The Changing Face of Geo - AGI GeoCom 2014

AGI marked its 25th anniversary with the annual conference in Chesford Grange Hotel near Kenilworth which attracted over 300 delegates for two days of intensive conference sessions and mild celebrations! We will cover Day 2 in our next edition.

Professor Tim Broyd kick-started the conference with some horrifying statistics about the state of the world's built infrastructure and the amount of money that will be needed to fix it. As if that was not bad enough he quoted a government report that claims that the construction industry has had no = zero = zilch increase in productivity compared to other industries which have improved by 25% or more in the same period.

He argued that BIM and GI could play an important role in improving these statistics. Apparently, there has been a saving in capital expenditure of 20% due to the introduction of BIM level 2 with more to come as we implement levels 3 and 4 which is being mandated by the government. However, he said that introducing BIM required collaboration whereas the industry was used to competition and/or working in silos. 'People don't like collaborating'.

Construction 2025

Interestingly he believes that government must be involved in the creation and adoption of standards. So there is a clear opportunity for geospatial input that could help the construction industry improve its performance and efficiency. Richard Waite, MD of Esri UK agrees. He used an interesting metaphor to describe the progress of GI to date – the exploration and settlement of America by Britain. He thought that we had established our east coast colonies (initial applications?); broken free from our home governments (CAD?); but have yet to cross the Mississippi or do the deals with France and Spain to annex Louisiana or Florida. There was no mention of the aboriginal inhabitants!

Waite sees many GI applications maturing in different industries but worries that, with our present mindsets, we are not selling our undoubted competitive advantages and that the 'traditional' GI companies are in danger of losing out to start-up companies that are often reinventing the wheel but using new tools to serve end users better or more efficiently.

UN-GGIM - No Money but Key to Global Development

Most readers of GiS Professional will by now be aware that Vanessa Lawrence is moving on from Ordnance Survey. Indeed, for some time she has taken a close interest in the international role of geospatial data and has been instrumental in setting up the United Nations Committee of Global Geospatial Information Management (UN-GGIM). She gave an overview of this work.

The committee is a formal mechanism to discuss and coordinate geospatial data at the highest level of government. 'We brief UN ambassadors' explains Lawrence. The committee is part of a statistical group, the Economic & Social Council, which sits within the UN's labyrinthine maze of committees, commissions and groups. There already is a cartographic section that provides support to all UN activities. Nevertheless, Lawrence has successfully argued that there is a significant gap in UN geospatial information. The establishment of GGIM follows a report on global geographic data management.

While studying UN organisation can be a tad yawn-inducing, there really is a need for reliable GI around the world. It can help Africa feed itself. It can help stabilize political regimes through reliable land tenure records. Yet only 28% of the world has proper land registration – a fundamental prerequisite for development and investment; banks won't lend against unknown title. Lawrence has certainly pushed the issue up the agenda for many governments. Sustainable development is predicated on geography and data. She says "In Namibia where the cabinet once talked about water scarcity, today they talk about geospatial data management. In Ruanda, over 11 million plots of land are now registered thanks to using crowd-sourcing technology".

Nevertheless, despite spending $100 billion a year the World Bank hasn't looked at geospatial data strategically, argues Lawrence. Recent initiatives such as the release by the Obama administration of 30-metre Space Shuttle data will assist worldwide development. Yet perhaps the most startling statistic revealed by Lawrence is that the committee which she co-chairs is unfunded! Her position, which is elected annually, is funded by the British Government year by year. She has managed to persuade the Chinese to set up a trust fund to help but until the committee moves up the UN hierarchy to become a commission it remains a home for volunteers.

Trains – HS2

HS2 is Britain's mega infrastructure project, which has yet to see a single spade or machine start work. It awaits a hybrid Bill to go through Parliament which will require considering many objections. But Atkins are already working on the detailed route design for stage 1, known as Country South, or London to Birmingham, to you and me. This has already required some half a million man-hours and Ian Walker, senior GIS consultant, explained their role to date under the title "HS2 – a contractor's perspective'. They have generated 76 map books with over 1200 maps and numerous standards, including no less than eight dealing with geographical information geometry. Now they have a very large GIS that has been created with outline design work in MicroStation and then converted to Esri shapefiles for the geodatabase.

Marech Suchocki of Autodesk presented "Achieving true integration of engineering and geospatial information for HS2". He focused on the design and build once the project was given the go-ahead and reeled off some gob-smacking statistics for the 230-kilometre route: 53kms will be tunnelled; 74kms in cuttings; 152 underbridges, 145 overbridges. Client led BIM is integral to the project and should save a lot of money. It will deliver an operation and management asset model for a project that will have a long legacy - the current London to Birmingham railway opened in 1838. The BIM is expected to hold some 3 terabytes of spatially located data, will be software agnostic, and will be future proofed. It is also expected to highlight innovation in UK design.

Opening up Government Data

Defra and the Land Registry are two sources of geospatial datasets that are rapidly being made available as open data in various ways. Savania Chinamaringa presented the methodology that Defra uses to determine which of its 4500 datasets should be released and in what order of priority. He detailed the cost-benefit analysis that has to be taken into account, for example, estimated benefits of data that is released free of charge as well as potential loss of income from datasets currently priced for commercial use. They must also take into account the costs of making data available if it has to be reformatted, anonymised, aggregated or otherwise manipulated from Defra's internal databases. His worked example for the National Flood Risk Areas dataset concludes that it is worth £4.4m to the UK economy. This assumes that opening data increases the demand by 3.4 times – a figure from a Deloitte study on public sector data in general.

The cost of preparation – and in particular quality improvement – of Land Registry open data also has to be balanced against the internal value; not just the value to external users. Lynne Nicholson said that publishing the INSPIRE Index Polygon dataset had required ten full-time staff for four months but that this was only what she described as the 'Bronze' product and is free of charge to download. The 'Silver' is now available as their MapSearch web-mapping service that also includes title numbers and addresses but requires users to register and pay.

The Gold service is coming in 2015 as a web feature service with a working title of the national spatial database. Several questions to Nicholson showed how well valued this data is but also exposed some of its limitations and how there are many misunderstandings about Land Registry information in England and Wales. Nicholson described the Index Map dataset as a 'washing line' on which a lot of other information is and will be 'hung out'. Both presenters in this session made it clear that many of their datasets required licences from Ordnance Survey and/or the privatised Royal Mail for onward commercial use.

Yes Minister

Many of us are sceptical of the policy-making process in government at all levels. 'Don't confuse me with the facts' and 'Yes Minister' are phrases that come to mind! So Clare Hadley's presentation on 'The Value of Geospatial Information in the Policy Making Process' was awaited with some interest. Jointly prepared with Katherine Beard – also from the Ordnance Survey – this paper was a real dose of reality GI.

Hadley described the theoretical and actual policy cycles and the need to engage at the right points of that cycle. The policy processes differ at different levels of government and anyone trying to introduce information for 'evidence-based policy-making' must establish well in advance where and when it is best delivered. She cited the 'Flood Re' (flood reinsurance) scheme as a good example of the use of geospatial data along with other examples from Defra, the Welsh Government, Resilience Direct, and the deputy prime minister's announcement of 'accessible green space'.

Policy makers are generalists and rely on recognised experts. However, although the government recognises economists, statisticians, social scientists and operational researchers as distinct professions, there is no such recognition of geographers. Hence a lack of geographical input in many policy-making areas, although there are moves afoot to achieve such recognition. One related initiative is the formation of an AGI policy forum, which was agreed at a subsequent meeting at the conference. Watch this space!

Drones – The Hype and the Law

The next session took us firmly into data gathering and from a new platform for many attendees. Robin Higgons works for Qi3 Ltd., a specialist consultancy providing sales, marketing and business development support to technology companies, enterprises and government. To hear him say that these drones are 'rapidly exploding' was somewhat alarming but fortunately Higgons was referring to the Gartner hype curve which, for drones (or unmanned aerial vehicles – UAVs) has not yet reached its peak though that will be followed by the trough of despair! Some countries have been using UAVs for years. Japan for instance has been using them for over 30 years for agricultural and crop-spraying applications. The question is whether there is money to be made in the UK.

Higgon's colleague Peter Lee, a lawyer, discussed not only the legal issues surrounding UAVs but the ethics of their use. Citing the great 19th-century explorer Sir Richard Burton, Lee explained that in order to gain access to Mecca and the Holy places of Islam, Burton dressed as a Turkish Dervish. He knew the ethics. The legal issues, however, are draconian for UK operators. Larger drones are governed by EU legislation. Nevertheless, there has been an 80% increase in applications for pilot's licences in the last six months.

A third contributor to this slightly eccentric session was Jerry Connolly who spoke as an aviator. He explained that for a UAV there is no certificate of airworthiness available for the current 600 or so different types of machine on the market. 'There's no safety ethos' says Connolly, 'and with maintenance a big issue they do go wrong', he added before advising would-be users of UAV services to check the CAA's website for licensed individuals (www.caa.co.uk).

But the Little Things Still Count

Harrow Council has often won prizes for its innovative and effective use of GI – particularly gazetteers from what is now Geobase. Matt Pennell presented another application that is saving the council tax payers money while arguably delivering a better service. They pioneered the use of GIS for asset management in the '80s but this became obsolescent and they reverted to paper-based systems for awhile albeit with mobile phone communications. Now they have an up-to-date integrated system working both on and offline with tablets and smartphones in the field connected back to the office in real time. The council has been able to reduce staff numbers but with the backing of the unions because the changes were fully evidence-based and were negotiated from the outset. Although currently the work is entirely handled in house, the system would enable contracting out, of grounds maintenance for example, with total confidence that all areas of grass, flowerbeds, paths, etc are described accurately and up to the minute. One questioner from Ordnance Survey asked if they used MasterMap change only updates. Matt replied that they actually use UKMap!

The New Disruptors - Evolution or Revolution

Acting Ordnance Survey director general Neil Ackroyd wound up the first day by tracing the current demand for mapping through enabling technologies like satnavs and what he sees as a game-changer: UAVs. For OS, 'It's about solving customer problems' says Ackroyd. While OS is 'leveraged around detail' the mapping is routinely 6-9 months out of date: 'rapid update has still to be solved'. Change detection software is now used on a day-to-day basis to update the topographical database and already it can automatically extract detail like roof shapes.

Turning to a more philosophical issue, Ackroyd posed the question, 'Is there a future for the geospatial professional?' His context was what he called 'the new cartography of visualisation', vividly shown in the demand for OS data from Minecraft enthusiasts which far outstrips demand for all other OS OpenData products put together! 'Spatial skills are thereby instilled in teenagers', declares Ackroyd, 'they get it'. While he didn't answer his opening question, the consequences are not difficult to deduce; tomorrow's geospatial professionals are more likely to specialise in other disciplines for which geospatial skills are necessary but not sufficient.

He moved on to "Resilience Direct" and the government's common operating platform. Ackroyd cited the Glasgow Commonwealth Games as an example, arguing that, 'there is a greater eagerness to collaborate even though the government doesn't do it very well – the tide is rising'. He listed a range of Ordnance Survey initiatives that included growing partnership approaches, managing content, unlocking new value from OS core capabilities, delivering greater value through open data and embedding new data capture methods. He was very keen to have partners but very clear that OS would continue to expand its own products and services – with or without them.

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https://www.gim-international.com/content/article/the-changing-face-of-geo-agi-geocom-2014