications. The 'Maps API' provides access to Getmapping's own hi-resolution aerial photography and OS OpenData mapping, together with a comprehensive reverse geocoding service providing an attractive alternative to Google and Microsoft.

**A whitepaper designed to help organisations understand how to start using mapping software is available from eSpatial. Aimed at newcomers to the technology, the whitepaper, "Start Mapping Your Data in 7 Easy Steps", breaks down the business process behind successful use of mapping software. The whitepaper is available free of charge upon registration, and can be accessed at: <http://esp.tl/wJkuaK>**

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We welcome advance details of conferences, seminars, exhibitions and other events which are likely to be of interest to the GIS community. Please mention the name of the event, venue, date and point of contact for further information and send to Hayley Tear, *GISPro*, 2B North Road, Stevenage, Herts SG1 4AT or e-mail: [hayley@pvpubs.demon.co.uk](mailto:hayley@pvpubs.demon.co.uk).

**2012**

**Geo Maritime 2012**

13-14 June, London, UK.

More information: [www.wbresearch.com/geomar/home.aspx](http://www.wbresearch.com/geomar/home.aspx)

**AddressBase – All you need to know**

14 June, Cardiff University, Park Place, CF10 3AT, UK.

More information:

[www.aligned-assets.co.uk/events/addressbase\\_140612/index.html](http://www.aligned-assets.co.uk/events/addressbase_140612/index.html)

**The British Cartographic Society Symposium**

13-15 June, Barceló Basingstoke Country Hotel, Hampshire, UK.

More information: [www.cartography.org.uk/symposium](http://www.cartography.org.uk/symposium)

**AddressBase – All you need to know**

20 June, Minster Exchange, London, EC3R 7PP, UK.

More information:

[www.aligned-assets.co.uk/events/addressbase\\_200612/index.html](http://www.aligned-assets.co.uk/events/addressbase_200612/index.html)

**GI Forum 2012**

3-6 July, Salzburg, Austria.

More information: [www.gi-forum.org](http://www.gi-forum.org)

**12d Model International User Conference 2012**

29-31 July, Brisbane Convention & Exhibition Centre, QLD, Australia.

More information:

[www.12d.com/aus/community/12d-model-international-user-conference-2012/](http://www.12d.com/aus/community/12d-model-international-user-conference-2012/)

**AGI GeoCommunity '12:**

**Sharing the Power of Place**

18-20 September, East Midlands Conference Centre, Nottingham, UK.

More information: [www.agi.org.uk/geocommunity/](http://www.agi.org.uk/geocommunity/)

**Intergeo**

9-11 October, Hannover, Germany.

More information: [www.intergeo.de](http://www.intergeo.de)

**Trimble Dimensions 2012**

5-7 November, Mirage and the Treasure Island Hotels, Las Vegas, USA.

More information:

[www.trimbledimensions.com](http://www.trimbledimensions.com)

**European LiDAR Mapping Forum**

4-5 December, Salzburg, Austria.

More information:

[www.lidarmap.org/ELMF/](http://www.lidarmap.org/ELMF/)



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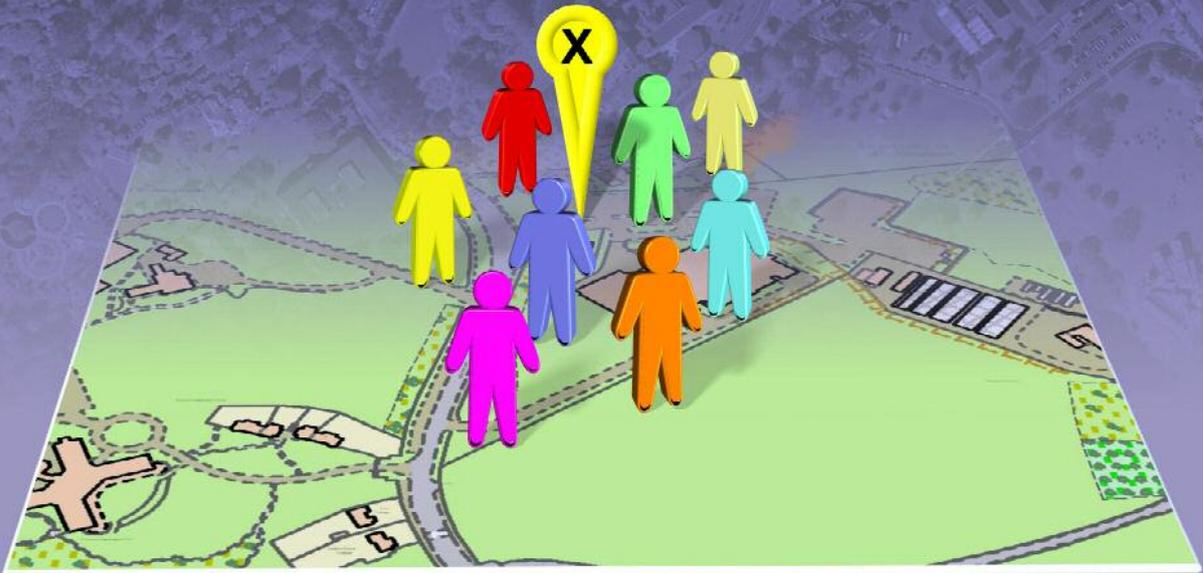
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