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...joining the geography jigsaw



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Big 5 comes together at revised GeoComm

Esri's user conference buzzes and fizzes

Has cartography been slain by visualisation?

First GEO Business unites industry

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GeoBusiness: united we stand...

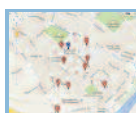
Over 1600 attended the UK's first GEO Business show and conference in London in May.



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A packed conference in Aalborg, considered 700 responses at the half-way stage of the EU's INSPIRE Directive.



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We have all searched for a car parking space from time to time but did you know there's a UK database to help find a spot?



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The creation of an Ordnance Survey GeoIntelligence Unit has prompted OS partners to cry foul!



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GeoCom preview: bringing together the Big Five

With a refreshed format and a new venue Rollo Home shares highlights of the forthcoming new look AGI Annual Conference.

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Front cover: Aveillant radar systems mitigates the effects of wind turbines on air traffic control radars. **To read more about this fascinating project turn to page 10.**

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Professional Training Days 2014

COURSE DATES?

- Total Stations: 8th & 9th September 2014
 - GPS/GNSS: 10th September 2014
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We reserve the right to cancel if there are insufficient reservations.



welcome
to the August 2014 issue of *GIS Professional*...

GIS is in the game-changing business

THIS YEAR WE ARE SEEING SOME BIG CHANGES in our industry that will affect us all. These come from our own maturing technologies such as unmanned aerial vehicles, integrated LiDAR and video processing systems; from developing government policy on long established institutions such as Ordnance Survey and the Land Registry; from regional and global co-operation under the auspices of the EU and the UN; and from other industries such as computer games and construction.

We cover many of these in this edition with reports from GeoBusiness 2014 in London, the INSPIRE conference in Aalborg, and the Esri UK conference. We also have a preview of the exciting, new format AGI GeoCom 2014 event in November following the success of the Big 5 series of events of which two are still to come – on Big Data in London in September and on Policy in Cardiff in October.

Feature articles this time include the use of GI to help market and install 3D Holographic Radar™ to mitigate the effect of wind turbines on air traffic control radar and a unique database of car parks in the UK, now being extended to the US and the rest of Europe. We have two very different examples of the convergence of GI with the computer gaming industry. A Danish example of the use of real topographic data in Minecraft and an Irish company which is revolutionising the visualisation of town and country planning by combining 3D digital mapping, imagery from airborne or surface sensors with the most sophisticated software from the gaming industry – the game-ification of GIS! Perhaps a game engine will win the new AGI Best Geospatial Visualisation Award?

We are not apologising for returning to three recurring items. We have a plea from several companies in the GI software and services 'space' who take exception to Ordnance Survey setting up its GeoIntelligence 'solutions' business. And we have the Ordnance Survey's official reply that more or less implies that it is increasing the size of the cake thus benefiting everyone in the industry. We note in our news section that two of the companies have just won a three-year contract to fly aerial imagery of Great Britain for Defra – presumably in competition with Ordnance Survey? At the same time two of the best known local government GIS software suppliers report recruiting seven new staff between them!

Secondly we are very happy to carry an article from **Peter Parslow** at Ordnance Survey on the setting up of the UK Open Geo Standards Forum sponsored by OS, OGC and AGI. We hope you will support this initiative by feeding your comments into their Linked-In page. We also carry the news of the advent of Publicly Available Standard (PAS) 128 for the survey and sharing of underground utility information. This is none too soon and was probably delayed for over 20 years – from the initial National Joint Utilities Group work – by the privatisation of the utility companies, which put them in a competitive rather than cooperative mode.

Thirdly we return to the Land Registry – still unsure of its future status after a public consultation but determined to completely ignore 95% of its consultees on the proposal that it should become the central authority for all land charges in England and Wales. These are currently the responsibility of local authorities with several hundred different computer systems. The theory sounds fine – the practicalities sound horrific!

By the time you read this I will be back from Australia where I might have had cause to use the 'National Public Toilet Map – a project of the National Continence Program'. Well I guess we all knew that a digger will always call a spade a spade! Also available as a mobile phone app. Happy holidays!

Robin Waters, Editor

“
**Land Registry -
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”

Aerial photography for government in GB

Getmapping and **Bluesky** have been awarded a multi-million pound contract for the supply of geographic data to central government organisations covering aerial photography, 3D height models and colour infrared imagery for Great Britain. For Aerial Photography for Great Britain's (APGB) contract with Defra, Getmapping and Bluesky may also provide training, consultancy and workshops. The contract specifies a three-year update programme (previously five years). These datasets provide real world intelligence for a huge range of applications bringing improved decision support, proven cost savings and efficiency gains. All data

will be available to order by APGB members through an on-line portal supplied by Airbus Defence and Space.

www.getmapping.com
www.bluesky-world.com

Titanic launch for Spatial NI

Northern Ireland finance minister **Simon Hamilton** MLA has officially launched online access to the government's geographic information at Titanic Belfast. Spatial NI, created by the Department of Finance and Personnel's Land & Property Services provides a centralised portal for the majority of Northern Ireland's public sector location data. Users can now view detailed mapping and aerial imagery online. Spatial NI services have been utilised by the private and

voluntary & community sectors. Utility companies have used it to share the location of their infrastructure during civil contingencies such as tidal surges. Voluntary organisations are using it to store and share information with key stakeholders such as the Defibs4Kids project. The Northern Ireland Defibrillator Mapping group utilised Spatial NI to develop a mapping application of static and mobile defibrillators across education establishments in Northern Ireland.

OS report sets new targets

The 2013/14 Ordnance Survey annual report shows the national mapping agency meeting all six of its targets including an operating profit of £32m. Sir **Rob Margetts**, OS non-executive chairman, pays tribute to **Vanessa Lawrence** who stepped down as director general and chief executive just after the reporting period and emphasises the opportunities 'as we add platform and solution products and services to a well-established content business.' He also alludes to the discussion with the Department of Business Innovation and Skills (BIS) on the potential change of status from a Trading Fund to a government owned company (GovCo) which he expects to be concluded 'in the first half of the current year.' Sir Rob's concluding paragraph reads 'We have a challenging year ahead as we refresh our business model, modernise our brand, continue to invest in new content, capability and technology and as we build our solutions business.'

The accounts show that GeoPlace contributed £4.1m and that OS have just invested £0.7m in Astigan, 'a new 51% owned subsidiary, which is researching new ways of remote data collection.' Two of

the new directors are on temporary contracts and the long list of risks and uncertainties for the future include 'A lack of clarity of Ordnance Survey's vision, direction, leadership and communication of strategy.'

In a separate announcement the BIS minister, **Michael Fallon**, laid out targets for 2014-15:

- To achieve earnings before interest, depreciation and amortisation of £45.8 million
- To achieve a customer index score of at least 80%.
- Some 99.6% of significant real-world features greater than six months old are represented in the database. (sic)

(Ed – the first of these represents a 62% increase on 2013/14 and the other two are unchanged. However there are no longer any targets for free cash flow, reduction in the underlying cost base, or achieving an innovation index score.)

Open Geography Portal

The Office for National Statistics (ONS) has used open source tools and Esri mapping software to create a single source of statistical data for easy access by staff and the public.

This was a response to government's push for open data, the 2011 census results, and the EU's INSPIRE Directive. In an interview with Computerworld, **Ian Coady**, geography policy and research manager at the ONS said: "Previously, we had a number of different products, some of which we could put on the Internet, but some were too large. We wanted a single, authoritative data source and the Open Geography Portal (OGP) can be used by anyone without registration." The portal holds statistical and

UAV imagery captures olympic park



Stunning UAV aerial imagery at 2-5cm per pixel of three London 2012 venues owned and managed by Lee Valley Regional Park Authority has been supplied by the GeoInformation Group. A lightweight Unmanned Aerial Vehicle was used to carry out the survey of the authority's sporting venues in Queen Elizabeth Olympic Park – Lee Valley Hockey and Tennis Centre and Lee Valley VeloPark – and Lee Valley White Water Centre in Hertfordshire.

*There is more news of companies and organisations on our website at www.pvpubs.com
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administrative geographies and enables comparisons with postcodes.

UPRN helps troubled families

Barnsley Council has been part of the Department for Communities and Local Government Troubled Families programme aimed at identifying troubled families and targeting key issues including anti-social behaviour, worklessness and school absenteeism. Where a council identifies such a family, the government can provide finance for care workers and other targeted support. If the council can then demonstrate improvements for the families over time, the government provides further funding.

However, in Barnsley the council didn't have a single system that provided a common view of families across the borough. The data sources which would help identify the families were disparately stored and not easily compared with one another. The answer has been a long running programme of work co-ordinated by GeoPlace. Property address information using a framework of uniquely identified individual properties has been rationalised and a property level view of troubled families has been created.

Utilising the Unique Property Reference Number (UPRN) help for every address within Barnsley, the council was able to link together eight different datasets, including Education and Benefits systems, to a property address to evaluate whether individual records met the programme criteria. The outcome was a database which could be used to interrogate the various data sources at property level to build up a more detailed picture of families in Barnsley and provide support to those in need.

1Spatial integrates Star-Apic

1Spatial plc has announced the integration of Star-Apic, the launch of its new global website and its financial results for 2013. During 2014 the company will focus on key growth key areas including Smart Cities and spatial big data, new industry verticals, geographic opportunities and further acquisitions.

CEO, **Marcus Hanke**, said: '1Spatial is entering an exciting period of growth, well-funded and with the structures in place to evolve and execute on our strategy. We will continue to develop our product and service offerings and develop new geographic and industry markets to harness that potential.'

1Spatial has won the 2014 Oracle Spatial and Graph Excellence Award in the Partnership category for innovative solutions including the recently developed transactional database environment. Marcus Hanke commented, "As a Gold level member of Oracle Partner Network, 1Spatial has built up significant knowledge on Oracle Spatial technologies resulting in some significant global customer implementations, including Ordnance Survey Ireland."

Get more addresses with AddressBase

Chris Chambers, Ordnance Survey's address portfolio manager, claims in a recent blog that AddressBase now has over 38 million addresses with 30m of them 'live postally addressable' while a further 650k are non-live postally addressable. This work was based on customers' requirement to identify all properties that have the potential to receive mail, and not just those in the Royal Mail's Postcode Address File (PAF). GiSPro queried the strategy

Win for GGP at GeoPlace event



GGP Systems' gazetteer management software helped many local authorities reach the top ranks for good practice in the management of municipal records. They were rewarded at the Geoplace conference in Manchester in May. GGP also offers an end-to-end service to help local authorities and other public sector organisations meet their INSIRE obligations. The GGP INSPIRE service packages represent proven functionality coupled with value for money.

behind this. Chris responded that OS are 'currently aiming to ensure that AddressBase products are the most complete, consistent, accurate and content rich source of official geographic address data for the nation - not position them in relation to PAF.'

www.ordnancesurvey.co.uk/business-and-government/products/addressbase-products.html

PAS128 for underground utilities

BSI has published PAS (Publicly Available Specification) 128 following industry-wide consultation and review. This is the first UK national specification for the detection, verification and

location of underground utilities and is sponsored by the Institution of Civil Engineers working closely with the Royal Institution of Chartered Surveyors, the Institution of Civil Engineering Surveyors and The Survey Association. PAS128 aims to facilitate clear and unambiguous sharing of asset information among stakeholders by specifying the scope and accuracy of different methodologies for utility surveys. It will encourage fair competition, provide the basis for consistent and reliable levels of service and raise standards.

Esri UK on G-Cloud 5 Framework

The Crown Commercial Service has appointed Esri UK to supply

cloud-based GIS to the UK public sector. This enables the company to offer a range of services harnessing location based data for public services. The offering covers "Software as a Service" (SaaS) technology solutions and services in Lot 3 and Lot 4, respectively, including Mapping and GIS for Environmental Management, Emergency Management, Health, Asset Management, and Schools Admissions.

Esri UK has also announced a new contest to find Britain's best story map. There will be five top prizes and winners will feature on Esri UK's story map gallery in the autumn.

www.esriuk.com/storymapcontest

OGC News

An Open Geospatial Consortium (OGC) Agriculture Domain Working Group is an open forum for the discussion and presentation of interoperability requirements, use cases, pilots, and implementations of OGC standards in the agriculture domain. OGC is also seeking public comment on the Unified Geo-Data Reference Model for Law Enforcement and Public Safety (LEAPS) Services.

www.opengeospatial.org/.using

BRIEFS

Hampshire County Council has published aerial imagery, infra-red images and a height model for the whole of the county under the open government licence. These are derived from datasets captured by Blom Aerofilm in 2013. The data is available from the Hampshire Hub and can also be seen at <http://faffy.openstreetmap.org/hampshire.html>

Cable Detection, part of the Hexagon group, has selected Speedy Services to deliver the EZiCAT i650 xf cable locators and EZiTEX signal transmitters.

The devices are available from Speedy Services' depots across the UK.

Two MapAction volunteers have deployed to Paraguay to support UN coordination of relief efforts following extensive flooding. They will start in the capital, Asunción, but may travel to other affected areas.

Registration has opened for Trimble's international user conference, Dimensions. Held November 3-5, 2014 at the Mirage and Treasure Island Hotels in Las Vegas, the conference addresses innovations in agriculture, construction, civil infrastructure, engineering, government, mapping, natural resources, surveying, telecommunications, transportation & logistics and utilities. More at

www.trimbledimensions.com

Trimble has added enterprise GIS, big data/analytics and mobility-driven capabilities to its portfolio following the acquisition of The Omega Group. Cloud-based and on-premise operational performance support software from Omega integrates mapping, analytics, intelligence and mobile technologies, allowing public safety agencies to optimize patrol strategies and daily field work. Omega's solutions include a portfolio of desktop, dashboard, and mobile solutions for law enforcement, fire service, emergency medical service, emergency management and criminal justice agencies. The company also provides solutions for private sector security organizations.

GIS247 e-learning courses in MapInfo and ArcGIS are now fully accredited by the Royal Geographical Society (RGS) as counting towards continuing

professional development for chartered geographers. www.gis247.com

PEOPLE

Recent changes at Ordnance Survey **Katie Powell** and **Andrew Loveless** joining the Executive Board and the departure of **Vanessa Lawrence** and **Bob Goodrich**. In addition, there are non board member directors like **Peter Doughty**, 'Director – Partners' and Director of Marketing and Communications, Katie Powell.

GGP strengthens management team

GGP Systems has appointed Jeremy Thomas as business development manager and David James as account and project manager. Both are experienced GIS professionals and will combine their new roles with account management duties; building and maintaining relationships with GGP's public sector client base.

Thomas previously worked for Surrey County Council, White Young Green, Alliance Unichem, Claritas and MapMechanics. James has 18 years experience of consulting with Kellogg Brown & Root – with clients including Transport for London, BP, Environment Agency, NHS and the Department for Transport.

Aligned Assets recruits

Aligned Assets has recruited five staff for support, development and marketing of products exploiting the latest Ordnance Survey AddressBase products.

Shane Blank will complement the development team working on bug fixes and future enhancements. **Pradeep Lalung** is a qualified quality analyst and will automate the testing of Allied's Symphony products. **Chris Couchman** has worked for Birmingham City

Council and will manage and implement new projects for clients.

Simon Hilton is joining the support team from a testing and pricing analysis role at RSA Insurance and has recently 'changed tack' and passed Microsoft's C# specialist exam. **Anton Clark** joins as marketing coordinator after several years in various marketing roles in the publishing and technology industries. He will develop and maintain relationships with customers as well as providing support to the sales team.



Above: Simon and Anton from Aligned Assets

Demanding focus for recruit

Envitia has appointed **Robin Coackley** to its UK based business development team who will concentrate on 'demanding requirements within the government and utility sectors'. Coackley joins from Exelis where he focused on imagery exploitation for the environment and defence. Recently he has been a committee member on the "Geological Remote Sensing Group" (GRSG) and is currently undertaking a PGC in Business Communications through Harvard Extension School.



Above: Robin Coackley from Envitia



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HAVE YOU BEEN KEEPING UP with which of the big non-defence focused geospatial companies are acquiring drone makers? Here's a short list: In April 2012, Trimble acquired Gatewing, based in Belgium. In February 2014, Hexagon, owner of Intergraph and Leica Geosystems, acquired Aibotix, based in Germany. In April 2014, Google announced plans to acquire Titan Aerospace, based in the US. What do these companies have in common? They are involved in spatial data acquisition. They are also well-known as acquirers. They have large existing user bases.

Let's consider these companies' geodata acquisition technologies before the acquisitions. In the past, I thought of Trimble as a GPS company. Now it's: 'transforming the way the world works.' Among the industries it's transforming: agriculture, engineering and construction, transportation and wireless communications infrastructure. Before acquiring Gatewing it had a solid base in imaging, LiDAR sensors and image processing systems.

Meanwhile, Hexagon Geospatial (of which Leica Geosystems is part) is home to Hexagon's remote sensing, photogrammetry and related products.

while strapped to cars, trikes, and people, as they move across the landscape. While not so well known, Google acquired ImageAmerica, a company that made and flew aerial image sensors, back in 2007. More recently, Google announced it would acquire satellite company Skybox Imaging. The plan, they say, is to use the satellites both to gather data to update its mapping products and to provide Internet access to those who need it. Why buy a manufacturer instead of buying and using a drone just as these data collecting companies use cars, bikes and the like?

The drone manufacturing business, especially the commercial one, is rather new. Car, bike and plane manufactures are mature and entrenched. And, insofar as they are still around, these manufacturers are efficient at making inexpensive, safe and reliable transportation platforms. My sense is there are likely to be more significant breakthroughs in the drone competitive landscape in the next few years than in cars, bike and planes. Having the design and development teams as part of the company gives Trimble, Hexagon and Google the ultimate say in the

Who should own a drone company? The big boys are buying new toys. Why they're doing this is perceptively explained by our regular columnist **Adena Schutzberg**.

*Right:
Hexagon-
owned
Aibotix's
Aibot X6.*

*Image courtesy
of Aibotix*



Hexagon itself is a 'leading global provider of integrated design, measurement and visualisation technologies.' Like Trimble, before the acquisition, it offered a range of digital imaging cameras and software to process and manage the collected data.

What next for the information organiser?

Google 'became' a geospatial company in 2005 when its Google Maps changed online mapping and advertising forever. I thought of, and still think of Google as Google, a company very different from most in our industry. The company officially describes its corporate mission as organizing the world's information. Google is well known for its technology to capture street scenes for its 'Street View' product. Fans of the worldwide service have excitedly watched the company's sensors capture imagery

features and functions in new products. And, all of these companies might benefit from synergies with technologies they own.

What business are you in? Trimble's inertial navigation systems, Hexagon's image compression tools and Google's self-driving car come to mind. These acquisitions and the changes they suggest remind us of a very telling statement **Jack Levis** made about his company, United Parcel Service (UPS) one of the largest shipment and logistics companies in the world. 'We used to be a trucking company that used technology. Now we are a technology company that happens to use trucks.' I think Trimble, Intergraph, Google and their customers will soon be in the same situation with drones.

Which other companies might be scouting out a drone manufacturer for acquisition? How about Microsoft? It owns the UltraCam line of aerial sensors as well as the Kinect, which includes a well-hacked low-cost sensor in its video game technology. How about Amazon? While 'drone delivery' may still be awhile, in July the company began querying the US Federal Aviation Administration for permission to test drones on its own property. The company already manufactures e-readers and will soon ship a sensor enabled phone. I think we can expect more interesting names to be added to the list of 'technology companies that happen to use drones' in the coming year or two.

Windfarms & radars using ArcGIS



Left: Holographic Radar installation near a wind farm

There are two main sources of data on wind farm planning applications in the UK: the Department of Energy and Climate Change (DECC) and Renewable UK. Both of these databases contain over 3500 wind energy applications made in the UK stretching as far back as 1992. Many of them will have been abandoned or are now operational and, without spatial analysis, predicting whether they will affect an ATC radar is very challenging. That is why Esri's ArcGIS has been key in helping us target the right customers and at the right time in the planning process.

In order to really understand how Aveillant has benefited from using GIS it is important to look at how we previously identified potential business opportunities. We adopted a method of data mining on the internet, reading industry newsletters and contacted wind farm developers directly. This process was time consuming and inaccurate, often resulting in unproductive leads because they didn't have an

GIS delivers for 3D radar developer

Aveillant is a high technology company delivering advanced 3D surveillance radar systems.

Its Holographic Radar™ technology mitigates the effects of wind turbines on air traffic control radars – one of the most pressing concerns for the aviation and renewable energy industries. **Ben Tilley** explains how GIS is vital to the company for identifying their customers and positioning the actual or planned wind turbine sites.

WIND TURBINES HAVE BECOME A MAJOR PROBLEM for both civilian and military radars. Firstly they are very large metal structures that cause a much larger radar reflection than a small or distant aircraft. Secondly the blades rotate at speeds similar to the movement of an aircraft. The very large reflections mean that aircraft above or behind the turbines get swamped by the turbines, preventing them from being detected. The moving blades pass through the filters on primary radars and cause clutter or false detections on the radar display. This combination means that controllers are distracted by false detections from the turbines and genuine aircraft are not reliably detected.

The new holographic radar clearly distinguishes between moving objects with differing behaviours and 3D trajectories. It can therefore characterise wind turbines and remove them from air traffic control (ATC) radar.

Finding customers – the hard way One of our first challenges as a company was how to identify customers. We are only concerned with wind farm developments that will have an impact on radar, as it is these that are likely to need mitigation in order to get planning consent. Without mitigation, a wind farm development may cause an unacceptable risk to the safety of aircraft operations and in most such cases will be refused.

issue with radar interference or because we were engaging with them at the wrong phase of the planning process. It should have been obvious that the challenge of identifying opportunities had to be tackled through the use of a GIS.

Out-of-the-box solution We have now been using Esri ArcGIS for just over six months. The installation of the software was simple and we were able to start using it 'out of the box'. One of the many advantages of using ArcGIS is that Esri has a very comprehensive range of base-maps and datasets available online which can be loaded quickly into the system. Alongside base-maps we were able to bring in radar and wind farm location data in .csv format and display it spatially in the GIS. Once we had the data, all the tools needed to carry out analysis were already available within ArcGIS and required no additional tweaking or customisation.

In the initial weeks following the deployment of the GIS, we concentrated on getting the right data from relevant sources. This enabled us to build up a comprehensive map from which we could carry out analysis, leading to the identification of wind turbine developments which we predicted would interfere with ATC radar.

By bringing together data sources, such as low-fly zones, areas of sensitive airspace and terrain models,

“We adopted a method of data mining on the internet. . . industry newsletters. . . contacted. . . developers directly. This . . . was time consuming and inaccurate

Windfarms & radars using ArcGIS



Left: Identifying potential business opportunities – Map showing planned wind developments in an Airport's Radar Line of Sight (Red)

we are able to use tools within ArcGIS to predict whether a turbine development is likely to have an impact on any given radar based on whether the turbines will be visible to it. This has enabled us to predict the problem even before the developer is aware of it. This has led to greater success in targeting suitable prospects. The time taken to assess the impact of a wind turbine on a radar has been dramatically reduced. From initially plotting the wind turbines in the GIS to having a full line of sight analysis is just a matter of minutes. This means that time can be spent pursuing business opportunities, not just looking for them!

Business opportunities revolutionised Not only has ArcGIS revolutionised the way we identify business opportunities, it has also provided a platform

from which to offer Holographic Radar™ solutions to the customer once we have identified their needs. We are able to produce dynamic maps that have helped us and other stakeholders understand the scale of the wind farm issue around radars. This is confidence building in the eyes of our customers.

We are in the early stages of exploring how we can share this data within Aveillant and also with our clients. It is clear that the ArcGIS Online sharing platform will give us the ability to do this and in the coming months we are looking to embed a series of interactive maps in our website. This will enable wind farm developers to see where the most radar sensitive areas lie and whether their development is therefore likely to interfere with air traffic control.

We are very excited about the future for our radar technology and have confidence that using ArcGIS will continue to enhance the way that we do business. Our current systems have a range of five nautical miles and therefore multiple systems may be required for a single airport where there are several wind farms 'in sight'. We are working on a 25-mile range system which will enable a single installation per airport to cover multiple wind farms. This will make the use of the GIS even more important.



About the author

Ben Tilley is a GIS Analyst at Aveillant Ltd. Ben joined the company in January 2014 and has focused on the development of mapping processes since GIS was deployed early this year to identify suitable sites for Aveillant's new Holographic Radar. Ben graduated as an Environmental Engineer from Brighton University, where he had focused using GIS for wind farm site suitability for the South Downs.

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Above: Paolozzi's
"On the Island"

ON THE WALL of one of the reception rooms of the QEII conference centre is an immense wooden sculpture. Entitled 'On the Island', it is the work of **Sir Edoardo Paolozzi**, born in Scotland of Italian parents. Created in 1986, the work is a mass of geometrical shapes that, for our community, serve as an easy metaphor for what today's 3D city GIS can achieve. Alas the full benefit of this remarkable work to delegates at Esri UK's annual user

conference was partially hidden by sponsors' stands!

There are times when all of us involved in GI need a day out at an event to recharge our batteries and reignite the spark of enthusiasm for what we know GI can do. Esri's user event was indeed a great day out.

information systems, explained how in the space of six months they have equipped over 1000 field workers with tablets running the latest Esri mobile GIS platform integrated with the utility's central work management system. External contractors also have to use the same system. The tablets can communicate with a central server to accept updates from Ordnance Survey's MasterMap (10Gb of data for Severn Trent's area) so field workers have the most up-to-date mapping.

Williams explained how they proceeded cautiously beginning with developing the business case; design and configuration. Next there were field trials amongst the workforce to get feedback on functionality; testing and finally roll-out. Lessons learned from the programme included the importance of functionality to field workers with an understandable fear of automation and dealing with the cloud.

90% is spatial Making GIS available across an organization brings many benefits, some less obvious in advance. Typical are local authorities which have many disparate departments but with a spatial element present in up to 90% of their activities. **Julie Seddon** of Wiltshire Council, a unitary authority but

Esri's conference buzzes and fizzes

A brilliant sunny day in London was a chance to recharge enthusiasm for GIS and learn about some startling new applications of the technology.

The conference attracted well over 1000 delegates and was the best attended the company has run in the UK. Whether this was the agenda, the venue in the heart of Westminster or the lovely spring weather may remain a mystery.

As with all of these events there are hard choices for the attendee. Ten tracks all offered something tempting but I settled down to Exploring Mobile Solutions.

Wet Apps After a quick run down from **Matt Jones** and **Emma Sandison** on the capabilities of Esri's latest mobile platform with its critical Syncing, Explorer and Collector features, we were off on a trip down the Scottish Canals via the Falkirk Wheel, a massive boat lift and tourist attraction in lieu of a series of locks for the canal's steep gradient.

From canals we stayed in the wet but this time with Severn Trent Water, the fourth largest water utility in the world with over 140,000 kms of pipes. Like most water companies, Severn Trent has poor confidence in its existing mapping and is engaged in an ongoing data collection and correction exercise as field crews expose old mains, valves, manholes and hydrants to fix leaks and renew the network.

Nick Williams, the company's project manager

with 20 local community boards, explained how GIS is now available via an intranet to some 5000 people including the police and elected members who serve an area with a population of over 470,000 (of which 31,000 are in the Army).

Seddon, who carries the rather convoluted title of Solutions Manager – Spatial Information Business Solutions, explained how her team of ten studied the workflows of the Highways department before setting up training sessions for the enterprise's workforce, gaining feedback before field trials. Key areas for the new system were drainage, fixed assets and play areas. Once in operation, Seddon estimates savings of £275k over a five-year period for Highways; she is keen to move on to other council departments like Emergency Planning and Elections.

Spatial analysis using data from a GIS, as we all should know, can help solve many problems and answer questions about the real world. It can detect patterns, change and help make sense of complex networks. It also has the potential, if presented clearly and simply and with reliable data, to provide ordinary citizens with a clear source of information and a vivid picture of reality to help engagement with government and officials.

With this in mind, **Alice Duff** and **Claire Inkpen**

Making GIS available across an organization brings many benefits, some less obvious in advance.

delivered a session titled Realising the value of Spatial Analysis. There was much talk of 'story maps', an Esri favourite at the moment and featured by **Jack Dangermond** last autumn in his lecture when he received the British Cartographical Society's Medal (see the December 2013 issue of *GiSPro*).

Finding the right school The benefits of this approach are probably no better seen than in the Greater London Authority's Schools Atlas project, which has delivered an online map showing all the capital's 3000 plus schools. The project is part of the Smart London initiative, following the Mayor's Education Inquiry and 2020 Vision document.

Developed by **Paul Hodgson**, GIS and infrastructure manager and his team, the authority believes there is a bulge coming that will require additional classrooms. But population projections always have what Hodgson described as 'a cone of uncertainty' so you have to rely on historic trends and demographics in planning.

The atlas uses a consistent London-wide dataset at pupil level to help planners as well as parents, governors and administrators understand the distribution of the capital's schools, their intake, historic trends, and pupil travel patterns including cross-boundary movements. This is definitely Big Data; and it delivers the 'big picture'.

With interrogation by postcode and simple tools, the project has helped parents choose schools as well as providing city hall with the information to see where the predicted 8000 or so new classrooms will be needed over the next eight years.

The projects above have illustrated how large organizations can apply geospatial technology for the benefit of planners, managers and ordinary citizens. But let's take a brief look at a much more intensely focused application that doesn't involve hundreds of users.

Aveillant is a start-up based in Cambridge with a new radar technology that enables differentiation of objects based on height – in effect a 3D radar. Where this technology can help is with airports threatened with wind farms, which can interfere with control tower radars trying to distinguish between incoming aircraft and nearby wind turbines. **John Allen** enthusiastically explained the technology and how it can help wind farm developers to counter planning objections from airports, which have statutory rights of rejection to certain developments within 35 kms of a runway. Meanwhile his colleague **Ben Tilley** reported on how they were using ArcGIS Online to analyse wind farm planning applications likely to threaten airports. For an in-depth look at this application and just how quickly and easily Aveillant used GIS turn to page 10.

This interesting and educative day ended with a plenary that looked at the immediate future. **Dominic Stubbins** talked about the challenges of Big Data,



Above: Well over 1000 delegates attended this year's conference in London.

with which we must grapple if we are to solve problems like climate change and mitigate the effects of natural disasters. The data sources are growing rapidly. There are now at least 40 billion connected devices (your car alone may have up to 100 such sensors) including 6 billion mobile phones, many of which are the channel for the currently 15,000 credit card transactions per second. Analysis tool of choice for this data is currently Hadoop, which Esri can accommodate.

But yet more data is coming, warned Stubbins. Direct streams to clients like real-time visualisation will massively increase the flow. Help is at hand from NoSQL databases better able to cope with this variety of sources. As an example, he showed us a story map of the Twister Dashboard that looks at tornadoes and storms across North America. The message fortunately, according to Stubbins, is that big data is getting easier.

Festival whets appetites **Charles Kennelly**, Esri UK's chief technology officer, then described what he called 'a festival of releases' to whet users appetites. Every three months ArcGIS is updated with a full release coming annually. Promised soon is a better Map Viewer and improvements to analysis, organisational management and security, web application builder and increased capacities for open data. You will also be able to make your own base maps and there will be full vector base maps – not just individual tiles. These tools can enable many applications; some can even save lives. Together with 3D graphics we were shown avalanche probability on slope faces in the Alps while another app demonstrated what most politicians already know: support for your party is never an even spread demographic; demonstrated by comparing support for Obama and Romney against geographical distribution of voters.

The day closed with a series of awards delivered by Esri's director of customer success, **Peter Lyon**. The best conference paper alas went to one not covered by this reporter. We will try to bring you more on the Marine Information System, developed for the UK's Marine Management Organisation, in a future issue.



... more data is coming. . . Direct streams to clients like real-time visualisation will massively increase the flow.





Above: Amalienborg, the Queens winter residence, was reshaped and grieved several times.

THE 1ST JANUARY 2013 SPARKED A REVOLUTION in Denmark when a vast array of public sector information was made publicly available at no cost for private companies and citizens. The objectives were to eliminate redundant databases, heighten data quality, facilitate links between datasets, improve distribution and ensure effective/coordinated development and usage. Private companies have fully embraced the initiative

reshape, the “landscape” is quite different from the possibilities offered in, for example, a traditional GIS.

The actual implementation started as a hobby project and initially it was just the two authors working on it, motivated by discussions with our manager at the time, **Nynne Dalå**. After we had developed a proof of concept in our free time and watched our kids’ reactions, we realised that this had a huge potential for a range of applications.

Nynne then did a tremendous job promoting the idea within GST - and it soon gained momentum and was formalised as an official project. Within GST, the main focus was on education as the most obvious use case – to get young people more aware of geography and the environment.

Creating the model The project was done in a very short time. First of all, to make a Minecraft world with nationwide coverage it is important to have good quality controlled data available. Time consumption can be broken down into work hours and computer hours, where the latter was much more substantial and it was only possible to complete the project using a high level of automation.

Get your tanks off my station!

The arrival of free open geodata in Denmark and open source code has sparked a fascinating public experiment involving a popular children’s computer game. But open source with open access means some players can bring you grief!

and are now focusing on creating services on top of the free public data. When the initiative is fully implemented it is expected to save the private and public sector more than €100m annually. (source: “Gode grunddata til alle” <http://www.digst.dk/Loesninger-org-infrastruktur/Grunddata>)

To demonstrate an alternative use of the free public data the Danish Geodata Agency (GST) launched “Denmark’s Free Geodata in a Minecraft World” on 24th April 24. The project comprises a set of Minecraft files for download and an online demonstration hosted on three servers; the purpose is to spur interest in geographic data for education. The interest has been enormous and the full potential of the model has yet to be seen with the latest addition of urban planners who are using it to demonstrate proposals.

The idea The group of people working with digital height models at GST have several children playing Minecraft. Smitten by our kids’ fascination for the game, we had the idea of using Minecraft as a tool for visualising and interacting with our own ‘real’ data. The interaction part was essential. While there’s an abundance of data viewers, the way that Minecraft lets you walk around in, and intuitively

By using standard open source components it was possible to accomplish the task with a few thousand lines of code, most of which re-mapped – or translated – various geospatial objects into Minecraft blocks. Some modelling has been applied to merge datasets captured at different times, such as beaches that aren’t static. They move over time, so it was necessary to fix some inconsistencies between height model and vector data. Furthermore, the city of Copenhagen is mapped in a different format (without heights at building outlines) so heights had to be applied to buildings from a laser point cloud older than the map data. All in all, the process took a few hundred hours – much of it in our spare time.

Generating the model – basically through applying the algorithms – was a hands-off process. The 10km x

“
Smitten by our kids’ fascination for the game, we had the idea of using Minecraft as a tool for visualising and interacting with our own ‘real’ data.”

Background - what is Minecraft?

Minecraft is a hugely popular sandbox game played by millions around the world. From <http://minecraft.net>: Minecraft is a game about breaking and placing blocks. At first, people built structures to protect against nocturnal monsters, but as the game grew players worked together to create wonderful, imaginative things...

10km files available at download.kortforsyningen.dk are the exact files produced by the algorithms. The process was run in parallel using standard office equipment and controlled from a PostGIS database. This made it possible for us to prioritise certain areas and keep track of progress. One 10x10 tile takes roughly two hours to generate – most of it is spent on writing the Minecraft files from a 3D array. In total it took less than a week to calculate all 637 files. The total time could have been reduced by using more and better computers.

Among the software tools used for creating the model, we would like to mention:

- PostGIS – server to store the topological data
- GDAL – Geospatial Data Abstraction Library – to translate and manipulate data
- QGIS – desktop GIS program

The so-called NBT (Named Binary Tag) data format used by Minecraft to store worlds is a kind of binary XML-format, see e.g.

http://minecraft.gamepedia.com/NBT_format. It is capable of storing a mixture of vector and 3d-voxel data and designed with real-time visualisation and disk usage as key factors! We also think that this format could also be useful for storing geospatial voxel-data not related to Minecraft.

Geodata as a social media We were very surprised and flattered by the huge interest in the Minecraft model of Denmark. In the beginning our servers were flooded, prompting us to launch additional instances in parallel. We thought the interest would soon die but an interesting pattern appeared. Some people logged on to our servers and soon lost interest (we had disabled all the game elements such as monsters and dynamite) but others “moved in” inside the model and “lived” inside the virtual representation of their real-life homes. The Minecraft world created from free geodata had evolved into a “social media” with people chatting, building in cooperation, or just hanging out.

The news about our servers spread quickly in the Minecraft community and attracted the attention of all kinds of people, including so-called “griefers” (Minecraft slang for people with destructive ingame behaviour). We had foreseen that some demolition

would happen, and we took a pretty relaxed stance. It is very easy for us to reset the model, but when people started to move in and build beautiful constructions around their homes, we had to take their work effort and enthusiasm into consideration and not just wipe it all out with a rollback.

At some time the stories of vast destruction went viral! A screenshot of tanks and American flags in front of the Copenhagen Central Station gave room for a story about Americans invading and vandalising the virtual Denmark. The debate evolved further into meta discussions about general internet behaviour and some gamers’ destructive tendencies. The destruction and vandalism was highly exaggerated and American visitors have been no more or less destructive than others. Out of the total 43,000 sq km, only a few hectares were “griefed” – primarily in areas where people gather. Apparently this is ‘normal’ Minecraft behaviour. We observed the creation of flags from a lot of countries, and people were welcome to do this as long as they did it respectfully and with consideration. The screenshots of American tanks fell well within the acceptable category and were not subject to our rollback.

The servers were not the primary focus of our project – they were conceived as a demonstration infrastructure only. The overwhelming number of visitors (at this point, more than 30,000) took us by surprise. Had we known beforehand, we might have scaled for a much larger number of players and implemented more tools to protect the world. We are still considering the future of the servers as we hope people will download the data and use it for themselves – to start their own servers.

Perspectives There is definitely a lot of room for improvement for the model. We still consider it to be a proof of concept, a simple showcase for what can be done with good, freely available spatial data. There were several ideas and features that we chose not to implement.

Currently we are busy on the quality control of a new national height model, which has the potential for more refined modelling of real-world features and we hope to take things further forward – possibly to include other game engines, photorealistic texturing, etc.

While the use case for Minecraft in education is well established, there’s still a range of potential applications for an interactive, geographically accurate model, such as ours, that are, as yet, relatively unexplored. One example would be as a tool to democratise urban and rural planning.

With our use case in mind you can think of Minecraft as simply a high performance and very intuitive 3D GIS system. Minecraft is currently the most popular 3D sandbox game but there is a range of other games with similar capabilities and potential to provide powerful platforms for similar use cases.

About the authors



Simon Kokkendorff, academic specialist, is a mathematician by education and has previously been a research worker. He has been employed at the Danish Geodata Agency since 2008 on data analysis and is now primarily working with digital height models and coordinate transformations.

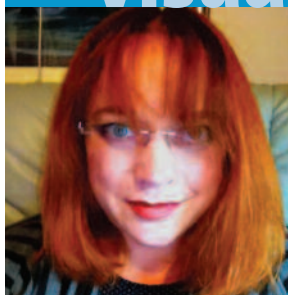


Thorbjørn Nielsen, academic specialist, is a chartered surveyor with ten years of experience in product development in the fields of photogrammetry, LiDAR, 3D city modelling and GIS. Since 2013 he has been employed at Danish Geodata Agency (GST) on methods for the quality control of point clouds and derived products.

Fun Facts

- The Minecraft model of Denmark consists of approximately 4000 billion blocks.
- More than 300,000 zipped Minecraft tiles have been downloaded.
- The short promotional YouTube video, has been viewed almost 800,000 times.
<https://www.youtube.com/watch?v=6rMebJWiNUQ>
- We have had more than 30,000 unique visitors on our Minecraft servers.

GI visualisation



Kristin Warry is the GI manager at Swindon Borough Council which is, in her opinion, the most exciting place to work thanks to its rapidly changing demographics. She also is on the AGI's Local Public Services SIG and Inspire SIG committees, and previously judged the AGI's LPS award for innovation and best practice.

ONCE, LIKE THE ILLUMINATED WRITING IN THE BOOK OF KELLS, only a few people could make a map: they drew it painstakingly by hand, and not many could read or use it. Even a decade ago many legal maps were still drawn by hand; the cartographer sat at a drawing board by the window with an array of paints and measuring tools. Then came the digital revolution, followed now by free GI systems which are arguably better in many ways than their expensive proprietary predecessors. Anyone can now print a map in any way they choose and, sadly, like the early days of cheap printing, many of these maps are the equivalent of the Victorian penny dreadfuls! This often means that cartography has been devalued into simple graphic design at best, and primary school artwork at worst.

However, I am still surprised at the number of us who continue to battle with GIS software to display data instead of pulling back and thinking, what else could I use here? Woe betide anyone who tries to publish a map that looks as if someone just threw up – the digital equivalent of alphabet spaghetti – over a raster background. And yet, so many people still do this. Just search on line for 'bad maps' and see the



Above: Image from the Book of Kells

What was causing the programmer most pain? Trying to get the layers set so that users could choose their own display preferences at will! The reason for this was to help those with colour blindness but – and it is typical of current progress – that we (the GI team) don't bother now with colouring or setting a theme for any data, we just save it for others to play with as they see fit. In any case, with the proliferation of available datasets it would be quite impracticable to set a theme

Is Cartography* Dead?

Kristin Warry speculates on the relative importance of cartography as everyone has access to visualisation tools – including mapping tools – and as the amount of geographically related data proliferates exponentially. Kristin would like anyone to enter for the AGI's new 'Best Geospatial Visualisation Award' – whether or not they produce a map!

many blogs and websites moaning about cluttered maps with many symbols and no legend, or overlapping symbols of misleading sizes. One book that helped me to understand this was Stephen Few's "Now you see it" and his website www.perceptualedge.com has a library of free papers about, amongst other things, our irresistible fascination with all things circular. Why DO we use pie charts and circles to quantify things when humans have great problems distinguishing the relative difference in their sizes? Sadly though, bad maps are as old as bad literature.

Not only are the style of maps changing – often for the worse; the quantities requested are also changing – downwards – over the last decade. As a typical GI manager where once my team would have printed many maps every week, we realised recently that the GI team had not printed a single map in a month between us. While earlier this year I had a whole month go by without opening the GI system! Looking round, the only map being opened regularly was the embryonic new internal universal GI system from Astun Technology, based on those same open-source GI systems. This wasn't even designed for the GI team to use, but for others.

***cartography** - kɑ:'tɒɡrəfi/ noun, the science or practice of drawing maps.

But how can there be a science** of something that no longer needs studying?

****science** - 'saɪəns/ noun, the intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experiment.

for all of them. For example, CAD users like strong black and white outlines; others like a background map so pale that it almost disappears.

So, drowning in datasets, we are now moving away from the map. When you want, urgently, to find patterns that may or may not be geographic or demographic, it is much faster to just attach a general location and demographic type before pushing everything into the modelling tools in your spreadsheet and watch the multiple chart displays change as you click parameters on and off. You may need a GIS for the first bit, but then it's over to the other systems. But that's where the next problem kicks in – spreadsheet display

“
... **bad maps**
are as old as
bad literature.
”

functions are very limiting.

Several years ago I surprised people by saying I never took maps to initial project meetings any more. The same people may now find it hard to believe I hardly ever give them any maps at the end of their projects either! Instead I tend to provide a set of presentation slides - often including imported images made in other data visualisation systems. I may add a quick note at the bottom, but usually I don't. That way the story is simple enough for them to add their own narrative when presenting their decisions based on the data provided. And this is where it's getting fun.

There are a lot of bad data visualisations, many of them from graphic teams who have been told to provide an "infographic" without being given much data, so often it isn't exactly their fault. For examples of great visualisations take a look at www.informationisbeautiful.net. A real classic on that site is the Billion Dollar-o-gram. A picture that tells enough of a story to haunt you for years afterwards is a truly wonderful object.

So what about the new AGI awards? Various ideas were floated past the judges and I certainly appreciated the new 'cross sector' approach, but my hackles rose at the suggestion for a "best map" award. Fortunately I wasn't alone in feeling that this was woefully inadequate for today's world of geographic information and so the new award for "Best Geospatial Data Visualisation" was born. We feel that only by leaving this so open will we encourage the freshest ideas to be submitted. That's not to say that a map won't win, but it's not saying one will either. I am really excited at the idea of seeing the first round of entries. They could be from a student whizz kid; or someone with decades of experience. All (!) that is required is the ability to take some massively complex data, with a GI context,

and distil it into a simple, compelling, picture.

So, with all this in mind, is cartography truly dead as a science? I think there will be strong opposition to this challenge - so many in the industry have come through years of geography and cartography at school and university. However, the number of people like myself who are using GI every day but who don't have a single geography or GI qualification are on the increase. I believe that a good understanding of data analysis and a flair for presentation is often sufficient for many of the positions available, particularly in the public sector. Unlike the 80's when everyone was supposed to take one humanities subject to O level, leading to fights with those, like me, who refused to do so, they are sidelined and completely optional. IT is compulsory, and so are religious education and citizenship, but you can leave maps behind from age 13 with ease.

Whatever your views, hopefully you all agree that it is an exciting time to be in this industry, and that the large and growing number of ways to display data is a positive trend. There are so many inspiring examples every day in the news where once statistics were hardly mentioned beyond the football pools!

For those who wish to enter for the new award for Best Geospatial Data Visualisation, or any of the other new awards, the link is: <http://www.geobig5.com/events/agi-awards-geospatial-excellence/>. The awards will be presented on 13 November at the closing dinner for AGI GeoCom14.

“

... my hackles rose at the suggestion for a "best map" award.

Fortunately I wasn't alone in feeling that this was woefully inadequate for today's world...

”

American Maps Are Bad.

From the Philadelphia Press.

"It is doubtful," says Mr. Jacques W. Redway, in an article on the projection of maps in the Proceedings of the Engineering Club of this city, "if anything short of a special act of Providence could give birth to a more beastly specimen of cartography than the average American wall-map designed for educational purposes." We regret to say that this is strictly true. Our Federal Coast and Geological Survey maps are of the highest artistic and scientific merit, as Mr. Redway says. The topographical survey of New-Jersey, as issued by the New-Jersey Geological Survey, gives maps which deserve the enthusiasm of all who see them, and they are published by the State without profit at a cost rivaling that of any maps issued. But the ordinary wall-map and the atlas ordinarily accessible to people of limited means in this country are the worst in the world, barring some maps in China or Turkey. As for Japan, the country as a whole is better mapped than our own. There is nothing accessible in this country like the cheap German maps.

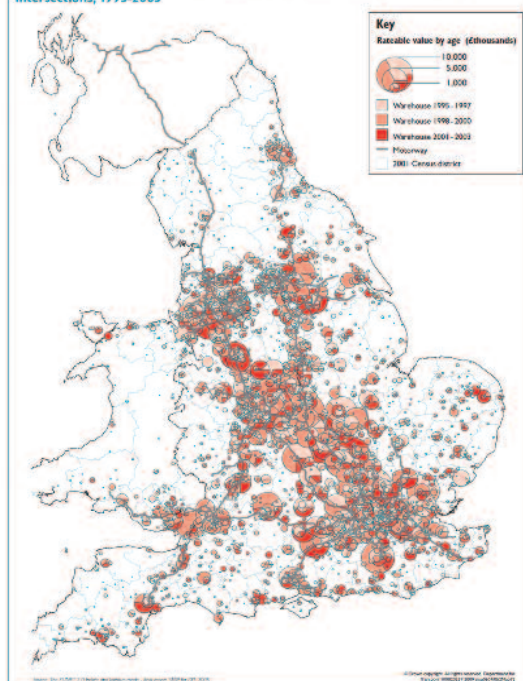
The New York Times

Published: August 2, 1892

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2.1 HOW WE TRAVEL: THE PRESSURES ON THE UK TRANSPORT NETWORK

Figure L17: Location of new warehouses with concentrations at motorway intersections, 1995-2003



Standards call for UK forum



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European Committee for Standardization



OS, AGI AND OGC ARE SETTING UP A UK-WIDE FORUM to promote open standards for geographic information. The forum will discuss, promote, and coordinate work using and developing open standards for geographic (location, geospatial) information in the UK. It aims to deliver real benefits to the geo-community through:

- improving communication amongst standards bodies and standards users;
- understanding which standards work well and work well together;
- understanding the gaps – where the existing

- publish or use geographic or location information directly or via an application or service.

The idea of a forum originated with Ordnance Survey, was promoted via the AGI Standards Committee and further developed during a workshop held in May 2014 to gauge interest. This was attended by approximately 40 people from 26 organisations and discussed the challenges facing a number of organisations when using, promoting, or developing standards. The workshop concluded that a UK wide forum would be a useful way of better meeting those challenges.

Aims The Forum aims to improve communication within the geographic information community, to:

- Help users (including UK government) to select appropriate standards for specific problems, and groups of standards known to work together;
- Share practical experience of using open standards, and their benefits for solving business problems;

Open geo-standards forum for UK?

The AGI, OS and OGC have joined forces to promote open standards for geospatial information in the UK. **Peter Parslow**, Ordnance Survey's principal GI architect and nominated chair of the BSI IST/36 Geographic Information committee, explains why this is a good idea.



... the forum will have a mixture of face-to-face meetings, virtual meetings, and an online presence.



- standards don't solve the business problems
- promoting the development of UK specific guidance or profiles where needed;
 - improving input from the UK into the development and revision of international standards;

The forum will have an online presence to disseminate information, coordinate activities and help participants and others with their use of geographic information standards.

The aim is to attract a wide audience within the UK, especially decision makers in organisations that:

- are involved in the development of open standards or public specifications for geographic information, services, and applications;
- develop or commission the development of applications, services, and APIs that use geographic or location information, and who wish to do so in a way which conforms to open standards – whether or not the current standards work for you;

- Spread knowledge about implementing standards from more experienced organisations;
- Come to an understanding of 'good practice' or 'best practice', specifically how these fits to the UK, and either documenting that guidance, or at least highlighting gaps that could be beneficially documented;
- Encourage open engagement between large and small software (& data) suppliers, private and public sector users (including local authorities), standards bodies, and regulators;
- Encourage dialogue across domains, to improve interoperability.

The Forum also aims to communicate outside the geographic information community, to:

- Converse with non-geographic data domains, e.g. health, transport;
- Open two way engagement between 'traditional' GI community and e.g. developers for mobile applications.

The Forum will improve communication between the UK community and the standards bodies to:

- Disseminate current work from the standards organisations;
- Obtain feedback on standards from organisations using them, or choosing not to.

Operations To enable a wide range of people to contribute and be involved, the forum will have a mixture of face-to-face meetings, virtual meetings, and an online presence. These different media

Benefits of Open Standards Using open standards for interfaces reduces costs and promotes interoperability. The cost reductions come in part from allowing re-use, easing maintainability, and avoiding tie-in to particular proprietary applications, and hence increasing choice or competition when developing solutions. However, there is a wide range of organisations involved with open standards that can be used to produce, exchange, and use geographic information, either as data or as services. It is hard for any organisation or individual to keep abreast with what is happening, let alone to choose a workable approach to a use case or business problem. This causes a number of organisations not to be engaged with standards, which in turn makes it harder for the standards development organisations to develop standards that resolve these real world problems.

include an online forum, to:

- Set the forward agenda,
- Interact on specific issues;
- Face-to-face briefing and question meetings, with webinar broadcast of any presentations that disseminate information;
- Practical interoperability experiments, which can be a mixture of face-to-face (hackathon style) and remote (which can be over a period);
- To decide 'good practice', perhaps as a wiki, i.e. informal and maintained by the community.

For the first year, OS will provide secretarial support and operate a LinkedIn group; AGI will host the online presence; and OGC will provide web conference facilities. Initially, the forum will not be able to operate test beds, or publish guidance – but it will be able to identify where guidance is needed, and encourage the relevant partners to create that guidance.

Benefits There are benefits for the GI community, benefits for the standards bodies, and benefits beyond the GI community – not least from its better functioning within the standards development community. They are:

- reduced apparent competition, e.g. clarify standards that can work together;
- reduce duplication of work;
- improved coordination of work across the standards bodies;
- identification of existing standards requiring revision;
- a wider range of UK input to standards under development or revision.

Within the GI community the benefits are:

- a picture of the adoption of various standards in the UK;
- a wider understanding of standards that are, or could be, in use;
- limiting the divergence of UK practice from international best practice.

Beyond the GI community the benefits will be:

- More coherent and consistent standards, leading to improved interoperability, and improved data;
- Wider input to UK government open standards challenges (helping the challenge owner).

Next steps

1. Use the LinkedIn forum to agree an initial programme – in particular to select one or two

Quote from **Steven Ramage**, managing director, Ordnance Survey International and chair of OGC Business Value Committee. "I hope that the UK Open Geo Forum could dedicate some time to determining the business value of international geospatial standards development, it's long overdue and not easy to do. We should also try to align it with the wider aspirations of the Open Standards Board and wider government policy". <https://gds.blog.gov.uk/2013/04/15/the-open-standards-board/>

Standards bodies At present there are a number of organisations active in the UK developing and promoting standards for geographic information. Their activities overlap, but none provide a complete picture of what is needed for many areas of work.

- BSI's Committee for Geographic Information, known as IST/36, coordinates UK participation in the Technical Committee 211 of the International Organization for Standardization (ISO/TC 211) and the corresponding European committee (CEN/TC 287); (note that AGI provides the 'external secretary' for IST/36 which also functions as the AGI's standards committee. BSI currently provides the secretary for CEN/TC 287)
- Open Geospatial Consortium (OGC), is an international industry consortium of companies, government agencies and universities developing publicly available interface standards. Its UK & Ireland Forum has not recently been very active but OGC now have some UK based staff;
- The World Wide Web Consortium (W3C) which develop standards for the web, including some for geographic information;
- Other international bodies have some standards of interest e.g. OASIS, IETF;
- Other UK professional bodies actively engage with geographic information, e.g. British Cartographic Society, BCS The Chartered Institute for IT, Royal Institution of Chartered Surveyors, Building Smart.

scenarios/use cases/business problems to address.

2. Hold two or three meetings during the coming year, which should be a mixture of face-to-face and virtual meetings. These meetings would be based around a specific scenario, but also include an update from ISO, CEN and OGC on their standards development activities.
3. Presentations of standards in practical use, including lessons learned;
4. Discussion of obstacles to standards based development, or deploying standard solutions - sharing ways to resolve these, either by sharing approaches that have worked, or by collaborating on draft amendments.

How to get involved

- Join the LinkedIn group and help form the first agenda: <https://www.linkedin.com/groups?home=&gid=8130095>.
- Contribute business scenarios, use cases, that could be the basis for a meeting;
- Contribute e.g. present on work done using open standards;
- Standards body representatives: brief us on work done in the past few months, work in progress, work about to get started;
- Ask & answer questions in the online forum.



About the author

Peter has spent twenty years in software development and data design, moving into geography in 2000 when he joined the United Kingdom Hydrographic Office. He is now the Ordnance Survey's Principal Geographic Information Architect, with a team responsible for the design of their GI products, and the databases used to produce them. Peter represents the Ordnance Survey on the AGI Standards Committee / BSI's IST/36, and has been a nominated UK expert to a number of ISO TC211 standards development projects.



Their activities overlap, but none provide a complete picture of what is needed for many areas of work.





GEOBUSINESS 2014 WAS GENERALLY HAILED as a great success – for the organisers; for the 118 exhibitors; for the 1600 punters; and, we would argue, for the whole geospatial industry in the UK. Some of us remember the AGI conference and show held at the same venue – Islington's Business Design Centre – a few years ago and will agree that this was bigger, better and buzzier!

Until now it has been very difficult to get surveyors and GIS practitioners to the same event

professional organisations including the Royal Institution of Chartered Surveyors, the Chartered Institution of Civil Engineering Surveyors, The Survey Association and, of course the AGI. Certainly their representatives were kept very busy during the two days, meeting existing or potential members.

Conference The conference sessions were well organised and featured three keynotes – from **Peter Hansford**, chief construction adviser to HMGov, **Neil**

GeoBusiness: united we stand. . .

Over 1600 attended the UK's first GEO Business show and conference in London in May. With a definite buzz, in the view of one observer, 'it marked the dawn of a new era for the geospatial community'.

“
GeoBusiness showed. . . that entrenched barriers to convergence are being eroded. . .
”

with the former much more focused on hardware for data collection and the latter concentrating on software and data. GeoBusiness showed that this can be done and that entrenched barriers to convergence are being eroded as data collection devices such as drones, laser scanners and video cameras produce ever more data that is fed directly into software used by engineers, architects and planners. This means that there is much more incentive for producers and end users to better understand each other's techniques and be able to match the technology to the asset management and decision making requirements of the end users. The exhibition and many product and service seminars were all free – there was a typical charge for attending the real conference sessions.

Richard Groom has reported in depth on GeoBusiness in our sister journal, *Geomatics World* and this short report draws on his experience as well as a day visit by your editor and **Stephen Booth's** many hours on the PV Publications stand! All of us noted a real 'buzz' with all of the traditional exhibitors from many genres as well as many international exhibitors and visitors who also seemed to be finding value for money. We congratulate **Versha Carter** and her team from Diversified Business Communications on the success of the show and on bringing together several of the most relevant

Ackroyd acting director general and chief executive of Ordnance Survey and **Anne Kemp**, Atkins and chair of AGI. The overall conference chair was **Chris Preston** from Network Rail and current chair of the Geomatics faculty of RICS. There were two concurrent streams with a total of 44 papers presented over two days. A third of these came from overseas including three each from Germany and the USA, two from Ireland and one from Finland, Belgium, Israel, Estonia and Denmark.

BIM Of particular note were the sessions on Building Information Management (BIM) which really does bridge the survey/GIS divide and is backed by government procurement policy. Anne Kemp, geospatial and BIM champion for Atkins and current chair of AGI, opened the second day's proceedings with a keynote focused on the soft skills that get things done. She implored the audience to forget selfishness – the implication being that surveyors thought they must control the whole of the BIM cake when what is actually needed is that survey skills should be at the core of BIM projects and that practitioners should be certified as competent. This point was reinforced by **Ian Bush** who promoted Survey4BIM – the committee that represents surveying in the BIM world. He emphasised that 'geospatial' should be present throughout the life

cycle of an asset. But what does geospatial bring to the BIM project? Kemp used the term “shared version of the truth” but also mentioned the importance of context – an essential ingredient for collaboration.

Standards The surveying of underground utilities is largely unregulated but PAS128 is set to change all that. **John Robinson** from SubScan Technologies talked about the development of this publicly available (but not free) standard which has now been launched. This defines survey quality and gives more control to the client, but in the longer term Robinson hopes that it will form the basis for training, assessment of competency and accreditation of surveyors.

Sessions entitled Smart GIS covered the concept of Smart Cities which are in many ways BIM taken up a notch. **Andrew Hudson-Smith** from University College London gave a fascinating talk on smart cities at the macro scale and the opportunities arising from geo-analysis of data feeds of public information such as the (anonymous) analysis of Oyster Card information in London. Another example is the use of (not so anonymous) Twitter feeds which can be quite embarrassing!

Neil Ackroyd, acting director general of the Ordnance Survey presented his keynote on “Mapping the Future - through innovation and beyond”. Technology is enabling us to collect more and more data at an ever decreasing cost: a trend fuelled by rapid developments in automation. The challenge is to manage this data, identify new applications and exploit them. Change detection is central to the maintenance of OS MasterMap and has not only realised a significant efficiency saving but also enhanced applications for analysing data, such as small building works in back gardens that would previously have been difficult and expensive to detect. Today OS collaborates much more with other government departments as typified by the Olympics and last winter’s flooding. He mentioned the development of OS data as a new ‘world’ for the computer game “Minecraft” – see page 14.

Under the heading of Game-ification, **Gavin Duffy** of the Irish firm RealSim made the very salutary point that the electronic gaming industry is now bigger than the movies and is using ‘real’ geospatial data on a large scale – one of our biggest customers!

Education An education session covered the Royal Geographical Society’s chartered geographer qualification and **Karl Donert** from the European geographer’s group, EUROGEO, pointed out that there is no ‘geospatial’ job category in Britain. So we do not know how many people work in geospatial occupations or how many will be needed in future. Without this identity or relevant statistics, how can we build capacity, plan university courses, or

encourage potential students? How can we engage with politicians? He contrasted the situation here with the campaign to promote the geospatial industry in the Netherlands, including an inspiring four minute video – <http://geo-pickmeup.com/why-we-need-geographers-the-go-geo-campaign/>. The conclusion is that there is a need to promote the ‘geo’ industries, to raise the level of awareness and improve the image with the public. One institution acting alone cannot achieve this, but if all work together...

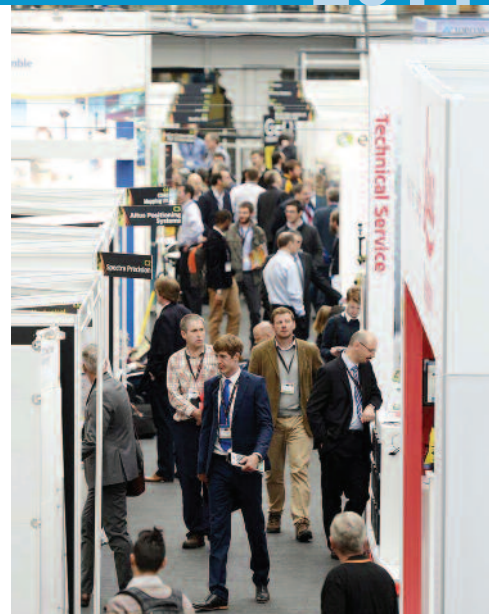
Hydrography to Heathrow; Drones to Zebedee

Other sessions were devoted to coastal and hydrographic work in the US and UK; to global trends – especially the legal issues surrounding geospatial data and the worldwide move towards 3D datasets, which ties in with Smart Cities and BIM. Project examples included Stonehenge, the railways, maps in the cloud and Heathrow airport. The integration of various types of raw geospatial data into usable GI systems received a lot of attention including ubiquitous positioning, mobile video and LiDAR, the remarkable handheld ZEB1 scanner (universally known as Zebedee!) and a whole session on ‘small unmanned aircraft’ – you will see these described elsewhere in this issue as Unmanned Aerial Vehicles (UAV) or just ‘drones’ as favoured by the popular press.

Exhibition Alongside the conference there was a full exhibition including all the major equipment manufacturers and suppliers, software developers and educators and an extensive programme of supplier seminars running concurrently in seven rooms and demonstrations outside. There was plenty of time for networking and catching up with people we probably meet only once a year.

The show’s unifying vision was to promote closer collaboration across the geospatial community and to provide a platform that effectively showcases both the professionalism of this industry and the role that it will play in the future economic growth of our country. To cite the words of one exhibitor, **Derry Long**, business development manager at MBS Survey Software, the new show marked “the dawn of a new era for the geospatial community.”

- GEO Business will return to The Business Design Centre in London on 27-28 May 2015. We understand that over a third of this year’s exhibitors have already signed up – including some of the biggest. www.GeoBusinessShow.com



Above: Visitors found all the major equipment and software developers there.



Karl Donert from the European geographer’s group, EUROGEO, pointed out that there is no ‘geospatial’ job category in Britain.





• Robin Waters is Editor of GiSPro and an independent consultant who has worked extensively in several European countries and has a keen interest in EU's INSPIRE Directive and its implementation.



Above: Aalborg skyline from Aalborg tourist website.

THE EUROSCEPTIC GAINS IN THE RECENT ELECTIONS did nothing to dampen the spirits of the INSPIRE party last month which marked the five-year halfway point in the implementation of the directive. Our report and pictures show that although there have been delays, the enthusiasm and commitment are still as strong as ever.

The 2014 INSPIRE conference took place in Aalborg, Denmark in June, jointly organised by the

Respondents suggested improving communication, sharing of best practice, reducing complexity of technical specifications, and improving coordination. There was a near unanimous view that the objectives of INSPIRE are still pertinent and that it is delivering benefits to public administrations.

Bring on the guitars! A packed conference in Aalborg, Denmark considered 700 responses from public and private sector, academia, and private citizens at the half-way stage of the EU's INSPIRE Directive.

I ♥
INSPIRE

Joint Research Centre (JRC) of the European Commission and the city's university. Secretary **Henrik Studsgaard**, Danish Ministry of the Environment, emphasised that listening to consumers and understanding of user requirements is the key for success of INSPIRE in Denmark

and, by inference, anywhere in Europe. This was echoed by other speakers who stressed that specifying high quality, cohesive and harmonised data is vital to successfully meet user requirements.

Unfortunately GiSPro was unable to attend the conference but heard that many of the delegates were impressed with the packed programme and with the realism being expressed at this 'halfway' stage of INSPIRE implementation. Perhaps the cause of this realism was the mid-term evaluation of the Directive published just before the conference. This was the result of a public consultation earlier this year which received 700 responses from public and private sector, academia, and private citizens. The key messages in the report summary were that INSPIRE is 'starting to work', is addressing the key barriers, is making good progress with documenting data and making it discoverable and viewable. However there are delays for many datasets and Member States have not completed data sharing among public administrations which should have been cleared by 2009!

Thirty percent of responses came from only two countries (Germany and Spain) and this skewed distribution did not allow a geographical analysis of the results but some countries provided a few consolidated replies reflecting a wider body of opinion. Two thirds of replies came from public sector bodies and there were 14% from private individuals.

http://inspire.ec.europa.eu/reports/consultations/INSPIRE_Public_Consultation_Report_final.pdf

Cross border vision for services During the conference there were some key announcements including from **EuroGeographics**, which now represents 61 national mapping and/or cadastral agencies from all 46 countries on the European continent. The **European Location Framework**, with partners including EuroGeographics and many of its members, is bringing together 30 organisations – both public and private – to deliver the INSPIRE vision of an operational cross-border and pan-European services platform. A showcase application was in operation in Aalborg, eight months ahead of schedule. Initially it contains national data services from the Czech Republic, Finland, Norway, Spain and Sweden as well as a GeoLocator geo-referencing service and a GeoProduct Finder. The project is co-funded by the European Commission and in addition to national agencies from 13 countries there are 9 participating private sector companies including

“

The key messages in the report summary were that INSPIRE is 'starting to work'...

”

Europa Technologies, Snowflake, 1Spatial and Netrius from the UK.

Open standards winners Elsewhere in this issue we have a plea to get involved with 'open standards' and these were also celebrated in Aalborg with the presentation of the CEN TC287 award for the best EU project embracing GI standards. The winner was the **eENVplus** 'for its continuous efforts to apply GI-standards from CEN/TC 287, ISO 211 and OGC to support the implementation of INSPIRE in the environmental field, particularly a validation service for INSPIRE data'. The award is now sponsored by **Trilogis**, an Italian SME active in the geospatial standardisation sector. We can't help thinking that the photo shows an ageing pop group and we will forward suggestions for the name of this happy 'band' to the protagonists!

Next year INSPIRE 2015 will be jointly organised with Geospatial World Forum on 24-29 May in Lisbon. Hugo De Groof, Directorate-General Environment, European Commission said "**The 2015 Geospatial World Forum** – INSPIRE conference offers a stage for stakeholders, governments and businesses to discuss and develop synergies between the rapidly converging geospatial technologies and 'good governance'



Above: L to R, Danny Vandenbroucke, chair of adjudication committee; Giuseppe Conti, Trilogis; Giorgio Saio, eENVplus project coordinator; Giacomo Martirano, vice chair of TC287 (credit Paul Smits, JRC.)

institutional, legal and common framework initiatives. This partnership intends to facilitate and harness the value of geospatial towards improved living standard by converging policies, practices and people." Sanjay Kumar, Geospatial Media and Communications, organiser of Geospatial World Forum, added, "Through our combined efforts we can create a strong case for public-private partnership initiatives, and serve as an excellent communication and outreach platform at both regional and global levels." The conference theme will be "Convergence: Policies + Practices + People via PPP".

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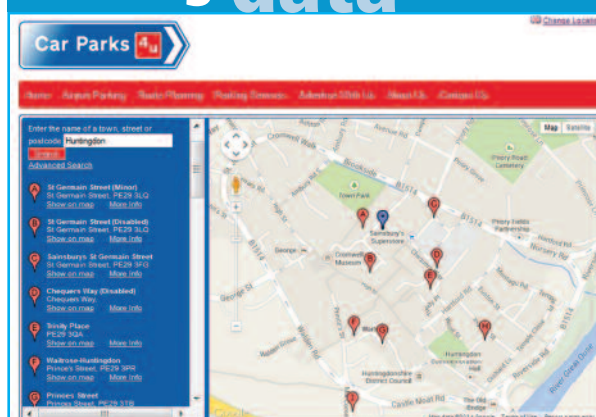


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Parking data



Above: The blue marker shows the search location and the red markers display the nearest car parks with details shown on the left-hand side.

IN 1996 IAN BETTS STARTED TO COMPILE A DATABASE of UK car parks using A4 forms and the Royal Mail; the internet was not yet widely used. As internet use increased the project started using emails and spreadsheets which, apart from saving money on

postage, enabled a larger amount of data to be collated, unrestricted by the size of a piece of A4 paper. Since 2011 the database has been maintained and expanded using an internationally available website with access for car park operators secured by user name and password. Some data is supplied as files to be uploaded and all data used is collated with the knowledge and support of the car-park operators – no spiders or other automated collection techniques have ever been used. The database has details for “publicly accessible” car parks and the fields currently collated are

LBS and spatial analytics Specialists in location based services and spatial analytics started taking an interest in the data as did economists, management consultants, traffic engineers and many others that were outwith the original market. For most of these uses the most important information relates to basic details of the car parks including number of spaces, parking fees and particularly the geocoded position (latitude and longitude) of the main entrance to each car park. 98 per cent of the car parks are now geocoded and the website provides a map or aerial photo to capture the correct position.

Research Data analysis can be of considerable assistance in decision making for businesses and consumers alike, and it has always been accepted in the parking industry that a better shopping experience can command higher car parking fees. With the assistance of Experian providing data concerning the ranking of town and city centres and using this data to calculate the “Parking Price Indicator” (PPI 2) the “Weighted average cost of 2 hours parking” it was possible to illustrate that a degree of correlation exists between the two. However, other factors are relevant, particularly the

Where to park?

We have all searched for a car parking space from time to time but perhaps we didn’t know that there is a UK database of car parks available to the public but which also feeds into many other markets from construction to retail analysis. **Ian Betts** explains how he started and how he now maintains the data, which is now going international.

summarised below. Publicly accessible is defined as: “A car park which is open for use by the public provided they comply with the terms and conditions of the operator, this usually relates to payment and/or duration of stay.”

Over 98% of the database is geocoded with the latitude and longitude of the principal car park entrance. The data is made available through on www.carparks4u.com which helps drivers find the car park that best serves their chosen destination. A user can filter by various features such as surface or multi-storey, spaces for the disabled, spaces for buses, coaches, or commercial vehicles, etc. Some car parks provide dynamic information on current free spaces and this is also relayed via the website for access on mobile devices while en route.

As an engineer, Ian’s initial intention was to collate a technical record of the car parks in the UK and it became necessary to define the type of car parks collated (Publicly Accessible) and to define types of control systems and other attributes. Most of the detail is shown on www.parking-info.com/en_GB/database-fields/ and advances in control systems mean that revisions are often required.

level of tourism in a town, and there is definitely a requirement for a ‘model’ which is yet to be funded.

The PPI is also useful for comparison between towns – including internationally – and also for monitoring annual changes. The table shows the PPI for various categories of settlements in the UK enabling any specific area to judge its parking costs against the national average for their category.

Future Developments The website is accessible on PC’s and tablets and there are apps for Windows phones and i-Phones. It will be further optimised for mobile phones when it also has a facility for route selection by journey time or distance.

The database is actively updated. However, as the information is provided by others, it is not possible to guarantee the accuracy or completeness.

Main Database

Country, Municipality, Address, Town, County, Organisation, Postcode, Car Park Name, Type of car park, Owner, Manager/Operator, Operators Website URL, Total Spaces, Coach Spaces, Lorry Spaces, Disabled Spaces, Family Spaces, Campervan Spaces, Motorbike Spaces, Women’s Spaces, Number of Lifts, Number

Over 98% of the database is geocoded with the latitude and longitude of the principal car park entrance.

Size	TOWN TYPE	Average 2 hour parking cost £
Very Large	London West End	11.34
Very Large	Large Regional Centres	4.24
Very Large	Central London	4.00
Large	National Centre	3.65
Large	Regional Centres	3.23
Large	Regional Centres Isolated	2.77
Medium	Wealthy Sub Regionals	2.24
Medium	Isolated Sub Regionals	2.02
Medium	Average Sub Regionals	1.82
Medium	Wealthy Towns	1.62
	Grand Total	1.59
Smaller	London Suburbs	1.54
Small	Rural Isolated	1.50
Small	Rural	1.49
Small	Small Basic Shopping	1.43
Small	Small Towns	1.42
Small	Secondary Towns	1.39
Small	Free Standing Towns	1.39
Large	Major Malls (many are free)	1.36
Small	Small Very Basic Shopping	1.25
Small	Small Affluent Shops	1.25
Small	Small Centres	1.23
Small	Better Small Centres	1.21
Small	Suburbs	0.99

Above: Summary of Parking Price Indicator averages for different UK locations prepared by Experian for 2013. Fields collated on www.parking-info.com

Charging Points, Height Barrier, Max Vehicle Height.

Control Systems

17 categories of control system ranging from Free to Mobile Phone but also including other systems such as Automatic Number Plate Recognition.

Charging details

Charges, hours for charges, season tickets.

Customer information

Park and Ride, Town Centre, Municipality Owned, Safer Parking Award, Public Toilet, Disabled Toilet, Baby Changing, CCTV, Barrier, Payment Booth, Coins, Bills/Notes, Credit Card, Debit Card, Stored Value Card.

Construction

A profile describing the construction from in-situ concrete structure to sandy beach, and also records the number of entry exit and tidal lanes.

Categories

Thirteen recently introduced fields for the car park's principal purpose, from shopping centre, airports and hospitals to hotels, restaurants and country parks.



About the author

Ian Betts is a chartered civil engineer and has been involved with roads, bridge, sewer, pedestrianisation, landscaping and city centre design. In recent years he has specialised in parking as a consultant having advised on all aspects of the parking industry.



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OS GeoIntel argument



IN FEBRUARY 2014 ORDNANCE SURVEY announced to its partners that it was launching a GeoIntelligence Unit to “provide value-added solutions in addition to our range of products and services” [OS Partner Presentation Feb 14 slide 5].

A significant number of those partners were sufficiently concerned at this development to write to Ordnance Survey and to the Department for Business Innovation and Skills. In the document they explain their belief that this development is ‘highly

from a Trading Fund operating in a competitive market which “costs the taxpayer nothing” [para 13 of the 2008 5th Report by the CLG Select Committee] to a Trading Fund receiving over £57m per annum of public money for the Public Service Mapping Agreement (PSMA). This funding (which represents nearly half of OS turnover) supports not only the maintenance of OS MasterMap but also the infrastructure to store and serve the data and provide customer services. OS will use its PSMA-funded infrastructure in its GeoIntelligence business, and this amounts to a cross-subsidy which puts its partners at a competitive disadvantage.

- The PSMA has been set at a level which makes OS highly profitable and allows it to invest in new business activities outside its Public Task (such as the GeoIntelligence Unit). By contrast most partner companies find it difficult to invest in value added solutions based on OS data because they face a severe risk of OS competing unfairly against them.”

OS GeoIntelligence Unit – friend or foe?

The creation of an Ordnance Survey GeoIntelligence Unit has prompted OS partners to cry foul! Does it not create a conflict of interest for OS and might it not damage the government’s drive to encourage the private sector to exploit government information in the interests of the economy in general? GiSPro examines the arguments.

inappropriate and will cause considerable damage to the British geo-information industry as well as limiting customer choice and value for money.’

GiSPro has been shown the document, which is summarised below and asked for Ordnance Survey to comment on it. The OS reply is also quoted below.

The OS partners authoring the document were Getmapping, eMapSite and Bluesky. A further eleven partners including CSL Ltd, Groundsure, xyz Maps and FIND Maps are understood to have signed it. They argue that there needs to be a clear boundary between OS as the publicly-funded provider of the national mapping database and OS partners as the providers of value-added solutions based on OS data. It continues:

“The launch of the GeoIntelligence Unit represents a fundamental change which sets OS in direct competition with many of its (approx. 300) partners. This competition is unfair and will seriously damage the interests of customers and the partner network for the following reasons:

- The OS ‘brand’ is very strong and is underlined by its position as the national mapping agency.
- OS can offer a one-stop solution directly from that position whereas its partners have to build solutions based on the data that it supplies
- In April 2011 OS was awarded an un-competed 10 year contract to supply all mapping for the public sector. This significantly changed the status of OS

OS Remit and Undertakings OS’s remit and undertakings are set out in the OS Framework Document dated July 2004. This document defines the OS role:

“OS concentrates on the collection, management and provision of nationally consistent data and national map series. It encourages partners to add value to OS data and develop applications and value-added products and services that meet a wide range of end-user requirements”. [para 3.].

This clear definition has been used by partners to justify their decision to invest in value-added solutions which are now in danger of being undercut by cross-subsidised OS GeoIntelligence solutions.

Partners have also relied on OS’s commitment to consult with its stakeholders before implementing any significant change to its operations. “OS stakeholders include...partners, Britain’s geographical information systems industry, and its own staff. As a matter of principle, OS will aim to keep these stakeholders informed of progress and plans.” [para 3.5]. No such consultation has taken place in this instance.

Conclusion and recommendations The document concludes that this remit and undertakings should be maintained and that OS should not therefore pursue its new venture which has been launched without consultation and which is a clear breach of the Framework Document. As a government monopoly OS enjoys such a huge advantage that it cannot enter the



The Business Plan sets out our intentions to become more proactive in the solutions space.



value-added market in competition with its partners without doing them and its customers severe damage.

The authors therefore recommend that OS should withdraw from the value-added market with immediate effect.

OS response In response the following statement was received from Ordnance Survey: *GeoIntelligence is an area of Ordnance Survey's commercial business with the aim of delivering bespoke customer location-based solutions. The Ordnance Survey Business Plan which was approved by the Minister for Business, the Rt Hon Michael Fallon, in June 2014 clearly tasks OS to help, expand and develop the overall geospatial services industry market in Great Britain for the benefit of all.*

The Business Plan sets out our intentions to become more proactive in the solutions space. We initially discussed this at our February partner events and have now started to identify opportunities with new and existing customers. For many years, we have been asked to provide value added solutions in addition to our range of digital products and services, and like any commercial organisation will always adapt our offering to ensure market relevance. Our teams will work with customers and partners to deliver bespoke services and solutions built around spatial data. Central to this flexible business model is the ability for Ordnance Survey to draw on partner skills and capabilities, working alongside each other to deliver solutions that ultimately meet the needs of the customer. In the future, we see significant additional opportunities when working with our partners, not only on delivering solutions, but also co-development, co-selling, co-marketing and co-branding.

Innovation stifled Getmapping's **Tristram Cary** comments: "It is disappointing, but typical, that OS's response does not address any of the concerns raised by the partners. OS merely states that it intends to enter

the value-added markets 'like any commercial organisation would'. But OS is not 'just any commercial organisation'; it's a highly profitable monopoly enjoying long-term government funding, and if it is allowed to leverage its dominant position to compete with its partners then it is bound to damage them.

There is also an inherent assumption that OS will do a better job of developing the value-added market than its partners can – but I think this is highly unlikely. OS's culture has not been entrepreneurial or innovative. For instance, it was desperately late to enter the interactive transport network and digital leisure markets, and only did so years after its partners had developed products and solutions. So our view is that OS's plan will have a detrimental effect on the British geoinformation business – it will deter partners from investing in new products and solutions while at the same time failing to develop innovative products of its own. British innovation will continue to be stifled by the dead hand of government. It is depressing that OS made no effort to engage with the geoinformation industry before launching this venture and that BIS and **Michael Fallon** did not think to consider the implication for the many SMEs involved."

Conclusion At GiSPro we understand why Ordnance Survey and some of their partners clearly disagree with each other's stance. As we commented in the last issue, there does seem to be a government desire to have its cake and eat it. On the one hand it requires its Trading Funds to be commercially successful – whether or not they are likely to be privatised in the future; on the other hand it never ceases to call on industry to exploit government data to create jobs and pay taxes. We think this issue should be debated further and we hope that more of the 300 partners will be prepared to share their views.




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FOLLOWING THE HUGE SUCCESSFUL SERIES of "Geo: The Big 5" events this year, I'm really excited to share with you a preview of the 2014 GeoCom conference. The new conference team has been working hard to pull together high profile speakers, a new venue and a revamped format to

About Sir Mark Sir Mark Walport was appointed Government Chief Scientific Adviser (GCSA) and Head of the Government Office for Science in April 2013. As GCSA Mark is co-chair of the Prime Minister's Council for Science and Technology (CST). His previous career highlights include:

- Director of the Wellcome Trust
- Professor of Medicine and Head of the Division of Medicine at Imperial College London
- Member of the India-UK CEO Forum and UK-India Round Table
- Member of the advisory board of Infrastructure UK
- Non-executive member of the Office for Strategic Coordination of Health Research

Mark received a knighthood in the 2009 New Year Honours List for services to medical research and was elected a Fellow of The Royal Society in 2011.

GeoCom preview: bringing together the Big Five

With a refreshed format and a new venue Rollo Home, 2014 GeoCom chair, shares highlights of the forthcoming new look AGI Annual Conference.

develop the themes of the Big 5. The event is an opportunity to connect our 2014 themes of BIM, Big Data, Open and Future Cities. These interlinked themes all share approaches, challenges and technologies and are all framed and shaped by the wider policy context.

I am certain that GeoCom will build on the links between these themes, bringing them together in one engaging debate. As with the other Big 5 events, the output from this event will directly feed into the Foresight Study that the AGI are producing for 2015. This major piece of work examines in detail the big topics and challenges in geospatial and will set the agenda for next year and beyond.

Content packed programme Joining Sir Mark will be a dynamic range of speakers. Presentations ranging from across the Big 5 will also feature topics such as INSPIRE, mobile technology and visualisation. All sectors are recognised in the line-up which includes the Land Registry, Deloitte, DEFRA, Canals & Rivers Trust, Atkins, Ordnance Survey and many more. As well as formal presentations, the programme will also include interactive workshops, lively debate sessions and lightning talks.

So, what else is new? In addition to a programme packed with content, the conference will host a **free Exhibition and Innovation Theatre**. This is open to anyone who cannot make the full event to drop in, meet the exhibitors and see a range of new products and services. The Innovation Theatre will also provide an opportunity for the exhibitors to showcase the latest and greatest developments in technology and expertise across the industry.

New conference venue All of this will be staged at the **Chesford Grange Hotel** in Warwickshire. The venue will provide a comfortable country house setting for the event. This will create a vibrant and intimate conference perfect for debate and discussion. The compact nature of the venue and varied selection of conference rooms on offer has allowed us to get creative with the programme and deliver a very different and exciting conference.

Government keynote speaker The AGI is delighted to announce that **government chief scientist Sir Mark Walport** has chosen to speak at GeoCom '14. His presence underlines the importance of geospatial at the heart of evidence-based decision making for the UK Government. I am sure that Sir Mark will bring a fresh and unique perspective on how he sees the Government and the geospatial industry developing to face the current economic and political challenges.

We are excited that Sir Mark recognises the AGI as a platform where key messages and issues around geospatial can be delivered and discussed. His presence is representative of the AGI's commitment to engage at the highest level.



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Easily accessible by air, road or rail the central location of the venue enables us to bring together participants from all over the UK. On-site accommodation is included in the standard conference package.

New connections and familiar faces Aside from the formal activities, there will be plenty of **time to connect** built into the programme and during the rest of the event. There will be a welcome dinner the evening before the event providing everyone with a chance to catch up before the main event. The following evening will provide an opportunity to network further and discuss the day's content. This year our main evening event will be particularly special with some familiar faces joining us as we celebrate the AGI 25th Anniversary in style. Expect a bit of nostalgia for those who know us well; a bit of insight for those who are new to us and, of course, a birthday cake!

Celebrate the best of geospatial Following the conference, on 13 November, **The AGI Awards for Geospatial Excellence**, will provide a glittering finale to our 25th Year. **Professor Iain Stewart**, TV Geologist and Professor of Geoscience Communications, will be our compère for the evening. The event is an opportunity for us all to communicate the story of an

innovative and evolving industry and celebrate particular examples of excellence.

I'm really pleased to welcome Prof. Stewart back to join us after his powerful insight at Geo: The Big 5 – Future Cities and it is great to have such an advocate for the power of geography and information fronting our refreshed awards programme. This night is all about celebrating geospatial and how it benefits wider society. There's still time to get your award nominations in online – see the AGI website for details.

The awards will also provide a sneak preview of the work going in to the 2015 Foresight Study. This is your first chance to see a crucial piece of work for the geospatial industry which follows in the footsteps of previous forward-thinking studies produced by the AGI.

Don't miss out With such a fantastic range of speakers, a strong and varied programme, new venue and the exciting new awards you won't want to miss this year. Join us at the Chesford Grange near Warwick between the 11-13 November for what is going to be a vibrant conference, an illuminating debate and a bright point on the UK geospatial calendar. I look forward to seeing you there.

More at <http://www.agi.org.uk/>



About the author

"Rollo Home is the senior product manager for Ordnance Survey, the national mapping authority for Great Britain where he is responsible for the detailed product portfolios and for the development of the forthcoming 3D products. He has worked within the geospatial sector for over 19 years for various international engineering consultancies..."

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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.



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HAVING CONCEIVED OF THE IDEA of the Geo:Big 5 back in our September planning weekend last autumn, I'm not sure any of us quite realised how the five themes would interplay and integrate. Nor that they would generate such interest from clients and people outside of the industry.

Because of this, you will start to see publications appearing outside of the GI circuit, and also beyond the UK. A few examples of this are:

- *Geospatial World* (Smart Cities) Cover story, June 2014
- *Construction News* (BIM) Last article at: www.bimtaskgroup.org/
- *NCE Webinar* (BIM for Infrastructure): <http://www.nce.co.uk/news/>

We will continue to grow our thought leadership in other sectors in the coming months, and welcome

May, and felt that there was indeed general support for starting up a UK Open Geo-standards forum. A paper has been prepared which explains why and how the group will operate initially. My thanks go to the small group who enabled this – and in particular Peter Parslow (see also page 18).

The simple first action is to sign up to a new LinkedIn group 'UK open geo standards forum'. We'll be using that to set the agenda, location, and timing for a first meeting. I include the executive summary here, so you can get a measure of what we are doing, and how you would like to contribute.

An open geo-standards forum for UK A forum to coordinate and promote standards for geographic information in UK. **Peter Parslow**, 19 June 2014.

This paper describes a new UK wide forum for discussion of open standards for geographic information, and seeks support from interested bodies and individuals for their participation in the forum. The forum aims to deliver real benefits to the geo-community:

- *Improve communication amongst standards bodies and standards users.*
- *Learn from one another about which standards*

AGI's thought leadership steps outside the GI circle

The Geo:Big 5 initiative is winning attention beyond our geo world driven by BIM, Big Data and other key topics. There is also a move towards a UK geo standards forum.

your support and interest in this. And you will see more speakers coming to our events who are outside of our industry, providing commentary on what their needs and challenges are, and how they are approaching them, and encouraging debate about how the GI industry can contribute and engage. A great example of this is the Big Data event, coming up on 30th September in London, and hosted by IBM. The line up is really impressive and I for one am really looking forward to the insight gained and the open debate which are characterising this series of events.

Building on the success of the Geo:Big 5 series, we will be launching the Focus events this autumn, with AGI-Scotland kicking off the first of these towards the end of October, looking at mobile data capture for ecology. This series aims to be made up of focused shorter seminars, organised by our groups on areas of interest, across the UK. They will supplement our national event series, and will be free for AGI members.

As part of the Geo:Big 5 activity, we held a workshop on open geo-standards at the AGI on 12th

work well and work well together.

- *Promote the development of UK specific guidance or profiles where needed.*
- *Improve input from the UK into the development and revision of international standards.*
- *Engage more widely with open standards, within the geographic information community, and also with other areas of development that use, or could benefit from, geographic information.*

The idea originated with Ordnance Survey, was promoted via the AGI Standards Committee and further developed during an open workshop on 12th May 2014. In order to maximise participation, this forum would be independent of any of the existing standards and professional bodies so that participation is not restricted to membership of any one body but is open to all.

The forum will have an online presence to disseminate information, coordinate activities and help participants and others with their use of geographic information standards. The agenda for the first year will be agreed using a LinkedIn group,



... kicking off the first of these... looking at mobile data capture for ecology.



which will be the initial online presence. It is likely to consist of three meetings during the year, each focussed on a particular business purpose. It will be possible to join these meetings remotely.

After that initial year, the forum will evaluate itself against its initial objectives, checking for specific measurable benefits for the participants, the wider community, and the standards bodies.

Peter Parslow's article on page 18 explains the reasoning behind the Forum in more depth and the full document is available through the LinkedIn group below. Please get your colleagues to sign up – and do influence this initial agenda.

www.linkedin.com/groups?home=&gid=8130095

Global initiatives There are some important global initiatives gaining traction within our geo world and none more so than the forthcoming meeting in New York of the UN GGIM's (UN Committee of Experts on Global Geospatial Information Management). The UK delegation (from Ordnance Survey) will be attending and have asked AGI for input by the end of the month on a number of very important issues, including the Global Geodetic Framework and the implementation and adoption of standards for the global geospatial information community. I'm grateful to a number of volunteers who have come forward to help draw together a submission on behalf of AGI. It is encouraging that the intended focus of the Open Standards Forum falls well within the vision expressed within the UN GGIM agenda.

http://ggim.un.org/ggim_committee.html

Insurance The Insurance and Risk SIG has recently hosted a geodrinks evening in the City of London, with around 30 people from the insurance industry mixing with geospatial professionals from risk related sectors such as environment and engineering at the Crosse Keys pub. The event was kindly sponsored by Europa Technologies. There are plans afoot for another event later in the year. If you're interested in joining the SIG or speaking at a future event please contact chris.ewing@aonbenfield.com or visit <http://www.agi.org.uk/insurance-and-risk>.

The BIM4Infrastructure committee met this week to discuss the June Geo:Big5 event, and how to pull together the white paper around BIM and asset management. In reality it is likely there will be several papers based around:

- Survey4BIM.
- Collaborative working.
- Integrating our infrastructure – the asset portfolio life cycle.
- Open data exchange.
- Defining 3D objects across CAD/BIM/GIS

technologies.

- Semantics and ontologies – a refresh or a new approach required?

A couple of focus events are also being planned on:

- Pulling the rail industry together for a debate on a common way forward,
- Highways – common challenges and solutions.
- COBie – the UK Government data exchange mechanism.

Let me know if you would like to be involved anne.kemp@atkinsglobal.com

New website imminent Work on the AGI website continues with the launch at the end of August drawing ever nearer. I have to say I am really excited about this piece of work, and very grateful to **Abigail Page** and Jonathan Marshall without whom this simply wouldn't have been possible. The look and feel of the website absolutely reflects the new branding and image of AGI, with the main features being improved self service for members, greater ability for groups to contribute, a content hub with insight articles from members, and better access to content from events. We are planning for minimal disruption during the launch, not least around booking into our events, but please do bear with us if we experience any teething problems.

Farewell and hello Finally, we are wishing **Chris Rhodes** fare-thee-well, after a grand year's service for AGI, raising the game for our marketing and communications. It's been fantastic having Chris' input in the re-design of the brand and the website – and I'm hoping you agree – our on-line presence and coverage on social media. As ever your feedback will be much appreciated.

At the same time, we are delighted to be welcoming **David Reay** – who joins us to focus on members and sponsorship. David is very experienced in establishing purposeful and valued long term relationships with members and sponsors, and comes to AGI to help us drive an improved engagement and recruitment campaign. I'm sure many of you will have an opportunity to meet with David shortly, but we look forward to giving this area of our activities some renewed vigour.

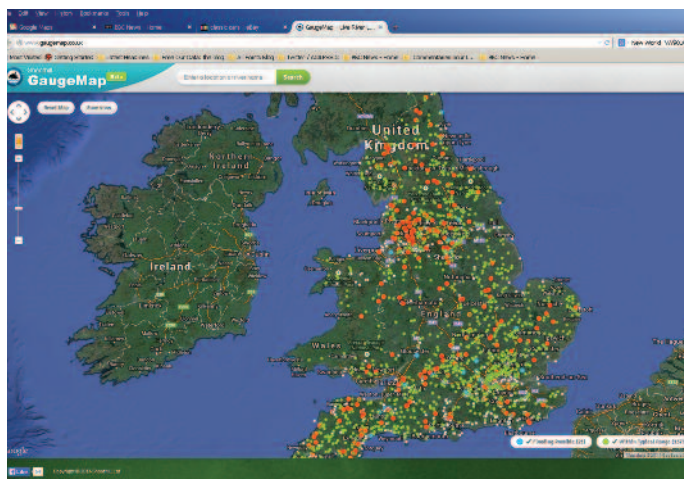
Do come and support the up-coming events – as described by **Rollo Home** in his article on page 28. Please think seriously about entering for the AGI Awards, which will be presented at the Awards Dinner on the last day of GeoCom'14 in November. The success of our events relies on your input. So please bring others along – colleagues, clients and people outside of the industry – so that we can really get the best quality debate possible. I am really looking forward to us bringing this altogether as part of the Foresight Report for release in 2015.



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River gauges start tweeting!



Using Environment Agency (EA) live river and tidal level data mapping developer Shoothill has created GaugeMap, a website that shows every EA monitoring station in England and Wales with a five day trace of the levels and their relation to likely flooding. Every one of the 2400 gauges now has a Twitter account – part of the Internet of Things! Search the site by location, river name, catchment area or status (normal, below average or risk of flooding) and follow on your mobile. The development follows the success of the EA's FloodAlerts used by the agency and the media. Dr Paul Leinster, chief executive of the EA said, "This is exactly the kind of exciting use of our live data we hoped to see when we became an Open Data organisation earlier this year." The gauges are set to tweet twice a day but this could be more often during major flooding incidents. www.shoothill.com www.gaugemap.co.uk

Topcon's new data collector

A new data controller with a large, bright sunlight-readable display screen is available from Topcon. The FC-500 is designed for any mapping application to maintain GIS databases and is compatible with either the Topcon eGIS or MAGNET Field GIS software. The unit has, built-in wireless Bluetooth and wifi connectivity, and an optional 3.5G cellular modem, allowing interaction from users in the field, to the office, and additionally to the cloud when used with Topcon's MAGNET Enterprise. <http://www.topconpositioning.com>



Geocortex Essentials

1Spatial plc has confirmed the immediate availability of Geocortex Essentials local government enterprise license subscriptions which enable organisations to transform their design, development, and maintenance of ArcGIS web mapping applications. The new licence model is a fixed annual fee for three years, including full product support and it enables a range of customisable off-the-shelf viewers, an extensive portfolio of pre-built, configurable functionality, flexible administration and management tools, as well as a unique workflow module for implementing business processes. Early users are Northumberland County Council and the London Borough of Lambeth.

Upgrade for eCognition

Trimble Geospatial's eCognition v9.00 software improves workflows for remote sensing and GIS applications. With spatial and contextual GIS data modelling capabilities, vector data can be managed and processed more efficiently. Version 9 also introduces computer vision based object detection capabilities to complement the existing knowledge-based and supervised classification modules. www.eCognition.com

Trimble has also introduced a new version of its software for processing and analyzing geospatial data. Business Center v 3.21 introduces new coordinate reference systems and a specialized Advanced Drafting module.

Smart cities

CyberCity 3D has teamed with Bluesky to create 3D city models by combining proprietary 3D building production with stereo aerial imagery. Access to Bluesky's massive data library enables immediate 3D Smart Building

production for urban centres across the UK. London city centre, Nine Elms, South Kensington, and Chelsea have already been covered. There are also plans to integrate the National Tree Map into 3D Esri City Engine scenes through a partnership with Esri UK and Garsdale Design.

Update for CycloMedia viewer

CycloMedia Technology has a new release of GlobeSpotter, its large scale street-view imagery software. Version 2.9 delivers an improved interface and "Smart Click" measuring functionality. Improvements include reduced text and buttons and an option to store settings online. The imagery – "Cycloramas" – has excellent metric quality that make it possible to take measurements and determine 3D coordinates for an object from multiple street-level views. GlobeSpotter 2.9 automatically locates better intersections, lowering the standard deviation values, increasing accuracy and reliability of measurements.

Unlimited Viva

Leica's Viva GNSS Unlimited Series of GIS data collectors is now claimed to provide a safe investment in future-proof receivers and smart antennas. The series fully supports the Chinese BeiDou system with BeiDou-only and Glonass-only options. The Leica SmartTrack technology guarantees accurate signal tracking, as well as evaluating and verifying RTK measurements.

BRIEFS

Esri has released CityEngine 2014, the latest version of its 3D GIS urban design software to help architects, planners, and urban designers make better decisions. CityEngine is used to create more realistic city models and share them on the web with

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decision makers and the public.

A free online portal that provides land, property and environmental professionals with the ability to preview, trial & provide feedback on both new and existing digital datasets is now live. Landmark Labs has 400 datasets available from Landmark Information Group and over four million data features updated every month. Current datasets identify land usage throughout the UK, including the location and extent of 27 different land use and land cover classes.

Landmark Information Group, has re-launched PromapIQ, which provides a quick and simple way to search, view, interact and gather crucial property and planning information. Over 8.3 million planning applications are available and an average of 14,000 new planning records processed every week. They have also added Ordnance Survey's Terrain 5 and Terrain 50 height datasets in 2D and 3D formats to suit different GIS and CAD applications.

A new GNSS RTK receiver

designed and developed specifically for the Esri user community has been unveiled by Altus. According to Altus CEO Neil Vancans, the APS-NR2 weighs the same as a dozen glazed doughnuts! It also has a dual cellular antennae, built-in wifi, works on virtually all RTK networks and has an open architecture so you can choose your own data collector.

Bluesky has launched a new online map shop with an offer of 40 per cent off Ordnance Survey MasterMap Topography Layer list prices. The map shop improves access to aerial photography, the National Tree Map, detailed 3D height data and extra Ordnance Survey datasets.

Envitia MapLink Pro 8.0 focuses on high performance visualisation for situational awareness for defence and intelligence requirements and includes MapLink Mobile for Android and enhancements to the 3D visualization capabilities through the integration of osgEarth. Built on top of the Open Scene Graph libraries, it is aimed at mission-critical applications.

Leica Unlimited



Leica Geosystems' latest mobile mapping platform, PegasusTwo is vehicle independent and uses both imagery and LiDAR point cloud data to deliver highly accurate and economical geospatial data in a 360° spherical view. It has one rear view, one sky view and six horizontal cameras, and a single high speed LiDAR sensor. The software has semi-automatic object extraction features, enabling two-click GIS metadata extraction or calculation of distances.

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GGP 2014 has arrived



GGP Systems has announced GGP 2014, offering true open systems architecture for interoperability. It works with spatial databases including Oracle, SQL Server and PostGIS and supports OSGeo Feature Data Objects giving access to additional data sources from standard geospatial services and formats.

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

SEPTEMBER

RSPSoc 2014 Annual Conference 2-5 September, Aberystwyth, Wales
More information: <http://rspsoc.aber.ac.uk/en/>

Training Days: Total Stations, 8 & 9 September, Stevenage
Training Days:GPS/GNSS 10 September, Stevenage
<http://www.pvpubs.com/Training>

Geo: The Big 5 – Big Data, 30 September, London, UK.
More information: <http://www.geobig5.com/events/big-data/>

OCTOBER

Location Intelligence World 2014, 7 & 8 October, London
<http://www.locationintelligenceconference.com>

Geo: The Big 5 – Policy, 9 October, Cardiff, UK
More information: <http://www.geobig5.com/events/policy/>

European GI conference imaGIne 8 & 9 October, Berlin (concurrent with Intergeo, 7-9 October)
More information: www.imagine2014.eu / www.intergeo.de/intergeo-en/

AGI Northern Ireland Showcase 10 October, Riddel Hall, 185 Stranmillis Rd, Belfast, BT9 5EE, UK.
More information: www.agi.org.uk/events

OCTOBER

Training Days: Total Stations, 13 & 14 October, Stevenage
Training Days:GIS Data Collection, 15 October, Stevenage
More information: <http://www.pvpubs.com/Training>

GEO Utilities Europe 21 & 22 October, London
More information: <http://www.geospatialutilities.com>

NOVEMBER

Trimble Dimensions International User Conference 3-5 November, Las Vegas
For more information: <http://www.trimbledimensions.com>

GeoCom: 'The Changing Face of Geo' 11-13 November, Chesford Grange, nr Warwick
Including: AGI Awards for Geospatial Excellence (13 November)
More information: <http://www.geobig5.com/events/geocom-big-5/>

Training Days: Total Stations, 24 & 25 November, Stevenage
Training Days:GPS/GNSS, 26 November, Stevenage
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