

# Open for Business - AGI GeoCom 2013



Increasing public awareness, opportunities for industry change and predictions for the future! Hayley Tear, Robin Waters and Stephen Booth report on the highlights of another successful AGI GeoCommunity conference.

Last year's AGI GeoCommunity conference focussed on "sharing the power of place" with the wider world and how building our industry's reputation was up to us – the GI professionals. In our report, we reflected that it had become an unofficial tradition to hear Chris Holcroft, who was then about to begin his new role at the Royal Meteorological Society, speak of the AGI's mission; always passionate about the opportunities open to us. So in the year leading up to GeoCommunity'13, has anything changed? In this issue of GiSPRO, there are plenty of positive signs. Adena Schutzberg reports that more citizens of

many lands are making maps of things that matter to them (see page 9) while David Green explains that the University of Aberdeen's new M.Sc programme in GIS addresses an increasing demand from employers for graduates with geospatial skills (see page 22). But of course, there are challenges to growing awareness too, as Charles Kennelly of Esri points out in this issue's interview (see page 18).

## Be Chameleons, Go Native!

With a bold conference theme in 2013 - "Open for Business" - it seems the AGI to is hopeful. In her opening address, Anne Kemp's enthusiasm matched Chris' passion from the year before as she encouraged delegates to stand up if they considered themselves to be GI professionals, if they were new to the industry or if they had worked in the industry for longer than 15 years – an effective way of showing the range of people in attendance! Geodata has gone omni present and we have to share it' but we have to have more confidence and cross boundaries, she argued. 'Be chameleons' and go native, learn from other disciplines she encouraged. And the range of papers and networking opportunities available reflected her words.

First, we had the informal pre-conference Ice Breaker to ease delegates in to the conference. Regular goers who missed this year's event will be pleased to know the quiz was as challenging as ever. I seem to have a knack for picking the right table as, much to the amazement of everyone on table 11, we won. As my contribution simply involved a lot of nodding, I must thank my fellow winners for an enjoyable evening! Sadly, there was no spaghetti sticks and marshmallows this year but we did play a game of rock, paper, scissors on mass as an interesting way of getting people to meet others on different tables.

## Geo-Intelligence

The next day saw the main conference begin with plenary/keynote speakers Major Stuart Batey, 135 Geographic Squadron, and Ordnance Survey's director general, Vanessa Lawrence. The 135 Squadron is the only Reserve Forces Unit to provide geospatial support to Defence. Batey explained that the role of geospatial recruits is to advise officers where to take soldiers – 'geo intelligence is key to war fighting'. Intelligence can include where to drive armoured cars – particularly key in urban terrains – where the opposition is mostly likely to attack and the location of collateral damage areas such as schools or places of worship. We were shown poignant photos of soldiers relaxing, one reading while wearing a mask and combat gear. Another showed soldiers in Helmand watching a vehicle sinking in to desert sand – which better flood modelling prediction could have prevented ('but these are American soldiers so we can laugh!'). For the future, he argued that they must be able to understand geospatial technology and information, not just be able to operate it. He also believes that it is important to show that geo support can be used in the UK everyday, not just on military operations.

## Innovation Requires Commitment

How can we, as an industry, be more effective? Vanessa Lawrence argued that the challenge for geo professionals is to be the best for the UK, to be better at business than competing countries. Recently there has been 'a fantastic explosion' of good articles from the media, crediting our industry and raising awareness of geospatial. She highlighted the recent Cambridge Conference and hosting of the UN GGIM in the UK as an important event for the UK geocommunity, bringing representatives from many countries together. We were told that the minister for Namibia remarked that, in a country where water is a scarce resource, spatial data is only below water in importance. Geography is something to be proud of, some countries see it as a poor degree but in the UK we are the fourth most employable subject, argued Lawrence. But growth is the key issue – we need to be more mature in our communication with each other, get more data used by everybody and more people building businesses with it. Growing innovation requires commitment, she concluded. One delegate asked Lawrence – will we have OS Plc in the next two years? She replied 'there are many things I'm in charge of – status is not one of them', stating that that was a decision solely for the cabinet – 'it says so in my contract!'

Later we heard from the second keynoter, Esri UK's Charles Kennelly, who gave a partly light-hearted, partly serious prediction of the

history of GIS over the next 25 years. Highlights include: 2020 – advances in cloning means that no one has to worry about what happens to Esri when Jack Dangermond retires; 2021 – standard smartphone is now something embedded in our skin and almost mandatory; 2029 – cartographers are reported as the most well-paid; in 2030's OS switches to OpenStreetMap; 2037 – GIS Day, a new national holiday, when a grateful nation thanks the GIS industry. Read more about Kennelly's predictions on page 18.

## Analysis v Gut Instinct!

The day two plenary speakers faced a slightly bleary-eyed audience recovering from an evening of masquerade masks, karaoke and a few drinks at the GeoCommunity Party! However, Iain Sterland, Head of Location Analysis at Sainsburys, started the morning well with a story of past managing directors rolling up to a prospective new branch site in a Rolls-Royce, winding down the window and deciding on gut instinct. 'Everything else fails without the right location' but employing location planners has only happened recently. He described location analysts as 'the gateway by which an organisation finds geography' – a map can capture the attention of an audience, bring together diverse data clearly and reveal insights in to the competitive landscape.

Meanwhile, David Philp, Head of BIM Task Group, argued that our current time of change is a 'perfect storm' for our industry but that 'BIM is not a panacea, it is an enabler!' He continued that the UK must be the best in class to be the providers of choice – BIM is a way of working, a smarter way of thinking but it will require collaboration as well as behavioural and cultural change from industry.

The final plenary was given by Peter Batty, a co-founder and CTO of the geospatial division at Ubisense. Batty remarked that "open" has always been a buzzword in the geospatial industry but what does it mean? He argued that 'developing open source software is not a hobby (for most people)', adding that, at the last count, the FOSS4G conference organised by the Open Source Geospatial Foundation, which followed on from GeoCommunity'13 in Nottingham, had 900 delegates registered (read Robin Waters' report on page 16). When deciding between "open" or "closed" source, he will consider aspects like functionality, cost and support but he's happy to use which ever is best for a particular job. Generally, open source has more freedom and you don't have to worry that a vendor might decide to stop investing in a product – usually there's a whole crowd developing open source, it's not a problem if one or two drop out. However, he added that open source is not always easy to install if you're not technically minded but that open source and crowd sourcing is helping to get geodata out there.

## Plethora of Choice!

Of course, it can never be said that the AGI GeoCommunity conference programme lacks choice! There was plenty of seminar streams covering topics like open data, new technology and business innovation to BIM, infrastructure and policy in practice. Here, Stephen Booth picks out some highlights:

There is some high value crowd-sourced data supporting the environment that is sustainable and resilient, according to Laura Kinley, a PhD student at the University of Nottingham, who considered the potential for crowd-sourced geospatial content to enhance authoritative land cover mapping. However, there are problems around inconsistency where that data is globally sourced and land usage is contested. But an increasingly geo-connected world offers possibilities, she argues. Kinley's research (limited to Hampshire) suggests that volunteered geospatial data from sources like OpenStreetMap suffers from spatial disparity, semantic inconsistencies and contextual issues but the land use data has much better coverage of the environment than OS MasterMap. Her research used geometric comparison and Python word matching scripts to test the data. Attribute accuracy was better than expected, however, she cautioned that there are barriers to business use due to lack of maintained quality, standardisation and completeness. 'Volunteered geographic information has to be taken with a pinch of salt,' she concluded.

## Dream Geo Job?

We now live in an era when it has been said that 90% of all the world's digital data has been captured in the last two years. Every minute there are an estimated 100,000 tweets and two million Google search requests. Big data indeed. So who gets to use it or rather play with it? Dr Andrew Hudson-Smith is director and deputy chair of the Centre for Advanced Spatial Analysis (CASA) at University College London with the dream job for any geo-gadget fiend. In his laboratory, he tests all the latest location gismos, including those yet to get into our hands like a location-enabled brain-wave sensing headset, which can detect our emotions as we travel through the day. So much better than filling in a tedious questionnaire until you realise that such a device can tell the data collectors you are much happier with your secretary than your wife! He introduced the Oculus: virtual reality that really works, he assured us, and for only £150 when launched in around six months time (missing Christmas?).

Hudson-Smith, who has done work for the London Mayor's office (more toys for Boris), explained that increasingly mapping for some applications is being controlled or even replaced by a dashboard of live feeds. The dashboard model provides a much better and quicker way of understanding a situation. With live feeds there is the potential for predictive modelling too, perhaps of what may happen within the next 30 minutes while location-enabled Twitter feeds superimposed on aerial imagery can leave you wondering why people chose to tweet from a shed! With so many sensor feeds 'we are walking blindly into a 24/7 surveillance world,' says Hudson-Smith. No wonder that UCL's GIS Masters course now teaches how to code in the first year. Each student also gets an app with a map of the campus to help them get around and also to track where teaching staff are (findmynearestprof?).

Geo tagging and the Internet of Things predicts that just about every object will soon have its own IP address and will be location enabled so we know exactly where it is. An example given by Hudson-Smith was a dress donated to Oxfam by singer Annie Lennox that she wore at Nelson Mandela's 90th birthday gig in Hyde Park. The dress is tagged and will be traced in the future.

However, Hudson-Smith's enthusiasm for all this gadgetry can see him bumped back to earth. Explaining the latest toy to a girlfriend, she looked at him and said 'you really are a sad little man!'

## Fusion GI and Open Source

Nottingham's Tramway and a Fusion GI presented by Alex Smith of Buchanan Computing was an intensely detailed narrative about Traffic

Regulation Orders (TRO's) and their key role in the integration of our host city's growing tram network (yet to connect the station and the University) with existing streets. Not an easy task as the network straddles two local authority areas (the City and the County Council). Buchanan are helping switch the tedious and detailed list of information in TRO's (lists of the location of traffic signs and markings) to a map-based and more visible system accessible to the public as well as to council officers.

There is a growing demand for low cost solutions in the public sector that rely on open source. MapRoad Pavement Management, a cross-platform GIS roads management toolkit, heard Gearoid O'Riain of Compass Geoinformatics describe their road management system. Developed originally for Ireland's 91,500 kms road network, the system relies on open source and facilitates the rapid visual inspection of road surfaces, using a 1-10 condition rating system, on Android devices that can synchronise with web and desktop applications.

## 3D UKMap Data

Mapping high-rise city centres in 3D is the "cartographic challenge" says Seppe Cassettari. He explained how a small tweak to the data model in The Geoinformation Group's UKMap has helped solve the problem. UKMap has multi layers, 265 land use codes on a four-level hierarchy that already offer over 1500 potential combinations for a single polygon and already deals with things that overlap each other. But places like Canary Wharf and La Défense in Paris with multi-levels overlapping each other present a different order of complexity in capturing the topography.

Essential in capturing these multi-layer environments is determining ground level. Cassettari argues that you have to start with a minimum one-metre DTM (digital terrain model) with no overlapping polygons. All polygons above this level have to be attributed back to the base level enabling you to "pull it apart". But challenges abound within this environment. Typically, features like escalators have caused UKMap to develop the 'connector polygon' where a feature at one level may need artificially separating at the point of connection to accurately link it back to the DTM base polygon. But solutions have to be about affordability for end users.

This theme was taken up by Rollo Home of Ordnance Survey in his presentation, "Is 3D a solution waiting for a problem?" Now this was also once upon a time said about GIS. The age of big data has nailed that for ever. Will the Playstation generation drive 3D through the merging of personal and business life? Other drivers, according to Home, are smart grids and meters in the energy supply market and the growing number of mega cities around the world that present unique challenges for city managers that 3D can help solve. But in the UK there is no government debate or initiative driving 3D development. Nevertheless, a simplified building height model will be available soon from OS following trial projects in several UK cities to test how local authorities integrated and might use 3D data.

Ordnance Survey, explained Home, is moving from a map to a data model with geometry no longer the primary focus. He illustrated this with a sample from a 3D dataset with derived building heights and positional measurements from the edge of adjacent polygons. Oh dear, I can see surveyors picking up their cudgels already! Fine for a city GIS but once architects and developers get hold of it, no need for a topo survey, we'll just use this highly accurate OS model!

In questioning, Geoff Zeiss made a cogent plea for reliable data on utilities. For developers, the uncertainty of data on services is a problem. For cities that have 3D data, there is a huge business benefit.

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