

# GIS

## Professional

issue 52 : June 2013

...joining the geography jigsaw



### Multicopter jumps ahead at Aintree!

Can GI help the health service?

The future of location intelligence

BLPU polygons – what's the point?

Joining up the BIM roadmap

Taarifa: GI in the developing world

GEO-South: thoughts on a changing world

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Bob Barr responds to the guidance to local authorities on the creation of BLPU polygons reviewed by Gayle Gander, GeoPlace, in the last issue.

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Nearly two months into his new position at Pitney Bowes Software, James Brayshaw considers the future of the location business.

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**Advertising:** 19 July



**Front cover:** The German Aibotix Multicopter impressed delegates at Korec's recent Technology Day at Aintree, successfully battling against the rather gusty weather! You can read more on page 13.

*Image courtesy of KOREC*

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

**read on . . .**



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

## Striking the right balance!

Health and safety often gets a bad press. Rules and regulations are seen as “red tape” and as constraining entrepreneurs. On the other hand, if things go wrong we blame the “authorities” for not regulating or for not enforcing the same rules and regulations. Damned if you do and damned if you don’t! **Kristin Warry**, from Swindon Borough Council, actually enjoys her day-to-day work and explains what it is like to be in one of those authorities with difficult decisions to be made about dealing with austerity, cooperating with other services and striking a careful balance between safety and privacy.

We are also covering case studies on potholes in Kent and on surveying Scottish rivers. We have reports from the AGI address SIG meeting plus the Korec and Esri user conferences. Our interview with **James Brayshaw** helps to explain his move from Ordnance Survey and introduces us to the inner workings of Pitney Bowes. There is also the second part of **Tim Wood**’s attempt to get us thinking in terms of sustainable asset and infrastructure modelling and management – usually referred to as building information modelling or management (BIM). Talking around the industry convinces me that neither we nor our architectural and engineering colleagues have yet got the message that we could do much better if we learnt to harmonise our information from the initial plans, through construction and maintenance to the ultimate demolition or repurposing of our built environment.

**Bob Barr** delivered a typically forthright and well argued case for opening up our core reference datasets at the GEO-North and GEO-South events and in this issue he questions the wisdom of letting several public sector agencies create their own sets of “property” polygons – all based on Ordnance Survey base data and all being of limited use due to restrictive licensing. Google would love to license this sort of data but its inability to reach any sort of agreement has, in part, led to its launch of Map Maker into the UK last month. We report from Bletchley Park on the latest attempt to get us to help the company that ‘Does no evil’ but doesn’t pay much tax in this jurisdiction either.

We are delighted to read that Ordnance Survey International has won its first contract. It will help the Kingdom of Bahrain to develop a 3D enabled spatial data model based on its experience over the last 35 years in Great Britain. This is a government to government contract that is fully backed by the Department of Business, Innovation and Skills in line with the UK government agenda to build stronger relationships with the Gulf region, sharing expertise, knowledge and skills. Meanwhile, IGN France International has announced new minority shareholders that join Esri Inc and Esri France alongside IGN – the National Institute of Geographic Information and Forestry.

The Land Registry has appointed **Ed Lester**, who previously led the Student Loans Company, as its new chief executive. We are relieved that he will be on the agency’s payroll from day one in contrast to his employment through a service company in his previous role.

As you read the address meeting report, see how “property” polygons proliferate, and how we now have both official surveyors and “citizen cartographers”, you might yearn for more accessible “definitive” datasets that are maintained for our benefit rather than for profit or to boost already inflated individual or company egos. Kristin Warry sees many benefits from sharing information between local authorities and the NHS and the theoretical efficiencies to be gained from shared data are legion.

In our view, the best way to keep going forward is to publish facts – when we can get hold of them – and all shades of opinion so that we can have a robust public debate about the uses and abuses of geographic information with all the cards on the table. Watch out for more articles on privacy v openness; on profit v the public good and on definitiveness v diversity!



. . . neither we  
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message that  
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we learnt to  
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information. . .



Robin Waters, Editor

## Record attempt uses satellite imagery



DMCii, a subsidiary of Surrey Satellite Technology, is providing multispectral imagery to assist the Bloodhound land speed record attempt, by monitoring the test track on the Hakskeen Pan in South Africa. The rainy season is unpredictable and the pan does not dry consistently across the whole area but DMCii's imagery provides an objective and highly accurate means of quantifying the flooding, understanding the drying out process and analysing the surface irregularities. The company is also a sponsor of the project.

### Mapping road safety

The Metropolitan Police Service is using GGP's GIS to collate essential data about road traffic collisions. It is being used to identify and map the exact location of incidents where a personal injury has occurred and to help prepare detailed reports for the Department for Transport and Transport for London (TfL).

In 2011 the total number of people killed or injured on London's roads was at its lowest since records began in the mid 1980's. There were 159 fatalities; 25 per cent lower than the average figure between 2005 and 2009.

### More join CloudStore

Astun Technology, Cadcorp, Europa Technologies and Envitia have won a place in the CloudStore. They join emapsite, Esri UK, and Informed Solutions. Their offerings are now available from the CloudStore as the Cabinet Office announces its

Cloud First mandate for central government which is also 'strongly recommended' to the rest of the public sector.

### Ordnance Survey in Bahrain

Ordnance Survey International (OSI) has signed a contract to create a 3D-enabled national spatial data model for the Kingdom of Bahrain's Survey and Land Registration Bureau. The contract was won by competitive tender and the model will be on standards set by Open Geospatial Consortium (OGC) and the International Organisation for Standardisation (ISO).

OSI is a business division within Ordnance Survey that works closely with UK Trade & Investment in the Gulf Cooperation Council countries offering "government to government advisory services that underpin the development of authoritative national mapping and help deliver national economic growth. The

new agreement builds on the UK government agenda to build stronger relationships with the region, sharing expertise, knowledge and skills".

### Open Source Laboratory

An Open Source Geospatial Laboratory (OSGL) has been established by the University of Southampton's GeoData Institute and Geography and Environment Academic Unit in collaboration with other initiatives in the UK and further afield. The Laboratory will use open source software and data and contribute to the tools, standards and data through research.

### Spanish success for Cadcorp

Aeropuertos Españoles y Navegación Aérea (Aena), which handles more passengers than any other airport operator in the world, is using software from Cadcorp to manage geographic information about its extensive infrastructure of airports and radio masts. Any authorised user can now visualise, add and modify cartographic and infrastructural data in the 'SIGNA' application.

### PAF delay

The PAF Public Sector Licence for all PSMA members was announced in March but has been delayed at the last minute while negotiations continue between the Department for Business, Innovation and Skills (BIS) and Royal Mail. The PSMA website says that "A few points of detail remain outstanding" and apologises for the delay. Existing arrangements for PSMA PAF users continue unchanged. Apparently "all parties remain hopeful of a positive outcome for PSMA members and the public sector as a whole".

### US 'valuable national asset'

The US government has declared that information is a valuable national asset whose value is

multiplied when it is made easily accessible to the public. An executive order requires that data generated by the federal government be made available in open, machine-readable formats. An example quoted is the decision to make GPS available for civilian and commercial access, which gave rise to innovations ranging from aircraft navigation systems to precision farming to location-based apps, contributing tens of billions of dollars to the US economy.

### Win for Atkins

Atkins has won a contract from Marine Scotland to provide support and enhanced functionality to its interactive web-mapping portal, the National Marine Plan interactive (NMPI). Atkins will adapt the portal, which they originally designed in 2011, to meet changing client needs, including regional views of maps and data. It enables any user to view and query marine spatial data and provides registered users with download facilities as well as a channel for submitting information for consideration in the marine planning process.

### New shareholders

IGN France International has new shareholders. The National Institute of Geographic Information and Forestry (IGN) remains the majority shareholder with Esri Inc and Esri France retaining minority shares and being joined by Groupe FIT, FIT Conseil, IMAO and Groupe Altereo. This new shareholding is designed to reinforce the company's expertise in international markets.

## BRIEFS

Forth Valley GIS has successfully completed recertification to ISO 9001 for the Provision of Geographic Information Services.

ITO World's ITO Sparks visualis-

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To get your company featured on these pages call Sharon Robson on +44 (0)1438 352617*

**ation tool has been used by the World Bank to illustrate the significant number and variety of projects around the world.**

eSpatial has launched a free edition of their mapping software that enables users to convert spreadsheet data into map form. It is available by signing up for an account at [www.espatial.com](http://www.espatial.com). Users can create maps and then post them on websites.

**Apple has bought indoor-mapping specialist Wifislam to enhance its map accuracy within buildings to 2.5m.**

The Nottingham Geospatial Institute has successfully computed their first positioning solution from using the first four Galileo IOV satellites. The data was recorded in Derbyshire using a Javad Triumph-1 receiver connected to a Leica AR10 antenna.

**CACI has released the latest version of Acorn consumer segmentation for the UK. It includes a wide range of consumer data with new techniques designed for an Open Data world.**

miso (*sic*), the spinoff from Dotted Eyes, has launched its new website, offering a range of simple, easy-to-use products. The site will also offer a number of new services designed to automate the sourcing, preparation and sharing of map data.

## PEOPLE

### New office, new recruits

OceanWise, has moved into new larger offices in Alton, Hampshire and recruited two new employees. **Richard Farren** joins from HR Wallingford, where he was SeaZone's marine mapping production manager. As a systems developer he will help deliver a growing number of maritime information infrastructure projects. **Janet Chaplin** also joins from HR Wallingford and will transfer in the same role.

### New boss for Land Registry



Ed Lester has been appointed as

chief executive of the Land Registry. He joins from the Student Loans Company where he was responsible for a major transformation and led their 'Digital by Default' programme. The Department of Business, Innovation and Skills believes that this experience will be invaluable as the Land Registry transforms itself into a highly efficient, digital and data centric organisation. It will also develop a more strategic approach to its data to support wider economic growth.

### Gregorius joins Exprodat

Exprodat, the oil and gas services, software and training supplier, has appointed **Thierry Gregorius**, formerly of Shell and Landmark Information as principle consultant: strategic consulting. After four years with Landmark, Gregorius explains that "oil and gas is a dynamic industry and I am returning in a role where my experience from various sectors can help companies exploit their investment in geospatial data and technology."

### New director for COWI

**Stephen Rixon** is the new director for COWI Mapping UK

and will be responsible for the further development of the company which is centred around the important Ordnance Survey framework agreement. He will be targeting markets with more recent framework agreements as well as contracts for clients within consultancy and infrastructure. Stephen will work closely with clients offering aerial surveys, LiDAR scanning, mobile and thermal mapping.

### Spearheading sales



**Bruno Skrastins** has joined Getmapping to spearhead sales of its hosting and web based GIS solutions. Bruno is a seasoned sales professional with channel management experience in the telecoms, IT, web and geospatial sectors. Most recently he was a Partner Account Manager for Ordnance Survey working closely with a wide range of companies in the geospatial sector.

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# geo event report



HP's Bob McEwan talked about the rise of the digital native.

## Thoughts on a changing world

**Bob McEwan** of Hewlett-Packard kick-started the conference with an insightful look at where technology has (and will) take us. "Flying machines are a waste of time", "the world will only need five computers" – predictions are frequently wrong! Our rate of knowledge growth is exponential but it's how we use it that is important argued McEwan. Rather than the traditional business model (invent new product - competition overtakes cycle) or newer business models like the rise of "free" ('you can't get much money

out of free' so it requires other options, e.g charging for advertising), McEwan suggested we consider co-competition - common in the IT world. He summarised this with an image of Sonic the Hedgehog being paid by Wile E Coyote for catching roadrunner!

first, on leading BIM. But people are still not thinking of the management part of BIM, argues Kemp. 'To often, people go back to child mode and let technology lead'. We need a more 'adult-to-adult relationship'. There needs to be a collaborative BIM team and 'it is important for our industry that we be a part of this team'. For this to work, we must command technology and share information, she counselled – don't let the territorial 'inner ape' win! For more insight on BIM, read **Tim Wood's** article on page 14.

**Open data – has its time come?** Dr **Robert Barr** certainly feels that open data's time has come. But what should be open? He believes core reference data - data that's used to link datasets together, e.g. postcodes, and data that is part of statutory register or data collected to complete a public task, regardless of whether it is re-sold or re-used. What is gained? The main argument for opening data in UK and Europe, says Barr, is economic growth. People are asking – if we open this data, what

## Geo-South: opportunities, seminars and more

In May, visitors converged on the Holiday Inn Elstree to enjoy the opportunities offered at GEO-South, including a busy two-day seminar programme, networking, exhibition and social events. For those who missed it **Hayley Tear** was on hand to report.

We live in an era of human information: 98,000 tweets every second, 12 million texts every minute, 294 billion emails every day. Consider population growth (2bn online today, 4bn by 2020), urbanisation (cities expanding by 60m people annually) and the rise of the digital native. How will we manage this information in the future? McEwan warned employers that digital natives may bring different demands to the workplace. Do you want to disable Facebook? Once our economy picks up young people will be fussy about where they work and they may want to use their own digital technology – if their employer won't let them, they may go elsewhere.

McEwan wondered where technology might go: internet glasses (think Google glasses, but would you wear them in the street?). The terabit ethernet is coming; so are driverless cars and ones that will park for you. And then there's the "personal cloud" – miss a film's ending on the plane as it lands, catch it later by turning on the TV to your own cloud.

**Beat the inner ape!** **Anne Kemp** of Atkins Global argued that Building Information Management (BIM) is a key transformative technology backed by UK government, which is pushing to introduce 20% savings across the construction industry by 2016. The UK is now in second position, moving to likely

businesses will it create? What jobs? Plus, 'data is more likely to be used if open' and 'everyone can see that the data is already there', reducing duplication. Barr gave two main impediments that open data needs to overcome: job protection and tradable information – the myth of the crown jewels. For example, he argues that Ordnance Survey needs to hold its core reference data hostage as its other data isn't marketable/profitable. He concludes that 'open data appears to have the wind in its sails' but for it to become the norm, its case still needs to be made. To read a fuller account of Dr Barr's views on why we have so many 'points, parcels and polygons' turn to page 22.

**Meet Zebedee** Other highlights included **Abby Hunt's** (Korec) talk on UAV's currently available – find out more in our report on Korec's Technology Day on page 13. **Richard Groombridge** explained how correct addressing and integrated geo-data can combat potholes (see his article on page 27) and **Chris Wood** of 3D Laser Mapping introduced ZEB1 (aka Zebedee!): an innovative handheld mobile mapping system that wobbles as you walk, producing a 3D sweep of points after each wobble of the head. 'You look daft, no getting away from that!' explained Wood holding the mini scanner, but it is perfect for areas where there is little to no access to GPS.

• *More information about the GEO-Events can be found at [www.pvpubs.com](http://www.pvpubs.com)*

PHOTO CREDITS TO NICK DAY



Dr Bob Barr believes that core reference datasets should be open and free.



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BACK IN MAY, Canada's Royal Canadian Mounted Police (RCMP) shared news that an unmanned aerial vehicle, a UAV, or in common parlance a drone, had helped save the life of a car accident victim. The driver's car flipped and he was left injured in near freezing temperatures during a Saskatchewan night. Authorities executed a ground search followed by a manned aerial search without finding the victim. Later, a helicopter drone with an infrared sensor pinpointed the driver's warm body. Firefighters reached him moments later and he soon received medical care.

Headlines announced that this event may be the first time a drone saved a life. **Zenon Dragan**, president and founder of the Draganfly Innovations Inc, the drone's manufacturer, stated just that in a press release. The story, which was shared complete with the video footage taken by the drone, made the rounds on the web. US media outlets highlighted this

wearing cold weather clothing. Response personnel determined the phone's approximate coordinates (reports contradict one another about whether via GPS or network-based locating). Ground and air search continued near the phone's coordinates, with no luck.

- *Sensors are not just cameras*

The drone was sent out next, starting a search at the cell phone's last known location. The UAV, a Draganflyer X4-ES, can carry three different sensors. Two are cameras, one for regular light, one for low light conditions; the third is a forward-looking infra-red (FLIR) heat sensor.

- *Copters can hover*

The UAV is a quadcopter, a helicopter with four rotors. It's not clear if this form factor and its specification were particularly suited to this

## A drone saves a life: lessons from the response

Did you catch the news story about how a UAV helped Canadian authorities to locate and rescue a car accident victim? It is rare to see a positive spin on drones doing the rounds on the web but it is a timely reminder of the benefits of this technology as lawmakers around the world debate policies on its use, says **Adena Schutzberg**.

positive spin on drones, a rarity as vocal opponents continue to link them to privacy invasion.

**Teachable moment** This story is timely and educational because its details present a valuable set of lessons about drones, location technologies, sensors and, frankly, dumb luck. Here are some key pearls to put this event, and the drone technology, in context:

- *There is a process to search*  
The first search effort involved a ground search and later a manned helicopter search using night vision goggles and high-power searchlights. Those failed to find the victim. Why? Perhaps because the search was started near where the car was found.
- *Cell phone location determination (E911) matters*  
About an hour after the ground/manned aerial search began, the injured driver called 911 from his cell phone. Reports suggest he was disoriented and may have wandered some distance from the car. That might explain why he didn't call until an hour or more after the accident. Dispatchers learned that the victim didn't know where he was and that he was not

rescue, but they may have been. The drone operator, RCMP Cpl. **Doug Green**, reported hovering the craft and working in a slow rotation during the search effort.

- *Access, training and experience matter*

A total of five RCMP officers had been trained to use the drone and held required licenses to fly it. The team had used the quadcopter, mostly for accident photo documentation and traffic analysis, for about a year. Why did the Saskatoon RCMP have a drone in the first place? It just so happens that Draganfly Innovations is based in Saskatoon and the local force was an early tester.

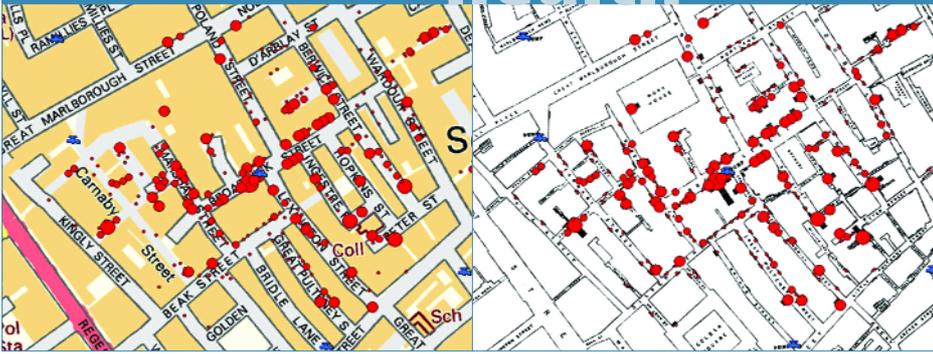
- *Continuing public education required*

Comments on the story in the Canadian press made clear that at least some residents were not aware that Canadian responders not only had drones, but actively used them. Others were not aware that infrared cameras were legal.

**Looking ahead** It's clear that citizens and lawmakers in Canada, the US and the rest of the world will need to hear more drone success stories as they create and update policies related to short and long term domestic and foreign use.

“  
... some residents were not aware that Canadian responders not only had drones, but actively used them.  
”

# GI opportunities health



Above: John Snow's cholera map data shown on OS OpenData (left) and on the original map (right).

COULD THE BETTER use of health statistics at different levels but enhanced within a geographical framework help to provide a more effective and efficient health service? Could it have pointed to the Staffordshire debacle sooner? How would it help with the measles outbreaks blamed on poor vaccine take up? More controversially, the use of GI for planning the building of new facilities – and the closure of old ones – should be in all of our interests. One might also assume that ambulances would always choose the fastest route to an incident. A recent report in my local paper suggests otherwise. Is this because their satnavs are

us in good health, as well as how they might help us when we succumb to accidents or illness and need the NHS.

**Opportunities** During my visit to the Esri UK conference in May, I had a very useful discussion with **Paul Dyer** from Esri who explained that they see a huge opportunity in this sector right now. The NHS, as we all know, is going through trauma itself. It needs GI for several reasons:

- **Public Health** – a logical development from John Snow's maps and generally the prevention of disease and the promotion of a healthy population. The distribution of obesity, diabetes, teenage pregnancy etc are all needed to inform decision makers.
- **Health Protection** – dealing with pandemics, which always seem to be just around the corner (or on the next flight into Heathrow!).
- **Commissioning** – a very thorny political issue but one that must be informed by the best available information on the distribution and requirements of the population.

## Can GI help the health service?

Our publisher has often suggested that GiSPro should look at the use of GI in the public health and medical sectors. Finally we have got round to it! **Robin Waters** opens our health feature by considering the opportunities for our industry before introducing an article from Kristin Warry, Swindon Borough Council, who provides us with an insight into the challenges that the recent changes to NHS services presents to local authorities.

not using up-to-date base maps and address datasets? Or are the drivers not using their equipment effectively? Whatever the reason, GI should be part of the solution and certainly not the problem.

**Linking geography and health** Whether you are a casual or expert GIS user you will probably have heard of **John Snow's** map of Soho that plotted cholera victims and sources of drinking water. This convincingly demonstrated a link between the outbreak and one particular tap in Broad (now Broadwick) Street and therefore provided more evidence for the thesis that cholera was a waterborne disease, a fact that we now take for granted. To mark the bicentenary of the birth of John Snow, an exhibition entitled *Cartographies of Life & Death* was recently held at the London School of Hygiene and Tropical Medicine. If you want to learn more and see Snow's data in a modern GIS environment, do visit <http://blog.rtwilson.com> where you can find the data in a variety of formats against a variety of map backgrounds.

On the next page, you can read about Swindon's use of GIS and demographic data for, amongst other things, public health and emergency planning. **Kristin Warry** is a very passionate advocate for the benefits and efficiencies that can be achieved with these tools. We will also be taking a wider look at how geography and health are entwined and how our industry's tools can help to keep

- **Assets and estates** – as with any large distributed organisation but with the added pressure of everyone wanting to keep their own nearest facilities despite the overall need to optimise the location of A&E departments, specialist treatment centres, maternity units and others.
- **Operations** – in the non-surgical sense! This includes the efficient positioning and routing of ambulances and the real-time information on what resources (beds, specialists, medicines) are available in which locations.

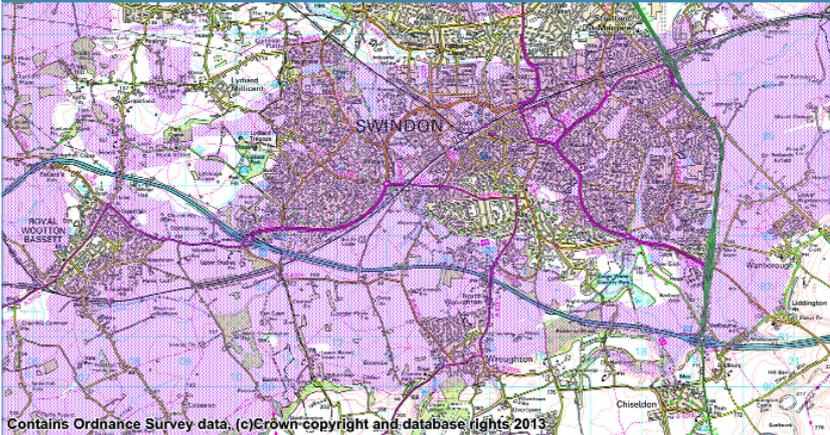
We hope to cover several of these topics in the future. Next time, we will have an item on the National Population Database from the Health and Safety Executive. There is also controversy about the geo-tagging of people – already used for some offenders but now being trialled for mental patients and those with dementia. It may seem obvious that knowing where a forgetful person can be found would be in their best interests but the privacy implications need to be very carefully examined.

We also hope to report on a very large project to develop mobile health technologies that enable doctors to diagnose and track diseases much earlier than ever before and we are encouraged by the use of social media and search engine queries to track new outbreaks of disease or other hazards.



... GI should be part of the solution and certainly not the problem.





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**A section of a map of Swindon that joins together all the different type of clays and mudstones on a background of OS open data.**  
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EVERYONE KNOWS ABOUT austerity, the credit crunch, cuts to services, limits to council tax increases and new functions being taken over by local authorities. But have you stopped to think about how much that could affect your own health

- With much more access to personal information, as well as our mapping, the data security stakes are far higher. Our laptops or tablets for home working immediately raise issues about the network transfer of large geographical datasets. Heaven help you if you don't have an unlimited broadband account when you get asked for an urgent set of maps while you are at home!
- New services are asking us for data we have never seen before and to which we sometimes don't have access for commercial reasons, such as underground utilities and business turnovers. How do we plan effectively for our economic growth if we don't have information to hand on our commercial population?
- The Olympics brought home to a lot of colleagues outside of my own network just how much a local authority is involved "behind the scenes". This recognition is not yet common to all local authorities, but is becoming more so as word spreads of the potential benefits of being able to predict future

## How safe are you feeling?

Integration of health and social services is now at the top of the government's agenda and this means parts of the NHS being moved into local authorities. **Kristin Warry**, from Swindon Borough Council, relishes the opportunities for her GIS team and considers some of the benefits and challenges.

and your safety? And have you also thought about where GI is helping local government to meet ever increasing demands with ever reducing resources?

**Opportunities and risks** Firstly, upper tier local authorities, such as Swindon Borough Council, were designated as category one responders under the Civil Contingencies Act 2004, along with the police, fire and rescue, and ambulance services, with duties before, during and after an emergency. This means a duty to work together to coordinate the response and to prepare the response plans for anything from a flu pandemic potentially killing 20% of the UK population, to informing the public about risks in their particular areas.

Secondly, authorities are now responsible for services that used to be primarily part of the NHS and are having to merge them into their pre-existing roles and organisations.

In April 2013, for example, the local NHS Public Health Team joined Swindon Borough Council and now they both sit under the same roof, opening up new vistas in collaborative working and the meeting of challenges. Being a unitary authority, we are responsible for all local government services within our boundary, from registering births, deaths and marriages, to large town regeneration plans. For GI officers this provides some interesting opportunities but also some risks:

demand by knowing who will be where, and what sort of people they will be. Of course, the new census workplace statistics, due next year, will be a brilliant addition and it is interesting to think how we can use this information to aid our forward planning and economic development strategies.

- Have you ever heard the phrase "government has made £x million available for such and such"? In reality it means that they are waving the cash in a bag and asking the local authorities to fight for it. Demographics are absolutely vital as evidence for these bids. Detailing the statistical evidence of deprivation, for example, enables the funding agency to make informed choices about who should receive the funds. Obviously you will be at a huge disadvantage if you do not use every tool at your disposal to try to get the funding for your area, project or organisation. Think of it as applying for a mortgage or loan, without declaring all your income. Hardly surprising then if the bank will not give you all the money you wanted.
- Finally, it's actually quite interesting and good fun working with emergency planners and business continuity managers. We use the demographic and other information at our disposal to consider different incident scenarios and to "play" with our

“  
*... they are waving the cash in a bag and asking the local authorities to fight for it. Demographics are absolutely vital as evidence for these bids.*  
 ”

GI to support the building of response plans that would help deal with an incident and possibly minimise the impact. It certainly wouldn't be anywhere near as much fun in an actual disaster, but it's good to enjoy our work in the meantime and very satisfying to know that we have helped make the best plans possible!

**Flood planning** Let's look at planning a simple flood response. First of all, where will it flood? This is not easy in Swindon, as it is built on clay. In fact, a British Geological Survey chap I spoke to at the last AGI conference once said that they use Swindon town as an example as to why you need more than just the basic geology. You also need more of their chargeable products or you end up with less information than the insurers, which is never good. What the GI officers then get is layer upon layer of surface water flooding, fluvial flooding, the history of flood events, the sewerage system and the soil permeability. From experience we know areas that will definitely flood and can then look at new factors – new roads, flood prevention schemes etc and see where else it might flood next. Of course, the weather is our enemy here. Being on clay means that our water doesn't go away as quickly as in more porous areas, so rain has a cumulative effect not seen in some other parts of the UK. However, on the bright side, Swindon doesn't have any large rivers either.

Then we need to consider the people that will be affected. It's not often talked about, but deprivation directly affects a community's ability to recover from something like a flood event. Families from affluent communities often up sticks to stay with relatives in the country or can afford a hotel and wait for the insurance to kick in. Deprived communities are often under insured and have relatives living much closer. Nor do they have the means to escape from having to sleep on the floor of a school gym with the rest of their neighbours. This leads to more secondary issues as the deprived areas tend to have less healthy people who are more likely to need help leaving their home, and might then not bring vital medication with them.

Such examples demonstrate that there is a real need for good statistics on what sort of people you have in an area, to best target public resources. And it's not just the immediate risks that need anticipating. You often end up with people needing help being cut off by the water. Planning transport to deliver meals on wheels or simply to help someone out of bed and to the bathroom are critical services, and show how much detailed information is needed for planning in advance.

Finally, we come to the allocation of resources. Which buildings will be used as humanitarian assistance centres? It's too easy to just rely on schools that have toilets, changing areas, first aid rooms, and canteens. If the school is used during term, where will the children go? If they stay at home, the parents have to look after them. There is a risk of them missing vital exams and coursework.

You also have to consider your own staff – how many of them will be affected and need to take leave, reducing your ability to provide vital daily services? The more local authorities have cut staff to the bone to survive the most recent cuts, the less resilience they have in re-allocating staff or buildings from non-essential roles.

Quite a few of Swindon's staff have volunteered to act as incident officers in their own time if they are needed. This is great, but we also need the communities to be able to help themselves. The current plans are to recruit community flood champions who can be alerted in advance of a flood risk event, and who will then have access to sand bags or equivalents and other support. These champions can then help their family and those around them to avoid being devastated by a flood and, with luck, just be surrounded by it for a short time.

**Privacy vs Safety** Unfortunately, in GI right now we can't yet use a lot of sensitive information but, if we could, it would bring new issues. Although we could, for instance, warn the fire brigade of the whereabouts of oxygen cylinders in an emergency, it would mean that every GI officer would also have access to medical records that most of us would like to keep private. On balance, the bias is still towards personal privacy. But one does have to wonder if this needs to be relaxed to allow for the identification of vulnerable people to provide them with speedier assistance during an incident? This takes us back to the integration of public health information into our servers and systems. Already the data is being used only two desks away from us, is this close enough or not? Our data will never be as "big" as the true data geeks amongst us would like and perhaps that's a good thing. But I for one would certainly opt in to a scheme that would allow my health information to be used by the emergency planners. I know how seriously they take the security of the data they regularly use and wouldn't mind this. Although I am sure some privacy campaign groups or sectors of the media won't see it that way!

I hope, at least if you live in Swindon, that you will now feel a little safer! And if you live or work elsewhere you may want to ask some questions about the availability and use of data in your own local authority.



#### About the author

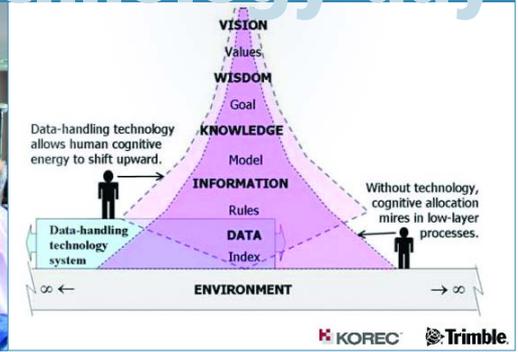
*Kristin Warry is the geographic and demographic information manager for Swindon Borough Council, which is (in her opinion) the most exciting place around for GI work, thanks to its ever changing challenges and demographics. She also does comms and social media for the AGI's*

*Inspire Action Working Group and Local Public Services Special Interest Group.*



**The more local authorities have cut staff to the bone to survive the most recent cuts, the less resilience they have in re-allocating staff or buildings from non-essential roles.**





Above left: The crowds gathered for Korec's Technology Day in Aintree.  
 Above right: Anthony Mills' diagram of a data to wisdom pyramid that includes the environment.

**Above: The German Aibotix Multicopter flying over Aintree racecourse.**

IT IS A LONG TIME since I looked through a theodolite. Then we only had conventional aerial photos from which to make maps – no digital imagery from satellites or unmanned aerial vehicles (UAVs) and no GPS to fix our position. So it was with some trepidation that I went to Aintree to represent *GISPro* at the KOREC Technology Day.

**Data is key** Yes, I did see some tripods. Yes, I think there was even an instrument with an optical telescope! But these will be of much less interest to our readers

mobile laser-scanning to GPS and total stations. We also saw fixed wing and multi-rotor UAVs flying over the home of the Grand National. The German Aibotix Multicopter is very impressive with the ability to hover and to carry either upward or downward looking cameras (think underside of bridges!). Fortunately, the operator was on the ball as the wind around the grandstand was rather gusty and it came quite close to some onlookers!

The fixed wing Sensefly UAVs were rather more

**Data – it's the future** KOREC's Technology Day at Aintree was well worth a three hour drive through the rain writes our editor, **Robin Waters**. The main message that came across was the importance of integrating data from different sensors and the very clever software that was now able to assist this process.

than the more automated data collection systems and the message of the day: Data – it's the future. Not the boy's toys or the technology or even the software – it's the data stupid! How we collect it, certainly. How we integrate it from different sensors, yes. How we make sure it is in the correct reference frame and fit for purpose, definitely. But it is the data itself – as specified by, and presented to, the end user that is the ultimate justification for our efforts and our tools. **Anthony Mills**, national sales manager at Trimble Navigation, showed an important diagram (above) that extends the usual data to wisdom pyramid by including the environment – the real world – at the bottom and the vision at the top.

This was complemented by **Katherine Sandford's** message about Trimble's vision for the company of moving from a "horizontal" surveying and engineering orientation to a more "vertically integrated" and market-oriented direction. This implies that the collection and processing of data must lead seamlessly to modelling, analysis and decision support. What has been a "field centric" product set must now include products and partners that are much more "office centric". She emphasised the need to recognise the sharing of information between systems and the need to break down barriers between silos.

**Is it a bird or a UAV?!** Other presentations took us through the range of data capture systems from sensors on satellites, planes and UAVs, though stationary and

distant, fly at a much higher speed and follow pre-programmed flightpaths to ensure correct lateral and fore and aft overlapping imagery. In fact, it was sometimes difficult to distinguish the UAV from the birds! The images are processed into a seamless model with Inpho software, which can also be used to extract lines and objects for attribution and further processing.

On the ground there was a demonstration of the new Trimble MX8 mobile spatial imaging system that works as fast as you are allowed to drive. Mounted on a white van, the system has laser scanners and digital cameras for 3D data collection with real time GPS. The associated Trident Analyst software automates the extraction of road signs, road geometry and even lane markings as well as subtracting other vehicles to give a clean model of the road infrastructure.

**BIM – a missing link** Back in the meeting room, the data theme was further reinforced by a presentation from **John Cartledge** of Ordnance Survey on their latest data products, including new terrain models and AddressBase. Somewhat surprisingly his mention of BIM and a subsequent question about whether OS would accept data from BIM projects was the only time that building information modelling/management was mentioned explicitly during the whole day. There seems to be a lack of understanding of the real meaning of BIM beyond its popular perception as CAD on steroids.



**The German Aibotix Multicopter is very impressive with the ability to hover and to carry either upward or downward looking cameras. . .**



# BIM roadmap

## Roadmap for integrating and managing information about buildings, infrastructure and geography

INFORMATION THEME	Gov.	CONTENT – buildings, infrastructure, environment
 1. BUSINESS MODEL	G-1	Purpose, scope, goals/benefits, principles, action-lines, measures, governance and authority, sponsorship. Institutional alignment and collaboration ((ICE, RIBA, IAM, OGC, BSC, AGI, BIM4SME, etc.)
 2. SEMANTIC MODEL	G-2	Real-world object taxonomies, typologies, synonyms (road, building, room, wall, airport, workforce, asset, asset hierarchy, energy concepts, etc.). Tangible and intangible. Real-world attribute catalogue (has/may have properties x, y, z). Physical form descriptors, energy characteristics, other.
 3. LOGICAL MODELS		Logical models of objects and their defining relationships, generic state change and process representations, generic lifecycles, generic spatial, linear and topological models, RDF, location referencing methods.
 4. REPRESENTATION & PROCESS RULES	G-3	Conditional constraints, code-lists, mandates, options, application-specific logical representations, standard procedures and processes, rules about spatial references and other unique identifiers. Identity, trust. Application or institution-specific.
 5. QUALITY RULES		Quality criteria, e.g. minimum resolution, projection, datum, completeness, scheduling and costing rules, etc. Application or institution-specific.
 6. LOGICAL EXCHANGE (format independent)	G-4	Bundling of information for different applications, logical exchange methods e.g. semantic web, application-specific data 'views'. Interoperability methods and protocols, metadata
 7. PHYSICAL EXCHANGE (bindings + formats)		CAD/BIM/GIS interoperability formats and syntax e.g. COBie, OGC CityGML, IFCxml, LandXML, geoBIM, OWL, RDF, SPARQL, XML, HTTP, FTP

Web resources case studies, training resources, technical documentation, minutes, etc. Social networks.  
Ontology (k-refs, definitions, taxonomies, etc.)

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Above: Figure One – The steps shown form the golden rules of the BIM roadmap.

THE UK BIM INITIATIVE focuses on a consistent and quality-controlled collaborative process underpinning design, construction and maintenance of buildings and infrastructure. Asset management is concerned with information about the whole asset lifecycle. The GI industry seeks to solve problems through exploiting spatial intelligence. To create a national digital archive of information about the built environment of equal

psychologists and even kindergarten teachers, will someday become as out of date as the print journal is becoming to our graduate students."

**Smart cities** Why is this so important? The World Economic Forum estimates that we will have to build the same urban capacity (housing, infrastructure and facilities) in the next 40 years that we have built over the past 4,000 years. To achieve this sustainably, we must leverage all the knowledge we possess.

**Bob Hall** of the Brookhaven National Laboratory believes a smart city should 'monitor and integrate conditions of all of its critical infrastructures, from roads and bridges to major buildings, to better optimise its resources, plan its preventive maintenance activities, and monitor security aspects while maximising services to its citizens'. Others go further and include intelligent transport, socio-economic and other needs. Smart cities move from being data-centric to being citizen-centric, meaning that information is not collected purely to create or maintain individual structures. It is also needed to learn, improve and support a wide range of other critical activities that also need to know about assets – in other words, improve performance and deliver value.

## A BIM/GIS Roadmap

In this second feature on Building Information Management (BIM), **Tim Wood**, with contribution from **Ian Bush**, director of BIM at Black & Veatch, looks at how to achieve a joined-up approach to information about the built environment before he turns to the role of the semantic web and its importance to BIM and GIS in the next issue of *GiSPro*.

value to all, we also need a common language that can provide an effective foundation for a much wider range of uses. The Open Geospatial Consortium (OGC) points out that BIM "includes data of interest to buyers, owners, lenders, realtors, first responders, repairers, occupants, safety inspectors, lawyers, emergency planners, and people working on neighboring facilities".

A common and consistent language about the built environment will cross our institutional divides, save money, enable innovation, create new markets and support the many disciplines needing to share information and knowledge about our buildings and infrastructure. It's also a crucial step towards smart cities where we can integrate the Internet of Things (assets, devices, mobile and static sensors), Internet of People (social networking, crowd-sourcing, workflow), Internet of Services (cloud-based solutions, processes, tools and operations) and the Internet of Data (linking of Open Data). To quote Berners-Lee:

"The joining together of subcultures when there is a need for a wider common language is an essential process in the development of human communication. The very notion of a journal of medicine separate from a journal of bioinformatics, separate from the writings of physicists, chemists,

Smart cities are a move from data silos to data sharing in order to meet the needs of the many, whether utilities, transport providers, public health, emergency services, asset managers, building managers, planners, businesses or citizens. In each case, sharing information and accumulating knowledge comes back to a common language for identifying, describing and doing, and the means to access this intelligence. For every real-world object or asset in the built environment, we need to be able to communicate four things: nature, identity, state and context.

**Logical steps** The starting point for our lingua franca is to understand the roadmap, from first defining business requirements for information to the end-point of physically exchanging data – about anything. The steps shown in figure one will also form the golden rules of our own roadmap for BIM.

The seven layers follow the principle of *gradation*, progressing from the over-arching and generic to the dependent and specific.

The shading of the table denotes major differences:

- **The business level** (G-1) concerns purpose, stakeholders, enablers and obstacles and a long-term as well as a short-term view. Ultimately, we cannot escape 'purpose' in how we see the world

**A common and consistent language... will cross our institutional divides... and support the many disciplines needing to share information...**

and institutional bias at the business level will have a profound influence over everything below it.

- **The 'conceptual level' (G-2)** comprises a 'semantic model' of the real world (put simply, things with names and types of things), and the logical models we construct of the real world when we define relationships between these things, using additional concepts – 'is part of', 'within', 'belongs to', 'along', 'contains'. Quite often, we are content to leave these concepts quite fuzzy, or have surprisingly different ideas of what the real world is, depending on viewpoint and context. For example, the concept of a building is very different when invoked for taxation, energy efficiency, construction, socio-economics, mapping or maintenance.
- **The data representation level (G-3)** sets the 'representation and process rules', and 'quality rules'. These define the ways we choose to represent the human or semantic understanding of the real world using data, a very simple geospatial example being whether to represent a building as a point or in two, three or four dimensions. Different conceptualisations result in different data representations, which is why information often fails to fit, other than (or sometimes even) in a spatial sense.
- **The exchange level (G-4)** defines conventions for how we exchange information, specifically the logical way we construct messages, the physical syntax and the formats.

A key principle is that each layer *only knows what lies above*. In other words, our conceptual understanding and 'semantic view' of reality should not be conditioned by how we want to represent it using data, and the way information is exchanged should not influence how we use data to represent reality. 'Common data referencing' of information about buildings doesn't mean the same real-world things are being measured, unless accompanied by conceptual information in some form – or simply assumed to be so.

It is generally true that conventions and tools for exchanging information will change more frequently than data representations, and our use of data will change more frequently than the concepts we want to represent and communicate. Because these steps also involve different kinds of people and skills (e.g. leaders, business, information, technical) there should be different levels of governance (shown as G-1, G-2, etc). A good reason for this is to avoid conceptual models being contaminated by data representations, or data representations becoming contaminated by conventions of data exchange. Business governance can both make things happen and stop them happening properly, so the relationship between G-1 and G-2 is crucial. If our ideas and information about buildings do not fit

THEME	Initiatives and standard examples												
1. BUSINESS MODEL	GDF (Geographic Data Files)	INSPIRE	ISO 15926 Ontology for industrial plant and structures	ISO 12006-3:2007 (IHD) construction dictionary standard	ISO 21127:2006 (CIDOC) cultural heritage ontology	OGC City GML	UK Uniclass	US Omniclass	BS 6100 vocabulary	BuildingsSMART Data Dictionary	UK National BIM Library	US DOE Buildings Energy Performance	Proprietary + other national standards
2. SEMANTIC MODEL													
3. LOGICAL MODELS													
4. REPRESENTATION & PROCESS RULES													
5. QUALITY RULES													
6. LOGICAL EXCHANGE (format independent)													
7. PHYSICAL EXCHANGE (bindings + formats)													

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together, our understanding is limited and much of our downstream effort is subsequently focused on attempting to retrofit information with widely differing meanings, or trying to deduce meaning from data. This is a vicious cycle and will undermine our attempts to create smart cities, because smart cities need smart information.

Anyone exchanging information will touch on each of these layers, even if unacknowledged or by default. In order to share common concepts and ensure that all parties are using common standards, the content from each of these steps (the 'ontology') can be held in a web repository, cross-referencing different representations, quality rules and so forth, updated once and used many times. This is becoming well established in disciplines such as medical science and finance, but relatively little progress has been made in the geographic sciences or in the construction industry.

**Obstacles and opportunities** The space occupied by some of the standards, conventions and other approaches that currently address the built environment are illustrated in figure two. Almost all of them have their own view of the world, comprising vertical slices through the table above. Some are business-led, but most are driven by the need to exchange data. What is immediately obvious is the degree of repetition at all levels.

Currently, most BIM-related activity is 'in the weeds' – at or below Representation and Process Rules (level 4). Everyone is keen to move things on for their own specific domain, but attempting to reverse-engineer up this table is a non-starter and will set the industry back years. Getting it right requires time and collaborative thinking, with carefully planned quick wins that don't lose touch with this greater goal. Overcoming silo syndrome will require firm cross-institutional leadership, a full appreciation of shared benefits and pooling of

**Above: Figure Two – Examples of some of the standards and conventions that currently address the built environment.**

**Overcoming silo syndrome will require firm cross-institutional leadership, a full appreciation of shared benefits and pooling of resources.**

# BIM roadmap

## INDUSTRY COMMENTATORS

**Dan Hughes, land and property sector manager, Ordnance Survey:**

'BIM is one of the major changes in the market at the moment which delivers significant savings not only the design and construction phase, but also the long term asset management. In part due to BIM, we are seeing increasing analysis of location data to inform the asset lifecycle and this is a trend we expect to continue. Location is a significant factor in both phases of an asset and the ability to have a common framework and references to allow communication of information is key. At Ordnance Survey, we are working with stakeholders across the market to support the use of both our 2D and 3D data as a common national platform for the full lifecycle of buildings and other assets.'

**Richard Groom, Environment Agency and editor of *Geomatics World*:**

'GI folk are the obvious people to facilitate the development of a "common language". In fact it is so important to get this right that there really should be a cross-discipline working party to get our collective thinking straight. OGC may be the sensible forum, but we must get all parties collaborating'.

resources. Examples elsewhere point the way. The US Department of Environment's Building Energy Performance (BEP) Taxonomy has been designed to support analysis of the measured energy performance of commercial and residential buildings, with data fields for building characteristics, efficiency measures and energy use, linked to reporting standards with reference to IFC<sup>1</sup>, OmniClass<sup>2</sup>, the ASTM BEPA<sup>3</sup> checklist and the ASHRAE<sup>4</sup> Audit Procedures Checklist. The EU e-COGNOS project developed a taxonomy as a first step in the establishment of a domain ontology for construction. The taxonomy was developed to be process-centred and allowed for existing classification systems (BS6100<sup>5</sup>, Master Format<sup>6</sup> and UniClass<sup>7</sup>, for example).

Since 1991, various European industry groups have also been collaborating on a standard for information concerning engineering, construction and operation of production facilities. Now codified as ISO15926, this includes how information is created, used and modified by many different organisations throughout any facility's lifetime. The OGC is working on web services to combine CityGML schemas with IFCs to allow interoperable access. All of the approaches in the table above deal with the same subject matter in different ways alongside numerous proprietary and national methods. Some have withered on the vine by being over-ambitious or failing to sustain endorsement and it is clear that most continue to think vertically, speaking their own languages.

Assuming we can agree a common language about the built environment, how do we speak it? We can use it with our databases and our interoperability software, but we can do much more than that. The Semantic Web (SW) is the name of a long-term project started by W3C, the World Wide Web Consortium. The stated purpose is *data* on the web, defined and linked so that it can be used by machines not just for display purposes but for automation, integration and reuse.

The SW already has well established ontologies

for pharmaceuticals, medical research and finance and will play a key role in analysing the global explosion in 'big data', much of which will come from the other global explosion in urbanisation. With the SW, it is possible to share ontologies about our built environment on the web. These can be used by geographers, engineers, planners and other professionals, and also by machines performing automated processes, alerting and informing us on how to improve outcomes and manage problems. In theory, our institutional divides become a thing of the past. However, having a disparate collection of ontologies referring to different aspects of the same real-world things, requires continual effort in maintaining equivalences between them. Somehow we have to find the right balance and collaboration to provide a well-referenced, equivalenced ontology for the built environment, with appropriately structured governance, will benefit us all.

We will explore the semantic web and its importance to BIM, GIS and Smart Cities in the next feature.

**A five-point plan** The starting point of this journey is to agree a common vocabulary, so we and our machines can focus more on using information and less on managing it. To do this, we have to learn to 'think horizontally', separating out semantics, data representations, processes and rules, and the logical and physical processes of exchanging information, so we can bring information together to solve integrated problems. We have to think about information as investment, as well as enabling specific industry processes. Based on this paper, the essential steps are:

- Agree effective governance structures by identifying all the key stakeholders, their roles and contributions, how leadership should work, and an effective collaboration plan.
- Create a common object model so that, as far as possible, the costs of cross-referencing and maintaining different definitions of the same things are minimised.
- Build ontologies to store concepts, relationships and rules so that the many actors in our BIM environment and smart cities can communicate and share information and processes.
- Commit to publishing 'linked data', to free information from databases and support a new generation of integrated information systems.
- Foster social networking and web resources, to reach out to all information producers and consumers, including SME's.

This will happen. But it will take decades if it is a piece-meal, slow and painful process. We can make it happen much more quickly with a collaborative and constructive engagement of all parties. The first step is to agree if this is the right way forward, or if there is a better way. The challenge, as always, is people. How



**We have to think about information as investment, as well as enabling specific industry processes.**



can we inspire our institutional leaders to focus on cross-industry, long-term goals alongside their specific, individual needs? We should not be asking "what's in it for me?" but "what's in it for us?"

**Acknowledgements:**

Liviu-Gabriel Cretu, Alexandru Ioan Cuza University, Romania; Nadine Alameh, OGC; Andrew Harrison, Landinform; Luc Heres, Rijkswaterstaat.

**References:**

- 1) The Industry Foundation Classes (IFC) data model is intended to describe building and construction industry data.
- 2) OmniClass is designed to provide a standardized basis for classifying information created and used by the North American architectural, engineering and construction (AEC) industry, throughout the full facility life cycle from conception to demolition or reuse, and encompassing all of the different types of construction that make up the built environment.
- 3) The American Society for Testing and Materials (ASTM) recently published its much heralded Standard Practice for Building Energy Performance.
- 4) American Society of Heating, Refrigerating and Air Conditioning Engineers.

- 5) Building and civil engineering vocabulary
- 6) MasterFormat is a standard for organising specifications and other written information for commercial and institutional building projects in the US and Canada.
- 7) Uniclass (Unified Classification for the Construction Industry), published by the UK Construction Project Information Committee (CPIC).



**About the author**

*Tim manages business change initiatives across information management, energy, transport and environmental sectors and clients include utilities, the private sector, Central and Local Government, most recently delivering a business case for £75m of energy efficiency and carbon savings across Sussex. He has also co-authored a new approach to business change – In-flight, the blueprint for successful business change – has enjoyed senior roles in companies such as Atkins, Black & Veatch and the MVA Consultancy. Tim likes to think of himself as a GI professional.*



**How can we inspire our institutional leaders to focus on cross-industry, long-term goals alongside their specific, individual needs?**



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- when it has to be right



# power of the crowd



**Figure 1:** Above – Mark Iliffe, far right, with fellow Team Taarifa members and (right) the team at work at the RHoK Hackathon.

THE AVAILABILITY OF geographic data in the developing world is improving with the advent of community mapping projects like Map Kibera in Nairobi, Kenya and through organisations like Humanitarian OpenStreetMap Team (HOT). This is rapidly removing a large barrier for NGOs, governments and businesses that need to provide services in the developing world. But it leads to further questions – in particular, now we have the data, what do we do next? The Taarifa project

in 48 hours (see figure 1). The event started with a framing of the exercise – problem statements and expert presentations in person or by teleconference. These problems ranged from a water trading platform to public service infrastructure and community mapping.

After continued development and design, Taarifa was first deployed with the Ugandan Ministry of Local Government in March 2012, followed up with use by the Zimbabwe Government in April 2012 facilitated by the World Bank.

**Concept and development** Taarifa's concept was a platform to support citizen interaction with public services for less-developed countries. The team assembled and collectively agreed on a design specification for report workflows, specifically for ministry level decision-making on sanitation or waste issues.

For rapid development we used a customised version of Ushahidi, a platform/content management system designed for the crowd-sourced reporting of

## Taarifa: improving public service delivery

The availability of geographic data in the developing world is improving but what should be done with it? **Mark Iliffe**, with input from **Giuseppe Sollazzo**, explains how the Taarifa project is providing answers and aims to stimulate discussion on how crowd-sourced geospatial data and open source platforms can be combined to improve both public and private service delivery in developing nations.

partly answers this question, with respect to the monitoring of public service provision. Taarifa is a software platform enabling community reporting of problems, from health to waste issues, through a mobile phone interface using SMS or a HTML5. Reports collected then enter a workflow for the service provider to monitor, triage and take action.

**Inception: Hackathon** Taarifa is unique from its initial design, inception and deployment. Originally conceived at the Random Hacks of Kindness (RHoK) London Water Hackathon in October 2011 at University College London, a group of core developers 'hacked' a solution

issues. It was originally developed during the Kenyan election crisis of 2008 and has been used to report conflicts and recent 'occupy' movements.

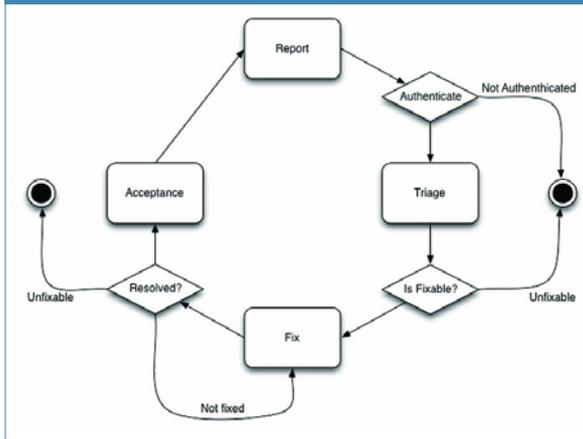
Inheriting the interface from Ushahidi meant the load on the developers was focused towards the back end where tasks and problems are being received and triaged. The workflow started to come together with reports being verified, then triaged, going to the imaginary team of fixers and finally reaching conclusion or dispute resolution. The tabs to accommodate these were integrated into the system. As reports could be triaged we focused on expanding the reporting mechanism (see figures 2 and 3).

Ushahidi supports reporting through a web-based form, through Twitter and through its mobile applications (iOS, Android, Java and Windows Mobile 6) and it can interface with SMS gateways. We decided to use SMS due to the prevalence of feature phones in Africa and the lack of mobile data packages. It is therefore realistic for SMS to be the sole method of reporting in most areas but this presented problems with the geo-location of the messages. The OGC standard on GeoSMS was not yet available and although it is possible for the mobile phone networks to triangulate the position of the sender and supply a latitude and longitude this wasn't practical over a 48-hour hackathon, even leaving aside the ethical and privacy concerns.

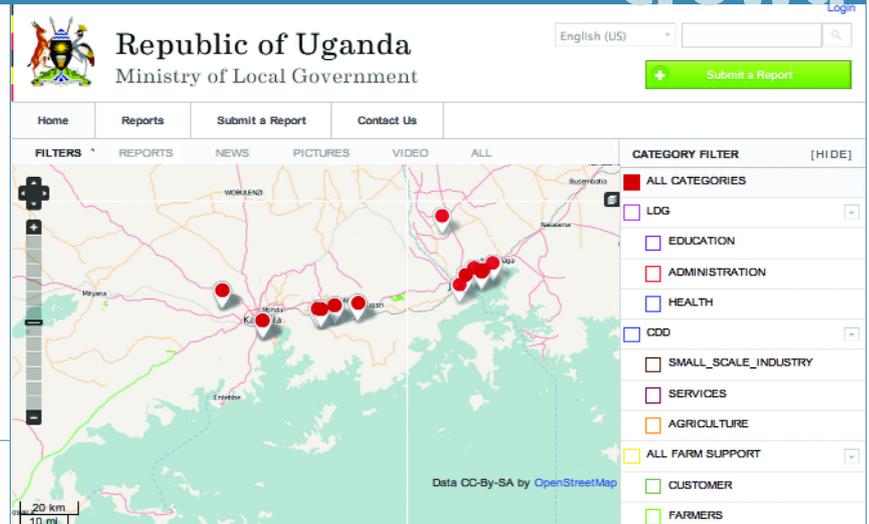
### Random Hacks of Kindness (RHoK)

The London Random Hacks of Kindness Hackathon, where the Taarifa project was conceived, involved humanitarian coders and subject matter experts working together to produce technology demonstrators and designs to solve global water problems.

RHoK is a growing global initiative encompassing a community of over 5,500 innovators in over 30 countries making the world a better place by developing practical, open source technology solutions to respond to some of the most complex challenges facing humanity. This is done by defining problems, organising hackathons and ensuring projects are effectively deployed. Source: [www.rhok.org](http://www.rhok.org).



Above: Figure 2 – Workflow of reports through Taarifa.



Above: Figure 3 – An example of the Taarifa interface as used for the Republic of Uganda

Instead we created a custom coordinate reference system (at a resolution of 100m) having a 10-digit reference for each grid square. Then a reporter with an SMS capable phone would input the number with a hash (#), which could be parsed from the submitted message. This might be problematic on a large scale – getting local respondents to understand and know their own grid reference. Ideally they need a reference system that conforms to the human geography – not just the physical.

All of this was accomplished on the first day of the hackathon although we worked through the night, only resting for four hours. A global team of friends carried on completing an SMS gateway. What then remained at the hackathon included bug fixing, tidying up code, basic documentation and, not least, choosing a name! For this we were at a loss, until one of our members put “Reporting” into translation software and pressed the Swahili button. “Taarifa” is the result.

The Taarifa group was voted the winner of the London hackathon so thoughts then moved to how we should progress. The team had worked and synchronised well. An online mailing list was created, communication through instant messaging was initiated, and some thought given to logos and branding.

We determined that the integration of the mobile applications was key, though development was dispersed over the Android, iOS and Windows Mobile platforms. A decision was made to focus on a web-based HTML5 application and, using the offline functionality of HTML5 and CSS3, a mobile application was quickly prototyped.

**Deployment: Uganda** The Africa Urban and Water (AFTUW) sector of the World Bank approached the Taarifa project with a view to a pilot with the Ugandan Ministry of Local Government (MoLG). The ministry wished to monitor local government projects improving community cohesion, public services and enterprise. Four districts were chosen for a pilot as part of the “Improving Systems for the Urban Poor”. This was supporting two ministry-led programmes: Community Driven Development (CDD) and Local Government Management and Service Delivery (LGMSD).

CDD is a match-funding programme where community members form groups around themes of entrepreneurship, farming and education. Funding is given in ratios of between 2:1 and 5:1 and is aimed at directly improving the development of communities. LGMSD is a government programme aimed at building capacity within government including the council buildings, schools and sanitary facilities. Figure 4 shows the reporting, by civil servants, of a local government building under construction.

Traditionally, the CDD and LGMSD systems are paper-based with forms being posted to central government in Kampala. Drawbacks included ‘idiosyncratic delivery’ by the Ugandan postal service. There is also a load on the reporters. The complex nature of the questions posed by CDD and LGMSD often posed difficulties to civil servants, who may not even have the appropriate equipment to submit forms.

Civil servants reporting to these programmes were selected for training, with AFTUW supplying Android-based Huawei ‘Gaga’ mobile phones costing under \$100 each. Initially, the custom forms of Taarifa worked well, with the participants able to submit information. However, when venturing into more remote districts the functionality of Taarifa inhibited reporting, specifically with offline forms. While reporting offline is possible, the forms cannot be changed without network connectivity. This requirement was logged in the GitHub repository used for Taarifa project management. Improvements were identified by the pilot and were fed back into the Taarifa community through blogs and design sessions.

MoLG and AFTUW deemed the four-district pilot successful and, consequently, the platform was rolled out to the 111 districts in Uganda. MoLG directly administers the system although it is actively seeking devolution of control to the local district councils. As a future requirement for Taarifa this is a large undertaking.

**Summary** Taarifa as a group is currently looking towards becoming a more formal organisation. As an open source movement it could go further. However,



**This might be problematic. . . getting local respondents to understand and know their own grid reference. . . they need a reference system that conforms to the human geography. . .**



# power of the crowd



**Above: Figure 4 – Taarifa in the field.**

as a loose collection of interested humanitarians the project can only go so far. Documentation is in need of improvement, not just for requirements but also for user guides and user manuals.

As an organisation, formal structures and roles should help to shape the project. Requirements gathered in collaboration with users of the platform at the ministerial and local level could be investigated with the funding to explore those opportunities. Taarifa is an open source platform and is free to download and use. Time and equipment spent on the project is costly; but this is a cost that (apty named?) Taarifans willingly pay.

## Acknowledgements

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## About the authors



- Mark Iliffe (left) is a PhD candidate at the Nottingham Geospatial Institute and he is also the lead of Taarifa ([www.taarifa.org](http://www.taarifa.org)).
- Giuseppe Sollazzo (right) is a senior systems analyst at St George's College, University of London. He also helps medical researchers "map diseases".

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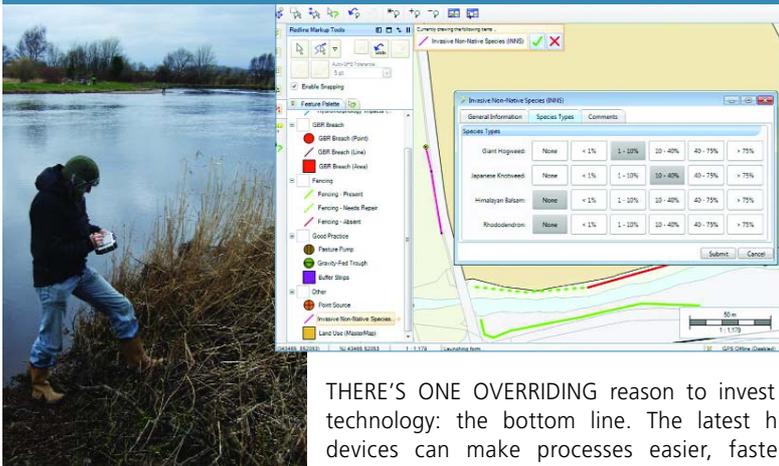
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Educating GIS Professionals Worldwide



Above: The Algiz 7 being utilised in the field by SEPA and (right) a screenshot example of the data collected presented in the GeoField software.

THERE'S ONE OVERRIDING reason to invest in new technology: the bottom line. The latest high-tech devices can make processes easier, faster, more accurate and more secure. But in the end, return on investment is the key; upgrading to new technology makes the most sense when it saves big money.

That was the conclusion that led Scottish Environment Protection Agency (SEPA) to invest in more than two dozen Handheld Algiz 7 rugged tablet PCs for a 15-year pollution-assessment project. The timeline of the undertaking coincides with budget cuts that will eventually result in a 20-percent reduction in staff. However, as a result of a pilot project that compared

computers from three different manufacturers to test in field trials. SEPA needed an all-in-one product, meaning no auxiliary units or separate pieces, and the Algiz 7 from Handheld Group emerged as the winner.

Electronic data collection virtually eliminates typos and errors, as well as problems with writing legibility, loss of writing utensils and the effects of weather on paperwork. Data is gathered securely, recorded in real time and uploaded almost immediately into SEPA's systems, which automatically create reports and maps, as well as a full audit trail.

**The proof is in the savings** SEPA made a direct comparison of mobile computing to paper-based data collection by having the field work for 400 kilometres of waterways in the South Esk catchment carried out using both methods. The time savings were startling. In the paper-based procedure, collecting data into field maps, scanning the field maps into PDFs and importing the spreadsheet data into their GIS system took 45.5 days with a labour cost of roughly £8,000.

The same data collection and processing using mobile technology took eight days with an 80-percent

## Taking a walk along the bottom line

Scotland's Environment Protection Agency (SEPA) decided to invest in mobile technology from Handheld and are now saving money on a long-term field data collection project.

data gathering techniques side-by-side, SEPA expects that the technological upgrade will potentially save it more than £700,000 in the first three years alone.

**Pilot project tests a better way** SEPA has identified 102 "priority catchments" – needing remediation – across Scotland and the first step is to identify and classify pollution types and sources along every kilometre of the waterways involved. That will require considerable fieldwork: SEPA staff will walk the entire river network and survey each catchment. They will also perform farm-scale inspections across the country.

Dr **Jonathan Bowes**, senior data analyst/modeller for SEPA, immediately saw a major problem with the current state of affairs and technology. The massive amounts of field data required were being collected and recorded by hand. 'The anticipated volume of paperwork involved in this exercise triggered the need for a fundamental change in the way SEPA collects data,' says Dr Bowes.

SEPA developed a pilot project to test the efficiency and cost savings of using rugged handheld computers in the field and the South Esk Priority Catchment was selected as an area to evaluate digital data capture technology in parallel with existing methods.

**Finding the best tools** SEPA used an open-tender process to select the GeoField mapping and data collection software from Sigma Seven and chose rugged mobile

savings in labour costs, roughly £6,400. Estimated labour savings for the first project segment of 14 priority catchments is £708,000.

**Evaluation straight from the field** Of course, focusing on cost savings is meaningless if the new technology isn't useful and the new process isn't effective. SEPA has found that the new method of data collection and storage can accelerate the process of environmental improvement. Non-compliance issues can be rectified with landowners much more rapidly, which theoretically brings faster environmental response. Dr Bowes summarises: 'The whole cycle speeds up'.

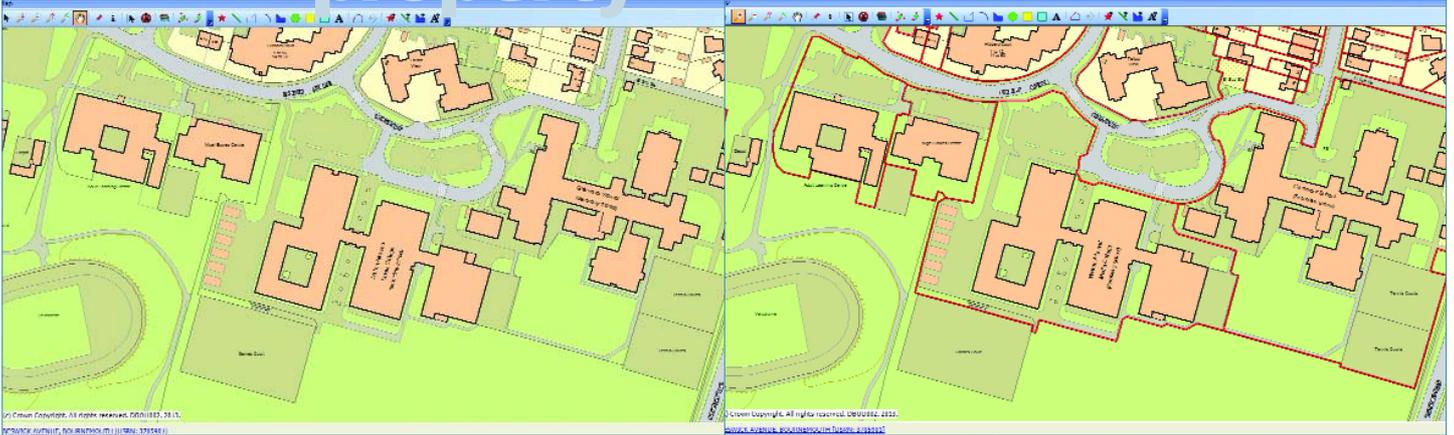
Feedback from the field has been extremely positive. SEPA reports that field workers found the tablets to be "usable and effective in day-long operation in rugged and remote terrain. The digital data capture on maps is an efficient, accurate, robust and easy-to-use alternative to paper-based recording".

**A justified new direction** The pilot project has led to a streamlined future for the pollution-assessment initiative and SEPA are moving towards a purely digital system with 26 Algiz 7 tablets running GeoField Exchange software. This will save the agency a large amount of money and produce a healthy return on investment. Dr Bowes concludes: 'The project has attracted a great deal of attention across SEPA as this concept of paperless field work is applicable to almost everything we do. Potentially, it could revolutionise major parts of SEPA's business'.

“  
**Estimated labour savings for the first project segment of 14 priority catchments is £708,000.**



# identifying property



Above: Examples of polygon spatial extents captured and updated by Mouchel Business Services working on behalf of Bournemouth Borough Council using Symphony iManage provided by Aligned Assets. The example on the left shows no polygons while the example on the right shows the updated polygons.

IN THE LAST ISSUE OF GIS PROFESSIONAL (No. 51, April 2013), **Gayle Gander** made a good case for how certain local authorities choose to represent properties listed in their Local Land and Property Gazetteers (LLPG). Many use a polygon indicating the extent of the property, rather than a building

title plans. Both LR and OS warn users of their services that any inference about the extents of land ownership should only be considered “indicative” and not legally enforceable. This extends to arguing that we do not have a cadastre, don’t need one and have a better system anyway!

## What’s the point? Points, parcels and polygons

Professor **Bob Barr** responds to the guidance to local authorities on the creation of BLPUs polygons reviewed by Gayle Gander, GeoPlace, in the last issue of *GISPro*. As a borough councillor he is well placed to ask why we need so many different public sector bodies deriving similar polygons from the same base data.

footprint or even just a single point. She also highlighted the advantages of authorities that choose to record their property extents to an agreed set of standards, which have emerged from a consultation and a custodians’ working party. Avoiding the re-invention of many different types of wheel in well over 300 local authorities is clearly a good idea and in the interests of citizens and council tax payers. It is more difficult to understand why we are paying surveyors or technicians in up to four different public sector agencies to define property extents that are usually characterised by being under single ownership and occupied under a uniform tenure. Of course they do not all get the same answers!

**Better than cadastre?** Most countries have systems to record land rights and land tax obligations. These are generally known as “cadastrals” – government registers of land ownership and, often, a legally enforceable record of property boundaries. In England and Wales we do not have a cadastre. Instead we have the Land Registry, which relies on Ordnance Survey large scale mapping for its “index map” and virtually all of its

Is it only for historical reasons (not being invaded by Napoleon?) that we have separate agencies maintaining the land register and large scale mapping when many countries have only one? In such countries, the cadastral parcels (property extents) are also used to calculate taxes on property or land. In England, business rates (a property tax) are levied on valuations from a third organisation – the Valuation Office Agency (VOA), which therefore also needs to record commercial property extents (and calls them ‘hereditaments’!). VOA also assign residential properties to Council Tax bands but, because this process is not directly dependent on the land area of a hereditament, they are only referenced by an address.

So, given that at least two other agencies already have a digital record of many (most?) of the property extents that local authorities might wish to use in their gazetteers, it is strange that none of the custodians’ guidelines suggest starting with what already exists.

**The tangible and the logical** The Land Registry has spent over £20 million capturing its index map, which is a set of boundaries, mainly for internal use, of all registered land parcels. To meet the EU INSPIRE

“  
... we don’t necessarily need a cadastre. But why are up to four sets of public servants capturing the same lines on the map?”

regulations they have also produced the INSPIRE index polygon dataset as the nearest equivalent to continental cadastres. This is currently a view only product, with unique INSPIRE identifiers that can be used to access – at a price – further details of each registered land parcel.

The Land Registry has attempted to make a commercial product of its index map polygons but given the very high price, originally £2 per polygon but since reduced and available with modest volume discounts, the take-up has been low with most local authorities not being able to justify buying a set for their own area. This isn't perhaps surprising when the LLPG custodians can re-capture the polygons themselves often using facilities in the gazetteer maintenance products that they use.

"Hang on!" I hear you say, "you're telling me that local authorities, the Land Registry and sometimes VOA are all spending taxpayers' money capturing similar polygons. Surely that can't be right? Isn't that why OS MasterMap was created?" MasterMap is a structured (to make polygon extraction very easy) large scale topographic map/database, which records over 450 million "real world" features and is updated continuously across the whole of Great Britain.

Well yes and no. While it is true that OS MasterMap records real world features, these are tangible objects like buildings, fences, kerbs. It doesn't record abstract logical features such as land ownership parcels. Unlike cadastres and surveys in other countries, where both the tangible and the logical are recorded together, in Great Britain they are separated. We are told that this is more efficient as the detailed surveying and measurement of every property extent isn't necessary. We don't have the nightmare of having property boundaries re-surveyed every time a property changes hands or of having to buy US style "title insurance" in case our property extent is challenged.

**What's wrong with sharing?** Fair enough, we don't necessarily need a cadastre. But why are up to four sets of public servants capturing the same lines on the map? Not fair: only one set of public servants (at Ordnance Survey) capture the position of the features on the ground and up to three others use these lines and basic polygons to create their own property parcels for their own purposes. Why do they need to do that? Why can't they share nicely?

One of the main reasons is because when you have extracted a set of polygons from OS MasterMap they don't belong to you. You are very restricted as to what you can do with "your" polygons, even though you have already paid Ordnance Survey for the use of their map. "Your" lines aren't yours at all, they contain "embedded intellectual property rights" and are classed as

"derived data". You may only therefore sell or share your lines under a licence partially written by Ordnance Survey, which may trigger a payment to OS. It will also usually require those buying your polygons to licence use of MasterMap from which they were extracted, however small a proportion of that database they constitute.

**Survival not enough** So while I applaud the coordination and the common standards reviewed in Gayle Gander's article, I am still appalled that, despite the massive duplication of efforts, most organisations still cannot afford to buy a map that shows land ownership parcels because the stacked pricing is unreasonable, or the products are simply unavailable.

It is deeply unfortunate that the business model under which Ordnance Survey operates as a trading fund is not designed to maximise the use of their information or to reduce wasteful duplication of effort across the public sector. It is simply designed to enable Ordnance Survey to survive. There must be a better way of achieving that so that OS, the Land Registry and local authorities can work nicely together to benefit citizens, rather than expending effort on arcane arguments about intellectual property rights, derived data, stacked licences and cost recovery – and on duplicating dead parrots!

**Note:** The views expressed in this article are those of the author alone and not necessarily of any of the organisations he is affiliated with.



#### About the author:

*Bob Barr is a career academic who is currently a Visiting Professor at Liverpool University and Chairman of Manchester Geomatics, the company he spun out of his lab at the University of Manchester. His career portfolio includes sitting on Warrington Borough Council; the Board of Helena Partnerships, the LSVT Housing Association*

*based in St Helens; and on two government advisory groups: APPSI, the Advisory Panel on Public Sector Information, and the Open Data User Group. Bob was also a founder member of the AGI and spent 13 years on its council, including being Chair in 2001, and currently chairs the Address Geography SIG. He has spoken and written widely on geographic information policy matters for most of the last 30 years. Twitter: @DrBobBarr*



**... most organisations still cannot afford to buy a map that shows land ownership parcels because the stacked pricing is unreasonable. . .**



# the GISPro interview



James Brayshaw is an executive director with extensive experience of leading enterprise software, information solutions and SaaS businesses in B2G, B2B and B2C markets. He has been instrumental in leading the adoption of location intelligence-based solutions in infrastructure, central and local government, health, security, insurance, land and property, utilities, telecoms and retail markets in the UK.

James has nearly 30 years' experience in enterprise software and data solutions including over ten years in the Autodesk CAD and GIS industry and as the key enterprise software lead in the team on the BAA

Terminal 5 project in the 1990s. Most recently, he was a main board director of Ordnance Survey, where he led the transition from a mapping organisation to a customer focused data services provider across both the public and private sectors.

James is an active member of the Association of Geographic Information (AGI) and also sits on the UK government's BIM Task Force Steering Group and is the lead for BIM UK Data Management.

## How does PBS fit into the Pitney Bowes corporation?

Pitney Bowes is well known for its mail services software and equipment and has some 27,000 employees in 100 countries with \$5.5bn annual revenue. Pitney Bowes Software itself has 1800 employees in over 20 countries. We help businesses communicate more effectively in today's multi-channel environment, so they can build long-term customer relationships and drive profitable growth. PBS majors in location intelligence, data quality and integration, customer analytics and communications management.

## And what are your main capabilities and how are these branded?

The MapInfo location intelligence suite is used in

**The future of location intelligence** After more than ten years as a director of Ordnance Survey, **James Brayshaw** recently left to join Pitney Bowes Software based in Henley. Robin Waters caught up with James, who is now nearly two months into his new position as director and general manager for location intelligence, EMEA (MapInfo), to find out more about his reasons for moving and how he perceives the future of the location business and the MapInfo brand.

### With your background and high profile role at Ordnance Survey, why have you moved?

To be honest I was not looking to leave Ordnance Survey, however I became interested in the opportunity to be able to make a difference at Pitney Bowes Software. Ordnance Survey has been through significant change driven by new technology, ever changing government priorities and emerging competition. I am pleased that I have been able to play a leading role in these changes and feel quite proud to have left the organisation with a more customer focused ethos than when I joined.

### How did your colleagues react to this sudden change of direction?

I think they were surprised however they understood that the MapInfo brand was not as visible as it used to be within the location industry. Pitney Bowes has a rich heritage and the MapInfo brand was well respected in the GIS industry. The products have always been known for their ease of use in the business intelligence and geographic information areas. What was a surprise to me was the lack of awareness of the underlying PBS enterprise location platforms and software applications that characterise the overall value we bring to the corporate world.

many private and public sector organisations for GIS applications using spatial data whether on the desktop or on enterprise servers.

However, we also provide location intelligence for the enterprise with our main platform called Spectrum and Spectrum Spatial. This platform provides a wide range of location enabled services that can, for example, be designed to generate and maintain a single customer view across all lines of business and geographies in an enterprise. This is used by our clients to provide a consistent single customer view as well as providing fast, accurate, global addressing, geocoding and routing to improve communications and logistics.

I believe this is a unique value proposition of the PBS solutions. Facebook is one of the new breed of client – they are using our Spectrum technology platform and data primarily for geocoding and location intelligence integrated into their applications and services. It's all about location-enabling data, which is increasingly happening in the server end at the enterprise, rather than from a traditional GIS end user point of view.

### So what are your main market sectors and typical customers?

We have customers across a wide spread of commercial markets, including the finance and insurance



**Facebook is one of the new breed of client – they are using our Spectrum technology platform and data primarily for geocoding and location intelligence. . .**



industries, the media, retail, travel agencies, logistics and telecommunications. We also continue to serve both central and local governments, including health and police. At an enterprise level, one of our customers in the UK is Willis Re – the risk management specialists – and Barnsley is a typical local authority (see the customer boxes right and below for more information).

### Can you explain the PBS offerings beyond MapInfo and how they fit together?

MapInfo Professional is our desktop mapping solution with full GIS functionality. Stratus takes MapInfo implementations onto the web and MapInfo Manager provides centralised metadata management. We also provide MapXtreme, which enables our partners to help their clients integrate more business data with a complete software development kit. Another application is Vertical Mapper, which brings in grid data – from topographical terrain models to the use of gravity modelling for retail analysis.

When an organisation wishes to extend the use of location enabled data across the enterprise, Spectrum is the chosen platform with both spatial capability and full data quality and master data management. This ultimately enables an enterprise to develop “relationship centred” views of their overall data holdings irrespective of the processes, roles, hierarchies or interactions.

### Traditionally, MapInfo was marketed through value added suppliers – will this continue?

Absolutely. We value the contributions of our partner companies such as Dotted Eyes, CDR and, in Ireland, Gamma. They excel in providing customer focused solutions that are in touch with the local markets and they have developed innovative

## Customer: Barnsley MBC

Barnsley Metropolitan Borough Council in South Yorkshire is a unitary authority responsible for an area of 130 square miles and over 220,000 residents. Key responsibilities are local government and service provision including planning and transportation. Barnsley chose the MapInfo Stratus Software-as-a-Service option because the cost and flexibility outweighed any risks associated with not having the technology in-house.

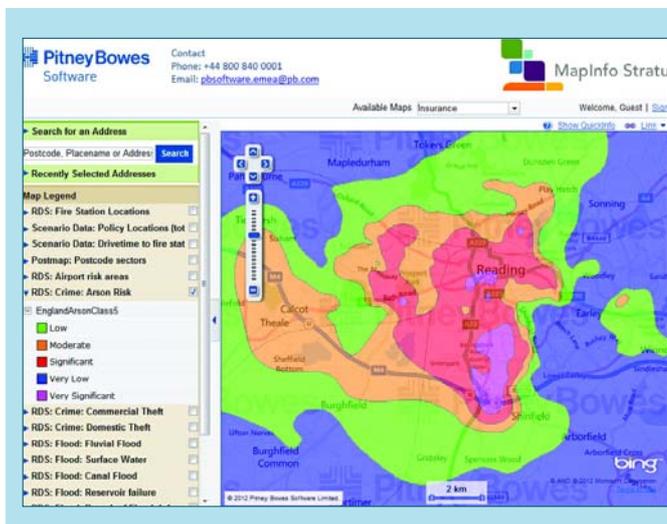
MapInfo Stratus enables the council to publish data both internally on the intranet for all relevant staff and externally on a public facing website. MapInfo Professional is used for mapping and geographic analysis, while MapInfo Manager helps to build, maintain and manage centralised catalogues of spatial data. Also, Barnsley has used Stratus to create MyProperty, a web service for citizens who can enter their postcode and access all available information about their immediate area.

applications and services based on our core software platforms.

### PBS has recently announced an agreement on collaboration with Autodesk in the US. Will we see this soon in the UK?

The short answer is – later this year. In 2012, PBS agreed a strategic alliance partnership with Autodesk to serve as a framework to provide resources, services and solutions to infrastructure owners and architecture, engineering and construction (AEC) organisations to enable them to make more informed decisions and drive greater efficiencies. In April this year we announced the inclusion of TomTom in a tripartite team that will help analyse and manage capital assets in the US. This addresses the current inefficient separation of GIS and BIM (Building Information Modelling/ Management) workflows.

Right now Autodesk and PBS MapInfo products are interoperable. “What if” scenarios can be generated and managed in MapInfo, which can then be “consumed” by Autodesk Map3D for visualisation at different levels of detail. TomTom provides data to support all levels of analysis and visualisation.



## Customer: Willis Re

The Willis group is a professional services firm specialising in risk management. It advises corporate clients, insurance carriers and reinsurance companies, helping to determine the best way to manage risk as well as negotiating and placing that risk with insurance and reinsurance carriers.

The PBS Spectrum Platform combines data quality tools with international geocoding capabilities to enable consistent comparisons across international boundaries. It is fully integrated with Willis' Microsoft technology to incorporate geocoding into analysts' workflow processes.

By increasing locational accuracy, catastrophe modelling can now produce more precise results and risk estimations for many potential perils. The ability to visualise a client's exposure helps Willis demonstrate to its clients the benefits of supplying high resolution data. The improved insight and risk reporting capabilities are also helping to address EU Solvency II regulatory requirements. *Image: Screenshot example of risk management using Stratus.*

# conference report



Around a thousand Esri customers attended this year's annual conference for the seminars (above) and the training centre (left).

THE ESRI UK CONFERENCE was held at the Novotel in Hammersmith on 21 May. Around a thousand Esri customers attended as well as nearly all of the 250 or so Esri UK staff. That is a big conference for GIS in UK. And the customers came for free – perhaps that is the secret to a successful conference in austere times?

It is the first time I have attended the conference and I was impressed. Esri folk could not have been more helpful; the facilities, with a couple of admitted glitches, were spot on; the food and drink (free bar at

**Apps and blurred distinctions** There was also an interesting plenary discussion session with **Peter Wilkinson** from Esri UK, and Christophe Charpentier and **Ismael Chivite** from Esri Inc. They enthused at the potential for ArcGIS Online and thought that smaller users would take it up rather than have to maintain their own servers but they did think that ArcGIS servers would continue for larger and more sophisticated users. The distinction between online and desktop applications will become blurred in any case. Not good news for

## Exploring the evolution of geo intelligence

Content is king! That was the main message from the Esri UK annual conference in London – a buzzy event with four breakout streams and 17 partners exhibiting. **Robin Waters** reports.

five) were first class; the partners seemed to be doing great business on their stands and the plenary and breakout sessions were very interesting. Partners ranged from RGS (but not AGI) to Nokia here (sic) – previously NAVTEQ. OS, The GeoInformation Group, Atkins, Leica, Canon and Bluesky are natural partners but 1Spatial would normally be seen as a competitor and I admit to never having heard of the others!

**Hints and frustration** Breakout sessions were organised so that some technology and/or content from Esri was followed by a couple of end user case studies. I heard all about UK content from **Christophe Charpentier** and then two very good case studies from the Canal and River Trust (formerly British Waterways) and Scottish Power. The former are now relegated to charity status and have lost their membership of the Public Sector Mapping Agreement with Ordnance Survey, which seems daft. The latter presented a low carbon stakeholder collaboration and are incredibly frustrated by not even being able to use their own company's anonymised meter readings due to privacy concerns, which also strikes me as daft.

I will be writing up my interview with **Charles Kenelly** for the next issue but suffice it to say that his tongue in cheek review of the next 25 years of GIS in the UK had sufficient humour and a few hints that ought to keep us on our toes. When do you think Ordnance Survey will just serve its own data to anyone and cut out all the middlemen? When will we all be geo-tagged – if we want cheap life insurance?

'conventional' GI experts – the panel thought that they will be gradually be overtaken by application specialists able to use the easier technology but that there will be a great need for those who can blend cartographic skills with graphic design to produce the end user outputs. Also, three awards were made in the afternoon session:

- **Best ArcGIS as a Platform project implementation**  
– John Barnes, Kent Police.
- **Best ArcGIS webmap**  
– Peter Wain, Tunbridge Wells DC
- **Best conference presentation**  
– Patrick Bell, British Geological Survey.

**Education and competition!** Presenters don't get much more passionate than **Jason Sawle** who runs the Esri not for profit schools programme. This programme has been going for several years but not been as successful as they had hoped until ArcGIS Online made it so much easier and provided lots of base mapping. He is looking for further sponsors – £250 per school – and in particular for those that can help with their own local data. GIS is on the curricula but it still needs a big push.

And now for something completely different! We heard from **Kate Philp** and **Ibrar Ali**, MC about their determination to help the Brits beat the Americans and the Commonwealth teams to the South Pole in aid of Walking with the Wounded, which we will be able to follow live through an Esri application later this year. All in all an excellent day out that was enjoyed by a lot of people.



**When do you think Ordnance Survey will just serve its own data to anyone and cut out all the middlemen?**





**Kent County Council has overhauled its highway inspection process to combat the safety issues caused by potholes appearing on its road network.**

DISCUSSIONS ABOUT 'those damn potholes' regularly crop up down at the local pub, the school gate and in the papers. If you listened to the media coverage of the recent local elections, you'd be forgiven for thinking that the elections were all about either national politics or local potholes.

Potholes are a major factor in causing axle and suspension failure, which cost British motorists an estimated £3.8 billion every year. In 2011/12 local authorities spent £90m repairing 1.7 million potholes across England and Wales. The problems they cause, along with footway defects,

range from burst tyres and damaged vehicle suspension to broken bones – and consequent compensation claims.

However, it is possible to identify some types of carriageway defects and carry out preventative maintenance to stop or delay the formation of the potholes. Some footway issues can also be detected before they become a significant hazard. Expert highway inspectors are employed to carry out this work.

**A new inspection structure** The county recently implemented a comprehensive overhaul of its highway

six months for minor carriageways every year and for minor footways. It developed a centralised integrated street network based on its local street gazetteer (LSG) already maintained by the Highways Department. Optimum route lengths were calculated and district boundaries were deliberately ignored in order to optimise travelling time.

Routes are now continuously maintained with information fed seamlessly to the works management system, which holds details on defects and where inspection histories are recorded. Inspectors' mobile devices improve access to data and receive citizen reports directly from the call centre. By fitting new calls into planned inspections, inspectors respond more quickly. The inspectors identify routes using the web and can record histories and enter new defects.

Inspectors now generate works orders in the field, and transmit them directly to contractors so that repairs can be completed very quickly, removing hazards to citizens as soon as possible. This enables continuous maintenance of the network to the highest standards and also saves money.

**Winning results** The council now has full visibility of the inspection schedules, routes and required frequencies and fully auditable inspection data. The condition of the highway network has also improved.

## Road mending success in Kent **Richard Groombridge** of GeoPlace explains how Kent County Council overhauled its highway safety inspection process – saving the council money and winning satisfied drivers!

safety inspection process to make it more efficient and to fix defects before they become potholes. Surveys consistently show that prevention and quick repair of potholes and trip hazards is considered to be a top priority by the public, confirmed by councillors and the media. Other benefits that accrue from the overhaul include improved business effectiveness and customer service, correctly assigned road hierarchies and appropriate scheduling of streets inspections.

Safety inspections along all designated routes are a statutory duty and best practice. Kent had 40 highway inspectors, managed by six different area offices covering 8,000 km of highways and 6,000 km of footway. All reports and records were stored and managed locally on paper. Kent needed fewer inspectors to carry out more inspections, to react quickly to problems and to administer works orders more swiftly.

**Deploying inspectors** Kent needed to know how many inspectors could undertake routine safety inspections focused solely on the identification, reporting and repair of safety critical defects.

The council divided the network into inspection hierarchies in line with best practice that requires inspections every month for strategic carriageways and footways, every

The figures speak for themselves:

- Compensation claims down by 35%
- Repair orders down by 36%
- Number of inspectors reduced from 40 to 12
- Cost savings in the region of £5 million over 3 years.

Kent County Council won the GeoPlace 2012 Exemplar Award for Improvement and Efficiency for this project as an example of the use of the local street gazetteer. Better roads for less money – what's there not to like?



### About the author

*Richard Groombridge previously worked at Kent County Council and was the project leader for the overhaul of Kent's road inspection system. He is now NSG Coordinator at GeoPlace, which is responsible for integrating all of the local street gazetteers into a national system and providing the resulting national street gazetteer as a service for all those with an interest in streets.*



**...in 2011/12 local authorities spent £90m repairing 1.7 million potholes across England and Wales.**



# address management



Rob Walker is an independent consultant in geographic information, currently working mainly on European projects. He specialises in Standards, and is chairman of the European Standards Committee, CEN/TC 287.

THE FUTURE OF Address Management in the United Kingdom event, held in London on 18 April, was organised by the AGI Address SIG at a time when the future of Royal Mail itself was being decided. Given the Royal Mail's ownership of the Address Management Unit (AMU), the likely privatisation of Royal Mail will clearly have implications for the availability of the Postcode Address File (PAF). And so it has proved. The very next day it was reported in the *Telegraph* (scoop or plant?) that the AMU, responsible for PAF, would be privatised along with the rest of Royal Mail. A further two weeks down the line, we have now been told that there will be a sale of shares in Royal Mail by the end of the 2013/14 fiscal year with some shares also going to the employees. In the first instance, this presumably means that Royal Mail will not be bought by a large corporation or be controlled by one of its "competitors". In the future of course shares will go to the highest bidders. . .

**Exchange of information** Despite this uncertainty surrounding the postal addressing monopoly, it was

Nick detailed the three levels of AddressBase now available and how the legacy products will be withdrawn in October 2014. AddressBase, giving a 'postal' view, will replace AddressPoint. The Plus version offers a 'current property' view and replaces the MasterMap Address Layer 2 product. Premium offers the 'full property life cycle' and replaces the NLPG. The numbers of addresses range from over 27 million in the basic product to well over 35 million in the Premium version, which includes five million records without postal addresses and over two million 'child records'. There are currently about a thousand OS 'address data' customers. Over a quarter have migrated or are in the process of doing so. Nick also emphasised the continuous data improvement programme and also the plans for on-line and change only update services.

**Scotland & N Ireland update** Scotland was represented by **Iain McKay** who is the One Scotland Gazetteer business manager. AddressBase is not yet offered for Scotland but many large users will use it

## The postal addressing monopoly

Reporting back from the recent AGI Address SIG event on the future of address management in the UK, our editor **Robin Waters** and **Rob Walker** outline updates on the addressing scene and the debate over the "opening" of the Postcode Address File (PAF).

very useful to get an update on the address and geocoding scene in the whole of the UK – and to hear the arguments for and against the "opening" of the PAF file as championed by the Cabinet Office and Sir **Tim Berners-Lee**. Most parties with a strong interest in the management and use of PAF were represented at the meeting with the glaring exception of Royal Mail themselves! (They had been invited.) The audience was evenly divided between the public sector (including local, devolved and central government) and the private sector from software and value added data suppliers. There were about 60 participants and lively Q & A sessions. The event was ably chaired by **Andrew Harrison**, LandInform Ltd and secretary of the Address SIG.

The advent of GeoPlace has brought agreement between Ordnance Survey and local government on the provision of the AddressBase products and both **Steve Brandwood** from GeoPlace and **Nick Turner** from Ordnance Survey majored on this collaboration. The Data Co-operation Agreement sets out the relationship between local authorities and GeoPlace, which is a two-way exchange of information that is driving improved quality of the databases and is now achieving very impressive match rates with council tax files, non-domestic rates and PAF. Local government can make use of the national datasets through the Public Sector Mapping Agreement (but see PAF issues further on).

as soon as it is available. Integration of the data must be accompanied by an agreed licensing regime and the One Scotland Mapping Agreement is currently being renegotiated. Iain also raised the issue of making addresses an Open dataset and asked why the apparent revenues and 'profits' are so skewed away from local/regional government.

Northern Ireland has the same Royal Mail – and PAF – as the rest of the UK but a very different regional/local government arrangement and its own version of Ordnance Survey (OSNI) and a coordinate reference system shared with the Irish Republic. It also has Pointer – its own geocoded address dataset – and the only UK land boundary with another EU member state. OSNI is now a part of Land and Property Services, which also includes the Land Registers of Northern Ireland, the Valuation and Lands Agency and the Rate Collection Agency. Pointer has some 750,000 addresses and grew from the Compas database that paralleled OSGB's AddressPoint in the 1990s. As with GB, the PAF is a fundamental part of the addressing infrastructure, complicated however by use of the traditional 'townlands' that still cover the whole of Ireland. Northern Ireland has its own agreements and licensing arrangements for the use of Pointer in public and private sectors with the result that any organisation requesting UK-wide access to geocoded address data must have at least two licences in place.



... the PAF is a fundamental part of the addressing infrastructure, complicated however by use of the traditional 'townlands' that still cover the whole of Ireland.



**Local knowledge** So much for the data sources – what about the applications and the users? **Andrew Young** of Durham County Council spoke for local government in England and Wales with the emphasis on the use of ‘Local Knowledge To National Benefit’. Although individual authorities cannot perform their own duties efficiently without the local land and property gazetteers, they still need to be able to cross boundaries and communicate to a common standard with their peers – individuals and businesses have interests that do not respect local government boundaries – which in any case have often been subject to change at the whims of central government! Any regional or national organisation also needs data that may have originated and be maintained at local authority level to be available in common formats and with common licence conditions (if any). Setting and maintaining these common formats and standards is fundamental to GeoPlace being able to offer the national datasets to both public and private sector whatever the fees and licences involved.

**Open data: for and against** **Tim Drye** of the Direct Marketing Association and a member of the PAF Advisory Board, argued that the current system worked well. He argued against PAF becoming open data on the grounds that Google would be one of the biggest beneficiaries. He also argued that Royal Mail profit on PAF showed that there was a demand for their product and that profit should be maximised. They were not concerned about the lack of transparency regarding Royal Mail’s reported £25m expenditure on maintaining PAF each year but admitted that PAF licensing was opaque, and that the Advisory Board had failed to do anything to remedy this so far.

**Heather Savory**, chair of the Open Data User Group (ODUG), and **Bob Barr**, one of its members, presented the case for an open address dataset for the UK. They asserted that the definitive address database was a core reference geography and that society depends on it. The current complex licensing regimes were restrictive and costly to users and the 20-30 years of trading in address data and associated coordinates had failed to maximise use. Several major ‘address wars’ have been fought over address-related IPR and business as usual will mean more of the same. ODUG believes that the time has come to benefit from an Open National Address Dataset and that this just needs the political will to make it happen.

**Open not free** **Angela Latta**, deputy director, Data Strategy Board, Department for Business, Innovation and Skills, reported on the current government review on the feasibility of a free national addressing database derived from existing sources, prompted by a paper from ODUG. ‘Open’ does not necessarily

mean free of charge. There could be a new charging model (perhaps “Freemium”) or improved licensing or both. The review is independent of any possible privatisation of Royal Mail and should have been completed before this report is published.

Finally, **Peter Winstanley** of Scottish Government described a linked data infrastructure for addresses, as part of the EU Interoperability Solutions for European Public Administrations (ISA) Programme, interconnecting regional and national address data.

**Debates and fan clubs!** A lively discussion followed contrasting the widespread support for more open data with what was described as the Royal Mail fan club! The initiatives in Scotland with central political support, and in Northern Ireland with the merging of organisations and processes, made a very positive impression while the current restrictive licencing, particularly of PAF, was clearly very unpopular. Some delegates suggested that perhaps it was time to move on from PAF – though no coherent proposals for a replacement were in evidence. There was some support for current pricing and licensing from the commercial sector, which is also responsible for a lot of the direct (did I hear junk) mail that actually provides a large proportion of Royal Mail’s income. In other words, Royal Mail and its fan club are mutually supportive and will resist opening PAF, which would, as they see it, lower the barriers to entry into their business.

Everyone knows their postcode and, by one means or another, everywhere in the UK seems to have a postcode whether or not it has a postal delivery point! Not bad for a maximum of seven characters. The postcode is here to stay for a while yet – whatever the outcome of the current debate and whoever controls its allocation and use. The AGI Address Geography SIG will continue to monitor the situation and seek to inform members and represent their views.

*GIS Professional will be looking at postcode boundaries in a future issue – there seem to be lots of them and none which are in any sense definitive! Watch this space.*

### After Note: Royal Mail

At least Royal Mail have decided not to compete with AddressBase. The following announcement appeared on their website on 23rd April:

“Royal Mail Pinpoint: Mapping the precise geographical co-ordinates of every home and business address in the UK.

Royal Mail announced in the summer of 2012 a pilot initiative in East Anglia to map the co-ordinates of home and business. The pilot explored the potential for Royal Mail to support the location-based information marketplace. Following the completion and full review of the pilot, we have decided not to progress the initiative.”



# review product launch



**Above: An example from Google Map Maker showing Bletchley Park, home of the WWII codebreakers, where the product had it's official UK launch.**

IN THE WORDS OF the 'official' tweet – 'Google Map Maker proudly welcomes the United Kingdom to its team of citizen cartographers!' The official launch took place at Bletchley Park, home of the WWII codebreakers, where some of the current museum staff had been busy filling in the gaps on the current Google Map offering. So, like it or loath it, Google's maps are now in your hands.

Map Maker has been available in some countries (e.g. Pakistan) since 2008 and is now available for most of the world. The company claims 'technical obstacles to overcome' for the delay in launching in UK.

When I got home after the event my town council newsletter informed me that one of the committees was

real live employees may all be used to check and validate our entries.

This may take from several hours to many days. My current profile shows 84 edits of which 66 have been approved. Most of those edits were done within a few days of attending the launch on 11th April – I am writing this on 13th May. I guess this delay is inevitable if corrections are to be fully vetted

– none of mine have so far been outright rejected and I have had only a couple of minor queries. The process also brings into focus the quirks of UK addressing and Google's attempts to deal with them. My town is known as St Ives (Cams) even though it has a Saint Ives Town Council. In fact, the name of the town council is never used for any other purpose. We are St Ives for PAF, the Ordnance Survey and for our town signs. Google has St Ives on the map and, sometimes, for addresses. But try to enter a new address or edit Saint to St and the system cannot cope. There is no "write in" option and the drop-down list only provides Saint. I have commented more than once but have not been acknowledged for this.

## Citizen cartographers of the world unite – you have nothing to lose but your time!

Royal Mail recently cited Google's vacuuming of data as a reason not to release the Postcode Address File (PAF) as Open Data! Google has also been named and shamed as a company that pays less than its fair share of UK taxes. Well now we have another issue to enthuse about or worry over – Google Map Maker has come to the UK. Our editor, **Robin Waters**, reports after attending the official launch.

worried about the wrong placement of various town features, shops and offices on these maps to the detriment of local business. They are certainly right to be concerned. A quick look shows incomplete street naming, many duplicates and some very crude – or even completely wrong – placement of symbols when searching on businesses in the town centre. So I emailed the committee to let them know how to correct their own symbols and also set about correcting some myself.

**The right position?** As an aside, while trying to correct some addresses in the town centre, I looked for actual street name plates. Oh dear! Our main 'square' (complete with Oliver Cromwell's statue) is named Market Hill on the south side and The Pavement or Sheepmarket on the other (adjacent but not overlapping). There is one sign for Market Hill – in the middle of its range – but none at all for The Pavement or Sheepmarket! How on earth anyone, even the omnipotent Google, can cope with this sort of English idiosyncrasy is anyone's guess. Well, actually, OS do have it right on MasterMap as do OpenStreetMap.

**Quirks of addressing** Don't expect instant results! Be very, very patient. Despite being on pretty fast cable broadband the response from many operations in Map Maker is very slow – of the order of tens of seconds in many cases. The tools are all those that you would expect including the full use of the background vertical imagery and Street View – though both may of course be several years old. Edits can include moving the location of points of interest, entering new points of interest, streets, or building footprints as well as editing all of the details associated with these. Descriptions, addresses, house number ranges, and road conditions can all be edited and comments added. Edits are of course reviewed – other citizen cartographers may add further comments or agree with changes. Trusted algorithms and reviewers – as authorised by Google – and

Only time will tell whether citizen cartographers will be able, or willing, to update this American curated map as well as they seem to be doing with OpenStreetMap. Why should businesses have to struggle to position themselves on any map? We have official government datasets – PAF and AddressBase – that claim to be definitive but which are not available to the likes of Google or OpenStreetMap because of their cost and/or licensing conditions. Is this 'competition' good or is it a complete waste of citizen cartographers' time? Economists measuring the nation's GDP may have one answer; businesses struggling to survive and being involuntarily 'moved' might have another.



**Be very, very patient. Despite being on pretty fast cable broadband the response from many operations in Map Maker is very slow. . .**



There is more news of products and services on our website at [www.pvpubs.com](http://www.pvpubs.com)  
To get your company featured on this page call Sharon Robson on +44 (0)1438 352617

### 1Edit for 1Spatial

1Spatial has launched 1Edit for 2D and 2.5D real-world data with a high level of quality assurance. It supports real-world hierarchical data models and presents potential errors on-screen during edits. It also supports change-only saving of data, provides automatic editing of shared geometry and natively supports inter-feature references.

### Watercourses mapped

Ordnance Survey has released a dataset mapping watercourses across Scotland including the highlands and islands. OS has worked with the Scottish Environment Protection Agency (SEPA), Marine Scotland and local authorities to develop data that will help users create a detailed understanding of their watercourses and then share with partner agencies. This should lead to reduced flood risks and better emergency preparedness.

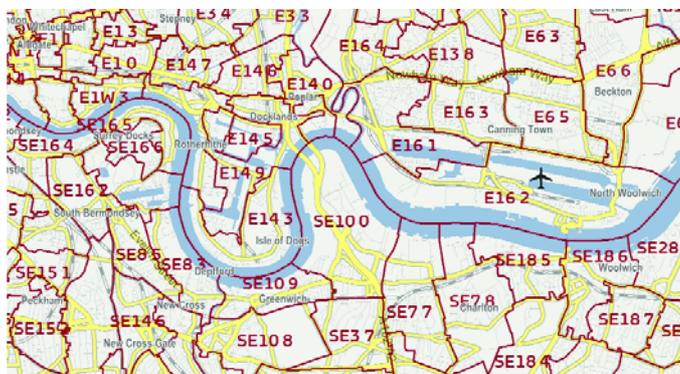
### New digital aerial system

Microsoft has announced the UltraCam Osprey combining both vertical and oblique image capture. The system is fully integrated with overlap between vertical and oblique images to enable automated aerial triangulation and the derivation of 3D models of ground and buildings. The system collects five bands of imagery: panchromatic, RGB, and near infra-red.

### Open Geography portal

The Office for National Statistics (ONS) has launched its Open Geography portal for finding, viewing and downloading of the definitive spatial data that support national statistics. The portal includes postcode directories, and the boundaries, names and codes for all areas with published statistics. It has been developed in partnership with Landmark Solutions and meets the government's aim for Open Data as well as complying with EU INSPIRE legislation.

### GfK updates UK maps



GfK has updated its 15 digital maps for the UK to reflect all postal and administrative boundary changes. For the first time they include OpenData from Ordnance Survey with points for each unit postcode, and re-digitised postcode sector boundaries. GfK admit that before OS OpenData it was very difficult and expensive to create good maps for UK. The maps are available in all standard GIS formats as well as in Oracle Spatial database format.

### More linked data from OS

Ordnance Survey has blogged about a new version of their Linked Data Service (beta version at <http://beta.data.ordnancesurvey.co.uk>) designed for existing users to test and review against current applications. Improvements include embedded OS OpenSpace maps, improved searching and metadata and SPARQL 1.1 compliant endpoints for all datasets. There is a redesigned search API based on the OpenSearch specification and support for geography based queries as well as all new API documentation and interactive tools, including integrated example resources and queries.

### Bluesky's bigger map shop

Bluesky has launched its biggest ever online map shop to provide access to hundreds of thousands of aerial photographs as GIS ready image files or hardcopy photographic prints. It is a national heighted building map, detailed height models, LiDAR datasets as well as other GIS data including those from Ordnance Survey. The preview window automatically displays the most up-to-date aerial image of any location. Users can then choose alternative epochs or select from

photography (from 1999-2005 and 2006-2012). 12.5cm and 10cm resolution images are also available for selected urban areas.

### BRIEFS

Microsoft has announced GeoFlow for Excel (MS Office 2013 version) that will enable users to plot data on Bing maps with 2D and 3D effects. It is currently available for premium enterprise customers and Office 365 subscribers.

Bluesky's ProximiTREE is being used by ADAS to help energy companies reduce the risk of power cuts by prioritising vegetation management activities along power lines. It is derived from aerial imagery and largely automates the process of identifying individual trees and wooded areas.

other products. Data includes two epochs of 25cm resolution aerial

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*Dr Anne Kemp is a geographer who has worked in the infrastructure industry for 25 years. She is currently serving as Chair for AGI and is also Director at Atkins and Vice Chair of BIM4I, and of ICE's BIM Action Group.*

THERE IS A REAL BUZZ around AGI at the moment, both at the RGS offices and online (the council are now collaborating over Chatter) – you can sense that change is in the air. This is exciting and challenging at the same time. The membership is a broad church – and the council reflect it – so our workshop-styled meetings can be lively affairs that bring a fresh dimension to the role of Chair!

We are busy preparing our business plan and re-invigorated identity statement ready to consult and take advice from you – our members – and our friends and colleagues across the industry. It has been fantastic to receive phone calls and emails in response to my last piece asking for feedback – and the resulting conversations are really helping guide AGI's way forward.

So what is new? **Alan Wilks** – our dedicated and hard-working CIO – moves into early retirement over the summer. And we say fare-the-well with a mixture of envy and nostalgia as he spends more

we are seeing the results of this work at the regular members events. In the CIC's "BIM for Growth" report, April 2013, **Richard Saxon** observes of BIM for Infrastructure:

**"BIM for Infrastructure.** BIM tools for infrastructure work are being developed by vendors with users to enable the infrastructure sector to progress as well as the building sector. Geospatial tools need to become aligned with BIM concepts so that they can interoperate. For example, Google Earth could show site data as a 'first-survey' tool."

So the awareness that the construction industry need geospatial tools has grown markedly – the level of understanding of what these tools are, and the opportunities available, still represent a barrier to entry, and I urge that as a community we need to work harder to understand and talk their language.

## The changing face of AGI **Anne Kemp**, currently chair of AGI, reports on plans for the coming "Making Infrastructure Work – where BIM meets Geospatial" event, at the Royal Geographical Society in London; GeoCommunity 2013 and how the organisation is responding to change by setting a new agenda across its activities.

time in sunny Spain. But we don't lose his wisdom and skills as he continues to work with us on a consultancy basis. **Peter Capell** also completes his contribution as interim CEO, providing a valuable transition to a period of time when the executive will take over the reins of leadership, guided by a network of AGI ambassadors.

Council continue to step up to the plate, with energy and verve, as I ask them to help in re-focusing the organisation in response to the huge changes we are seeing across the industry. We have a new member of the team joining us in July to beef up our focus on events and marketing. We want to be sure that we help our membership understand the changes they need to make in their own approach and skills, and to penetrate new markets. I guess our current activity and thought leadership on the role of geospatial for BIM are a good indication of this.

**AGI – homing in on BIM** Our fastest growing special interest group currently is BIM4Infrastructure ([www.bimtaskgroup.org/bim-4-infrastructure-uk/](http://www.bimtaskgroup.org/bim-4-infrastructure-uk/)), which we are running in collaboration with the Institution of Civil Engineers and the UK Government Task Group. Many of the issues raised in the articles in this issue (**James Brayshaw**, page 24, and **Tim Wood**, page 14) are being discussed and actively worked on by members of BIM4I – and

I am personally putting the finishing touches to our next Showcase Event on 24 June, in London at RGS – "Making Infrastructure Work – where BIM meets Geospatial" – and for me the quality of speakers and the level of sponsorship and exhibitors is a great indicator of just how relevant the BIM phenomenon has become for our industry. We've come a long way I think since my paper, "*BIM isn't Geospatial – or is it?*", won Best Paper at GeoCommunity 2011. We have some of the major players of the BIM phenomenon – and across infrastructure (including EA, Crossrail, Heathrow) – coming to RGS to present on current challenges – and why they need help from the geocommunity. So do come along to find out why this is important and how you can get involved. I have been told that there could be some important announcements made. . . Book online at: [http://agi.mhsoftware.com/ViewItem.html?integral=0&cal\\_item\\_id=1304&dtwhen=2456468](http://agi.mhsoftware.com/ViewItem.html?integral=0&cal_item_id=1304&dtwhen=2456468).

At the same time, AGI are working with ICE/ICES, RICS and other players in the survey community to form "Survey4BIM". Having spoken on BIM at GEO-North and GEO-South, it is patently obvious to me that leadership is needed to ensure that survey is given due consideration in BIM implementation – and as AGI we are very keen to help in facilitating this. Please do contact either myself or **Ian Bush** (chair of ICE/ICES Geospatial Panel: [bushi@bv.com](mailto:bushi@bv.com)) if you are interested

“

**. . . the level of sponsorship and exhibitors is a great indicator of just how relevant the BIM phenomenon has become for our industry.**

”

in being involved. It would be a grave mistake to think that Survey4BIM was just laserscan data. . . and yet you would wonder sometimes when listening to some of the more "hyped" BIM talks.

The importance of understanding the provenance, accuracy and appropriate use of data is a fundamental principle, which underlies the success of our profession – and the success of BIM. And the ability to assimilate and exploit data from a wide range of sources to gather greater intelligence and to enable grounded decision-making is a skill that becomes increasingly important in this data-rich age.

### Geocommunity 2013 – Open for Business!

We have been working on the programme for Geocommunity on 16-18 September – and been really impressed with the quality of papers submitted. We have been determined to make this conference of relevance to our members and our markets – the keynote speeches and streams align to the major opportunities that we identify – so are delighted to welcome Professor **David Philp** to present on making the UK infrastructure work – and why BIM and Geospatial are blood-brothers.

**AGI – the new image?** So let me try this on you.

AGI has been exploring the strap-line that captures the essence of who we are, and who we need to be. Our favourite is "bringing geography and information together". And whilst information, process, systems are a part of that, we feel that the important thing about our organisation are the people who enable this to happen. Their skills, abilities and passion to be able to use their qualifications and through their continuing professional development to exploit the available technologies and processes to help leverage the most information and intelligence from the wide ranging data that is now available – or should be available – to us all.

I'd love to hear what you think – we want AGI to work for you – and your views are vitally important to those of us who are serving to make AGI a success.

- You can find out more information about BIM4IUK at:
  - Web: [www.agi.org.uk/i-bim](http://www.agi.org.uk/i-bim)
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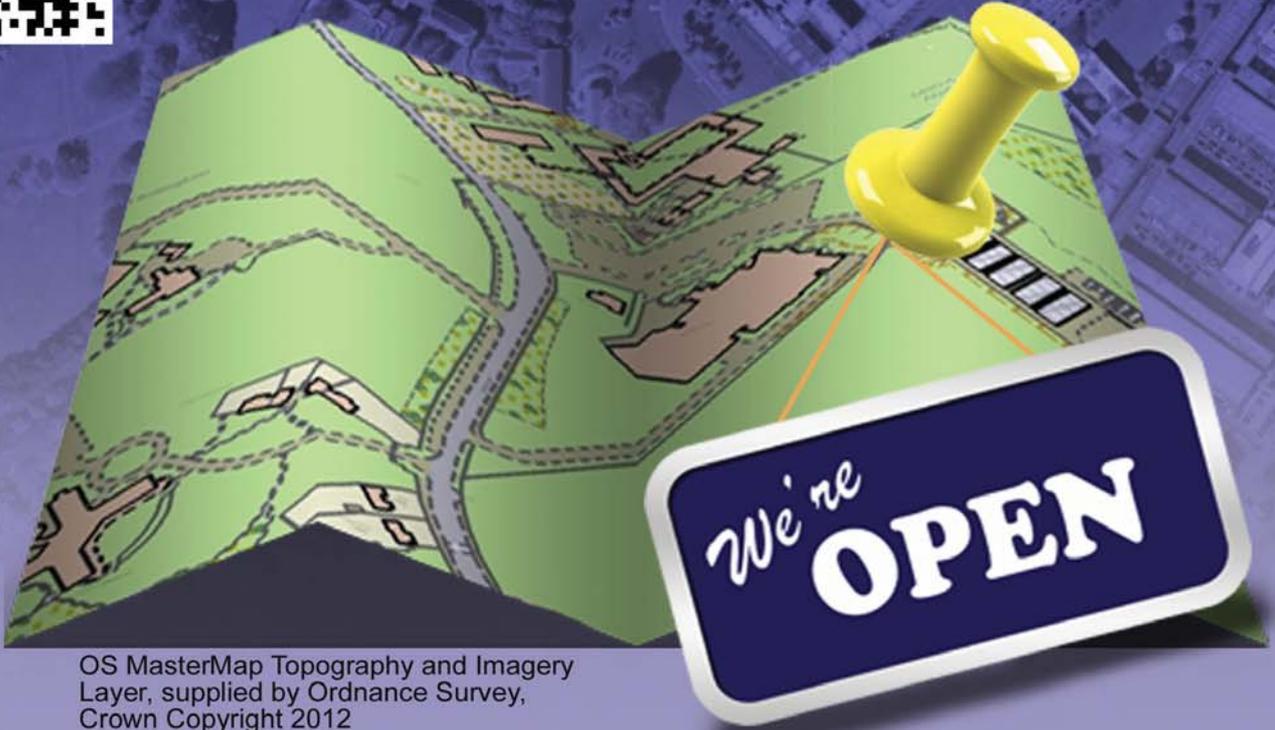
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