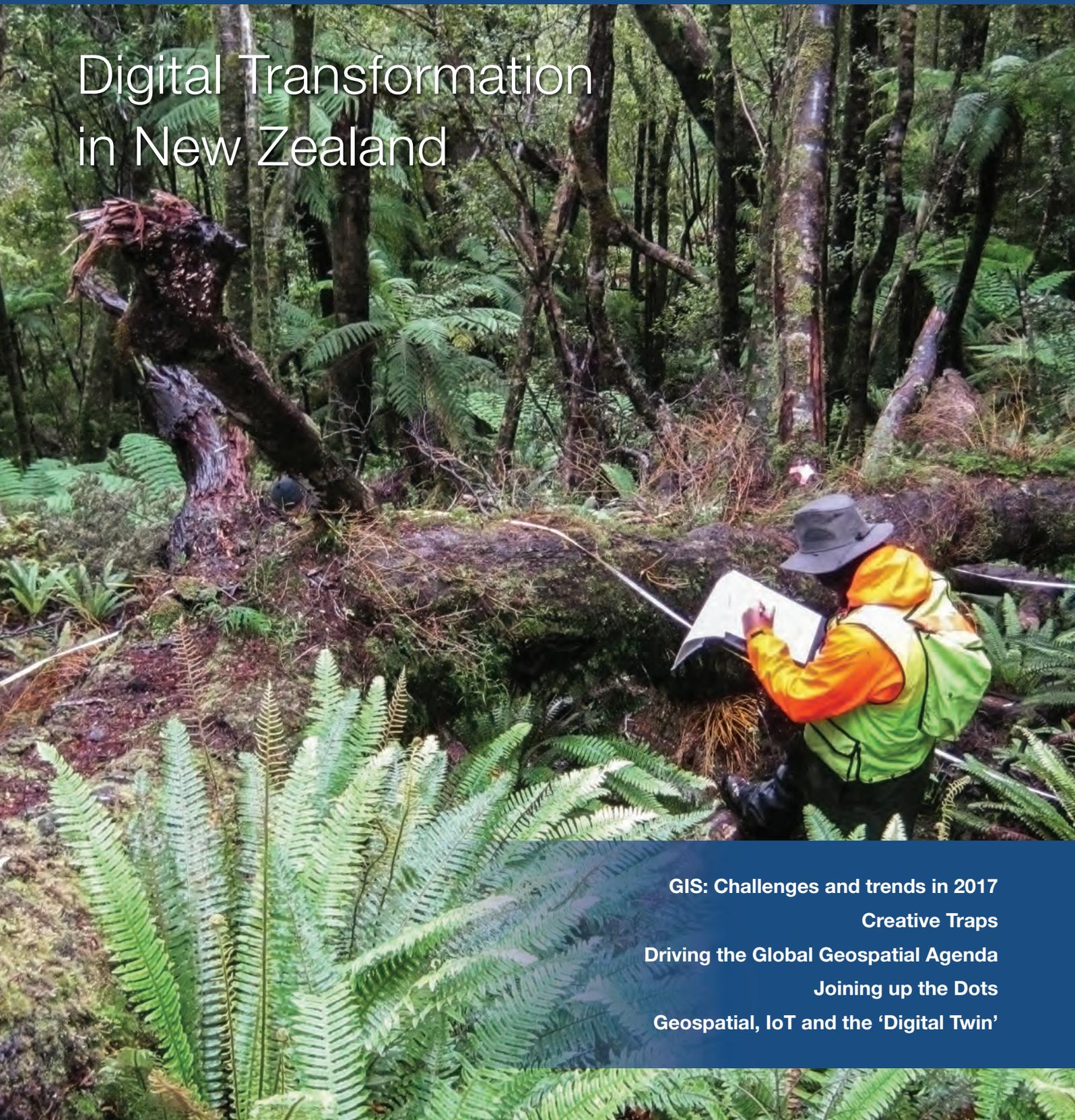


## ...joining the geospatial jigsaw

### Digital Transformation in New Zealand



GIS: Challenges and trends in 2017

Creative Traps

Driving the Global Geospatial Agenda

Joining up the Dots

Geospatial, IoT and the 'Digital Twin'

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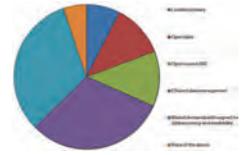
**COVER STORY**

New Zealand's Department of Conservation (DOC) out in the field monitoring vegetation the old fashion way with paper-based methods. A pilot programme was recently initiated to expose the staff to GIS software.



**P. 10 GIS: CHALLENGES AND TRENDS IN 2017**

GIS Professional conducted a market and applications survey. With over 200 responses, we gained an interesting insight into the current GIS landscape.



**P. 14 GEOPLACE CONFERENCE REPORT**

The GeoPlace Annual Conference took place on 11 May 2017 at the grounds of the Leeds United Football Club with over 350 people attending. Joost Boers reports.



**P. 16 CREATIVE TRAPS**

To help stop copyright infringement, Cartographers have laid copyright traps in their work to catch people out. We look at some of the strangest cases.



**P. 18 THE GLOBAL GEOSPATIAL AGENDA**

We take a look at the three international bodies which are driving the global geospatial agenda which underpins the need for smart and sustainable growth: OGC, GEO and UN-GGIM.



**P. 22 JOINING UP THE DOTS**

The use of administrative data for purposes other than those it was collected for has become an essential data resource for health and social science research.



**P. 24 DIGITAL TRANSFORMATION IN NZ**

New Zealand's Department of Conservation (DOC) have been supplied with tablets and smartphones equipped with Survey123 for ArcGIS.



**P. 26 GEOSPATIAL, IOT AND THE 'DIGITAL TWIN'**

The IoT phenomenon, has revolutionised almost every sector in today's world. Among the many buzzwords associated with the field is 'Digital Twin'.



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# Views of the Contributing Editors



Starting with this issue, this page is dedicated to notes from members of our editorial board or authors, reflecting on the issue, the profession or an article they've been working on, giving an insight 'behind the scenes'. I hope you enjoy it and I'm looking forward to hearing your thoughts and suggestions.

*Joost Boers, content manager*  
joost.boers@geomares.nl

Almost half way into 2017, this year is shaping up to be one of the most exciting in the geospatial industry's history. Highlights so far include the recent Google Earth upgrade, Planet's miniature satellite launches, Amazon's free satellite imagery offering on AWS, while the forthcoming release of QGIS 3.0 is likely to excite many in the open-source community.

On the topic of GIS, one of the big discussions among the geospatial community in 2017 concerns the changing nature of the GIS Professional's role. Augmented reality and machine learning are already having a massive impact on the industry while advances in the data science field (thanks to the growing popularity of tools like Tableau and statistical programming languages such as R) suggests that geospatialists should redefine their unique value. Finally, the two fields which are likely to see an increased demand for geospatial skills this year are transportation and cybersecurity.

*Niall Conway, contributing editor*



"Maps keep fascinating me. Not just because they provide a visual way of communicating complex information, but also because maps can be full of surprises. Read all about trap streets and phantom settlements in this issue's big maps story."

*Sabine de Milliano,*  
*contributing editor*

As head of stakeholder engagement at one of the world's largest intergovernmental organisations focused on geospatial topics, I spend most of my time meeting parties investing in and using Earth observations.



I travel a fair amount and have a privileged position of seeing trends across organisations, sectors and even continents. The image above was part of my plenary talk at the recent ISRSE37 conference in Tschwane, South Africa in May. It was created as a result of input from the commercial sector organisations participating who told me what they thought was important in the short to medium-term. Organisations including ISRSE exhibitors: Airbus, CloudEO, Deimos Imaging, DigitalGlobe, Esri, Hexagon, PCI Geomatics, Planet and others.

This – and more events like SatSummit in January and DisruptSpace in March talked about going from data to decisions via insight and intelligence. This is where GEO sits; we convene the global EO community to offer insight for policy development and decision making.  
[www.earthobservations.org](http://www.earthobservations.org)

*Steven Ramage,*  
*contributing editor*



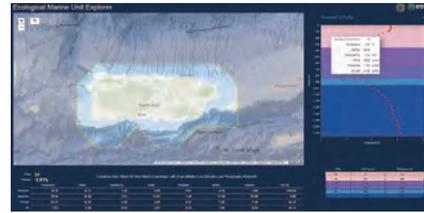
## Imajing Provides Esri Users with Online 3D Enabled Images

Developed by Imajing, Imajnet enables transportation infrastructure managers to host and share, within their organisation, geo-referenced 3D images surveyed with Imajbox mobile mapping system. Imajing has developed extensions to enable Imajnet integration in ArcMap with a plug-in, and ArcGIS Online with a widget.

Imajnet Integration in ArcMap

• [bit.ly/2qv3ayv](http://bit.ly/2qv3ayv)

## The First Global Data Driven 3D Ocean Map



With only roughly 10% of oceans having been explored in any detail, the Group

on Earth Observations (GEO), an intergovernmental partnership that seeks innovative solutions to global challenges, commissioned a global map of Ecological Marine Units (EMUs). This map will support the wise use of ocean resources and the preservation of environmental resilience by providing a framework for understanding processes and detecting change.

• [bit.ly/2qvqOLA](http://bit.ly/2qvqOLA)

## Free Access to Software for UAV Mapping

UAV and data company PrecisionHawk has opened access to its professional mapping and analytics software, PrecisionMapper, for free. By eliminating the cost barrier, the company gives operators the flexibility to bring their own drone and consistently generate value from aerial information.

• [bit.ly/2qvcNxx](http://bit.ly/2qvcNxx)



PrecisionMapper software

## Harvard Seeks Submissions for Map of the Month Contest



The Innovations in Government Program at the Harvard Kennedy School's Ash Center for Democratic Governance and Innovation has announce that they

Harvard aims to make the work of visualisation and mapping more visible

are seeking applications for the Map of the Month contest, a new initiative dedicated to recognising highlighting the impactful work being done in the area of data visualisation and mapping.

• [bit.ly/2qvfndr](http://bit.ly/2qvfndr)

## Innovation for Ireland All Mapped Out

Ordnance Survey Ireland (OSi) is in the midst of a cartographic automation project that's transforming its product offerings and service capabilities. In partnership with Esri Ireland, OSi has developed the multiresolution data store (MRDS), an advanced cartographic solution based on the ArcGIS platform that enables OSi to automatically generate and update map products and services quickly, with minimal human intervention.

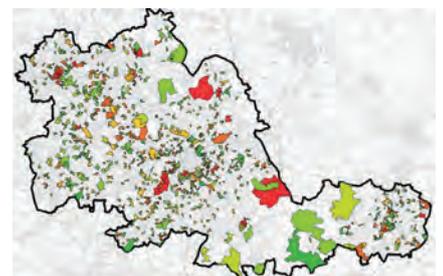
• [bit.ly/2qv4cLO](http://bit.ly/2qv4cLO)



Staff at OSi

## Risk Modeller for Fire and Rescue Services

Geographic Information Systems (GIS) software developer Cadcorp has released a new application to help fire services determine aggregate risk. Risk Modeller provides analytical functionality for determining risk by combining the effects of spatial and attribute data from a range of different layers.



Risk Modeller screenshot

• [bit.ly/2qvtmtb](http://bit.ly/2qvtmtb)

## 2017 PlanetSAT Global Imagery Basemap

French company PlanetObserver, supplier of geospatial data for all civil and military visualisation and simulation applications, and GIS solutions has announced the release of PlanetSAT Global #2017, the unique seamless and global imagery basemap processed with fresh and cloud-free satellite images. Processed with current Landsat 8 source data for 40% of the global and more than 300 major urban areas across the world, PlanetSAT Global version #2017 is the high quality natural colour imagery basemap that offers detailed and up-to-date geographic information, perfect for 1:50,000 scale mapping.

• [bit.ly/2qvi8ot](http://bit.ly/2qvi8ot)



## Project X Labs' GeoDash 4

Project X Labs' GeoDash 4 is a location intelligence tool that is once again redefining the standard for affordable geographic information systems (GIS). GeoDash is a lightweight MicroStrategy extension for map-based analysis that has been overhauled with new features including an optimised UI, the ability to perform aggregate operations on point clusters, and the introduction of dynamic zoom, allowing users to streamline their analysis by toggling layers to only display at custom zoom levels.

• [bit.ly/2qvndgq](http://bit.ly/2qvndgq)



GeoDash 4 software



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## Top 5

The Future of Geospatial Education	<a href="http://bit.ly/2qvic7C">bit.ly/2qvic7C</a>
TanDEM-X 3D World Map Completed	<a href="http://bit.ly/2qviA64">bit.ly/2qviA64</a>
Online GIS and a Perfect Storm for Local Government	<a href="http://bit.ly/2qvk93Q">bit.ly/2qvk93Q</a>
When the GNSS Mapping App you want doesn't Exist. . . Make One!	<a href="http://bit.ly/2qvsafO">bit.ly/2qvsafO</a>
The Role of Geological Data in the SMART City Agenda	<a href="http://bit.ly/2qvic7J">bit.ly/2qvic7J</a>

### 3D Repo Cloud Platform adds Integrated Virtual Reality Functionality



The new version of 3D Repo cloud-based building information modelling (BIM) software offers integrated virtual reality (VR) functionality using existing 3D models and project data. 3D Repo's multi-award-winning solution for those managing construction and civil engineering

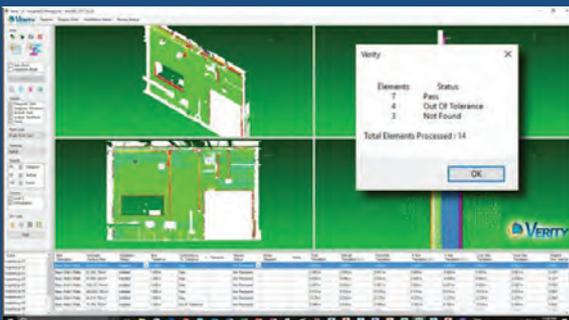
projects already used the latest cloud technology for wider access, easier collaboration and open-source application development. With the addition of VR capability, users can now deploy VR simulations for applications such as training, safety and project consultation.

• [bit.ly/2qv2Tfi](http://bit.ly/2qv2Tfi)

### Construction Verification Software

ClearEdge3D has released its newest software solution, Verity 1.0, which verifies the accuracy of new construction against design/fabrication models, giving general contractors unprecedented insight into their construction projects. The software analyses laser scan point cloud data of the as-built construction against the design/fabrication models, identifying variances, missing elements or other potentially costly construction errors. The variance data and corrected model can be exported to Navisworks for as-built clash detection and further analysis.

• [bit.ly/2qvEOVq](http://bit.ly/2qvEOVq)



ClearEdge Verity 1.0

### TomTom and Maplink Cover Global Logistics Business



TomTom has been selected to power Maplink's logistics and enterprise geolocation solutions. Maplink will leverage TomTom

global map and traffic data in its API's and logistics platform which hosts hundreds of thousands of assets worldwide. TomTom data will also be used in Maplink logistics software which can be installed on premise or on mobile driver terminals.

• [bit.ly/2qvnFuY](http://bit.ly/2qvnFuY)

### New Versions of Vulcan and Eureka



Mining technology developer Maptek has delivered Vulcan version 10.1, together with Eureka

version 4.0, to customers globally. Vulcan and Eureka are both accessed and operated through the Maptek Workbench, offering users the first instalment of a continuum of integrated technical software applications, data and workflows dedicated to mine planning, measurement and operations.

• [bit.ly/2qNjF9p](http://bit.ly/2qNjF9p)

### National Tree Map Helps UK Authority Plan Ground Maintenance

English local authority Daventry District Council is using a detailed 3D map of trees from Bluesky



to prepare for a new grounds maintenance contract. The National Tree Map (NTM) data, which identifies the location, height and canopy cover of more than 280 million trees nationwide, is being used within Daventry Council's GIS, enabling officers to identify all trees that fall within areas that will be the subject of a new grounds maintenance contract.

• [bit.ly/2qNgj69](http://bit.ly/2qNgj69)

## PostCoder Strengthened with AddressBase Islands

### AddressBase Islands



Allies has incorporated AddressBase Islands into its web API, PostCoder Web. Islands is a new data product

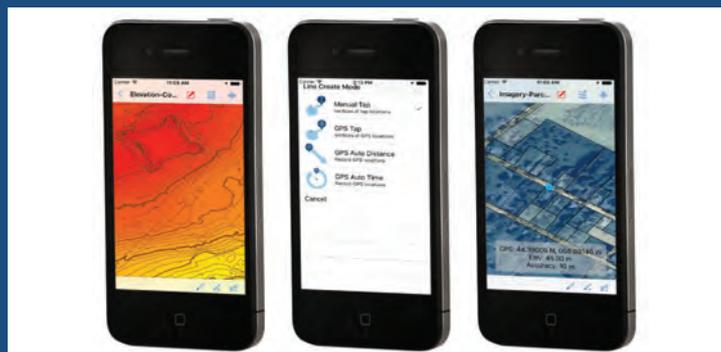
from Ordnance Survey which provides information regarding addresses and properties in Northern Ireland, Isle of Man and the Channel Islands. The dataset describes over 1.1 million postal addresses and complements similar information which is already available for England, Scotland and Wales within AddressBase Premium. Between them, the two datasets reveal over 40 million records complete with UPRN identifiers and property-level coordinate positions.

• [bit.ly/2qNADEz](http://bit.ly/2qNADEz)

## Beta Version of Global Mapper Mobile

Blue Marble Geographics has issued a beta release of the Android version of its popular Global Mapper Mobile app. Mirroring the capabilities of the iOS version released in June 2016, the Android app offers powerful GIS data viewing and field data collection functionality utilising the mobile device's GPS capability to provide situational awareness and locational intelligence for remote mapping projects.

• [bit.ly/2qNdmCE](http://bit.ly/2qNdmCE)



Screenshots of the iOS version of Global Mapper Mobile.



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*"The course met my expectations and more. I was put out of my comfort zone a lot with learning new areas... but thoroughly enjoyed every minute. Doing this course has already had a positive impact on my career and a big thank you to all the staff and fellow students who helped with great support. I have thoroughly enjoyed the experience."*



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# GIS: challenges and trends in 2017

Recently, GIS Professional conducted a market and applications survey. With over 200 responses received we have gained an interesting insight into the current GIS landscape, its trends, challenges and applications. This article presents the results of the survey and shows that a large majority of the respondents is very positive about the future of GIS, which will be driven by technological advancements that will influence their organisation in the future.

24% expects no change in 2020. From a geographical perspective, respondents consider North America as the most important growth area (28%), followed by Southern and Eastern Asia (16%), Western and Northern Europe (13%) and Africa (13%).

Of the respondents of the GIS Survey, 21% work at the government, followed by academia, education and research (20%), and civil engineering, construction and architecture (11%). Several domains such as mining and surveying were not listed, so this accounts for the large percentage of category 'other' (19%). Interestingly, some of the domains for which one would expect GIS to play a major role, i.e. agriculture, military, sustainable development and logistics, each had less than 2% of responses.

companies to 25% working in a large company with more than 1000 people. It suggests that GIS is widely available to anyone who sees a benefit from it.

### MARKET GROWTH

Overall, the future appears bright: 70% of respondents expect their company to grow in 2020, and

### KEY MARKET TRENDS AND CHALLENGES

The distribution of responses for key market trends in GIS was quite even, with mobile GIS and visualisation being the most important trends. While 'open data' was selected by 37% of respondents, a number of respondents also mentioned

The company size the respondents work in shows only little variation, with 19% of responses from small

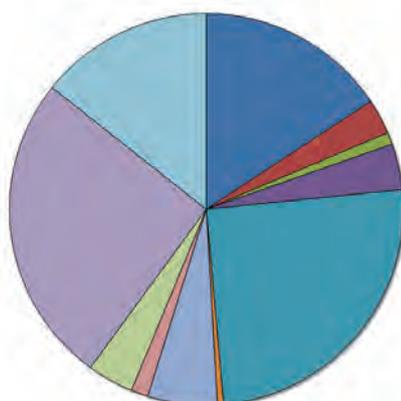
30% of responses even anticipate a growth of at least 5% in 2020. Only 8% expects a decline and

**... 87% think that GIS is important to very important for their businesses. . .**

open source applications and interoperability, which means that 'openness' as a whole is seen as a market trend. This could also explain the fact that small companies make extensive use of GIS as well, because of the accessibility of open source GIS software and the increasing availability of open data. Finally, BIM was mentioned specifically by a number of people as a key market trend.

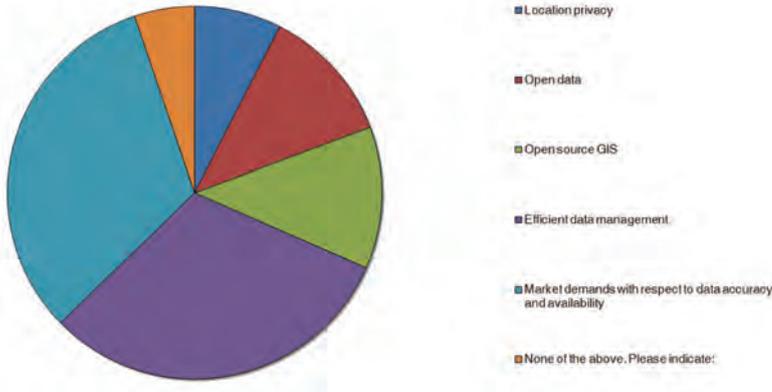
The main challenges respondents report are market demands with respect to data accuracy (32%) and efficient data management (31%). Interestingly, open data and open source GIS were both selected by 12%, indicating that

What (business) problems are you solving with GIS (multiple answers possible)?



- Asset management
- Business intelligence & analytics
- Compliance & law enforcement
- Crisis management
- Decision making
- Fleet management
- Impact analysis
- Market research
- Operations & control
- Spatial planning
- Other, please indicate:

What are the challenges to market growth for the GIS sector?



open data and open source are both seen as a trend as well as a challenge. Location privacy is seen as much less of a challenge to market growth (8%). The additional responses revealed two additional concerns: the cost of proprietary software, and the fact that the impression is that people use GIS without properly understanding it. Given the increasing availability of open source software and data it is indeed no surprise that a new group of users is emerging that see the benefits of GIS, but lack professional knowledge. In other words, GIS is getting more mainstream than ever before. Professional GIS software suppliers will have to face the challenge of selling their high-quality software to this new user group, as well as to companies that see free alternatives as a way to reduce costs.

**IMPORTANCE OF GIS TO ORGANISATIONS**

Out of all respondents, 87% think that GIS is important to very important for their businesses, meaning that GIS plays a major role in their business processes. As little as 2% of respondents indicate that GIS is only a 'nice to have'. Some bias should be considered here, as we expect the readers of this magazine to already be aware of the many applications for GIS in

many different domains and how to use it. Interestingly, 30% of the respondents indicated that just 0-5% of people in the organisation use GIS. When combined with the analysis that 87% of the respondents state that GIS is very important for primary or secondary business processes, this means that a significant number of organisations rely on just a few employees for their operations. One could ask the question whether this is because of the cost that some people have indicated as a challenge that limits market growth? On the other part of the spectrum, 20% of people work in a GIS-heavy organisation where

more than 50% of the employees use GIS on a regular basis.

**PLATFORMS AND STANDARDS**

61% of respondents use open source GIS in combination with proprietary GIS. A wide range of platforms, software packages and libraries have been mentioned in the GIS survey, however, ArcGIS and QGIS were most popular. They are followed in the list by MapInfo, GeoMedia, GeoServer, FME and OpenLayers. A few respondents are using other products like gvSIG and Google Earth.

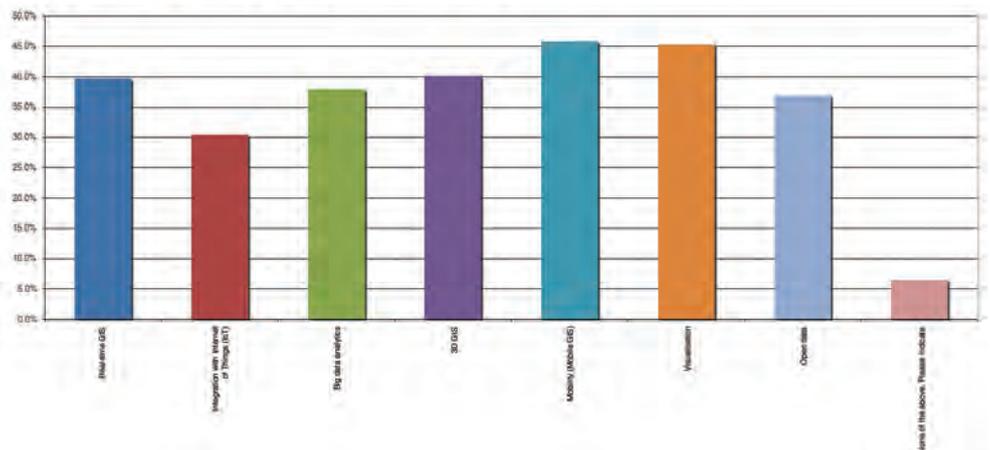
The most popular GIS standards are KML (62% finds this useful) and WMS (52%). Other useful standards are the ISO metadata standards (44%), GML (35%), and WFS (41%). An answer that was clearly missing was Esri's shapefile, which is apparently seen as de facto standard by several respondents. GeoJSON is considered to be a useful standard as well.

**APPLICATIONS OF GIS**

When asked which business problems are solved by GIS (and after correcting for the manually entered multiple answers due to a minor error in the survey), three business problems clearly emerge as main applications for GIS: spatial planning (31%),

>

What are the key market trends in GIS (choose maximum 3)?



decision making (30%) and asset management (23%). Compliance & law enforcement and fleet management (both 2%) are the least used applications for GIS by our group of respondents.

**ABOUT THE AUTHOR**

Sabine de Milliano is an entrepreneur and consultant specialised in developing user-friendly IT applications of geospatial data. She holds an M.Sc. in Geomatics from Delft University of Technology and combines her engineering background with technical communication and business expertise to bridge the gap between users and engineers. She is also a contributing editor of GIS Professional and GIM International (email: [sabine@knalblauw.nl](mailto:sabine@knalblauw.nl)).



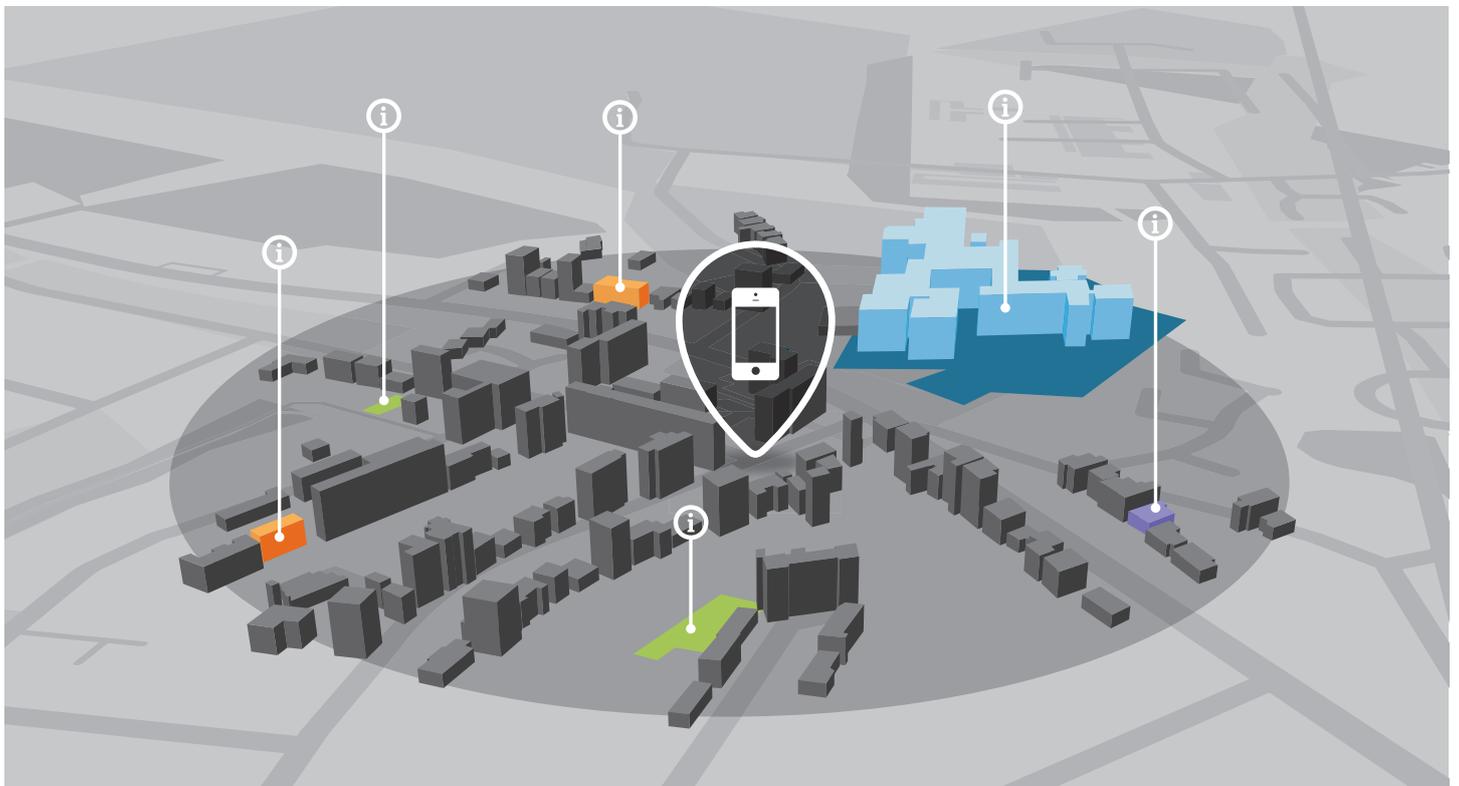
**FUTURE DEVELOPMENTS**

With the integration of BIM and GIS being a hot topic at the moment, GIS Professional asked readers about the relevance of BIM to their work and their expectations of future BIM-GIS integration. 30% of all respondents indicate that BIM is relevant to their work. With respect to BIM-GIS integration, expectations vary, but standards such as CityGML are mentioned as important drivers for successful integration of both worlds. Some consider BIM as being a 'specialised GIS', while others believe that BIM will help the future development of 3D GIS in terms of modeling and visualisation.

BIM is definitely not the only trend in the GIS world. Readers consider

cloud technology, open data and software, high-resolution (satellite) imagery and remote sensing, the Internet of Things (IoT) and UAVs as the main drivers for the GIS industry.

Finally, bringing everything down to an organisational level, respondents were asked which technological advancements they expect to become key to their organisation in the near future. We received a variety of answers, but cloud technology, real-time data, IoT, 3D GIS, mobile GIS and UAVs clearly stand out from the crowd. Our readers thus show that many of the new technological advancements will become important for their organisation in the future.



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# A Look at Low-Code and No-Code Platforms in GIS

**I moderated a panel on GIS careers recently. All six of the panelists, representatives from both academia and industry, agreed that everyone in the field should be able to program and use the concepts of computational thinking. What actually constitutes programming, however, is changing. I'm seeing more and more references to "low-code" and "no-code" development options. What are these tools and platforms? How are they being integrated into GIS software and solutions?**

## LOW-CODE AND NO-CODE

Forrester, coined the term "low code" back in June 2014, but some suggest implementations date back to 2011. Low-code refers to "platforms that enable rapid application delivery with a minimum of hand-coding, and quick setup and deployment, for systems of engagement." Its sibling, no-code, requires no hand-coding.

The basic idea is that low-code platforms enable those familiar with programming to put apps together more quickly than they can from scratch. No-code platforms enable those with no programming experience at all to create useable, if not elegant, apps.

## THE REALITY OF LOW-CODE AND NO-CODE PLATFORMS

As is true with any development tool or platform, low- and no-code offerings are not silver bullets. While low-code platforms minimize the amount of hand coding needed, the app creator must have some familiarity with programming and the goal of the app to be created. Low-code does not eliminate programming, it just speeds it up.

These environments can introduce more players into app development. The visual environment of the platforms means that the app's end users might design the interface they'd like with drag and drop tools. That interface can then be passed to the programming team to add the needed functionality.

No-code environments are ideal for non-programmers or organizations that want to avoid hiring or outsourcing a programmer for a quick, basic app. Because the app creator does not have the time, skills or resources to devote to develop an application from scratch, no-code platforms and the apps built from them are simple. The tradeoffs for the extreme ease of use are limitations in functionality and

user interface design. Still, the best platforms can create solid, working applications.

How far can you go with low- and no-code apps? It depends on the platform and the creator's ingenuity. Some platforms support uploading to and optimization for Apple and Google's marketplaces. Some do not. There is still discussion among industry leaders about the apps' "enterprise readiness" and security.

## LOW-CODE, NO-CODE AND GIS

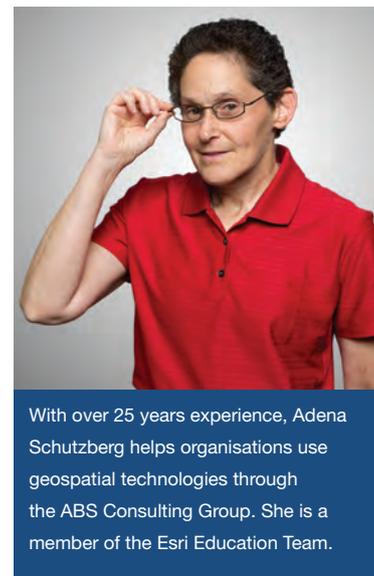
I first saw the term "zero code" applied to GIS in a marketing effort from TerraGO last August. The company platform, called Magic, promises "custom mobile apps in minutes without code" and 90% cost reduction, "without hiring more developers or writing a single line of code." It can create apps for Apple's App Store, Google Play and cloud deployment.

A recent FedTech article reports "The U.S. Geological Survey... has relied on open-source platforms for 30 years and started using low-code software on select projects in 2014." Among other things, the Survey taps TrackVia, a low-code management workflow platform from Apiant, to enable app connectivity to the National Water Information System.

Esri's templates for story maps and its AppStudio for ArcGIS fall into the low and no-code arena. Map makers including elementary school students and data visualization professionals have built story maps to share data, video, photos and more. AppStudio enables non-programmers to configure mobile apps for Android, iOS, Windows, Mac OS X and Linux.

## FURTHER DEMOCRATIZING GIS

The availability of low- and no-code platforms means GIS end users and busy programmers can create apps more quickly and easily. It's up to organizations and their staff members to explore and evaluate if and how low- and no-code tools and platforms can best serve the bottom line.



With over 25 years experience, Adena Schutzberg helps organisations use geospatial technologies through the ABS Consulting Group. She is a member of the Esri Education Team.

*A pipeline inspection app built from TerraGo's Magic no-code platform.*



# GeoPlace Conference:

## Connecting Data for Better Outcomes

**The GeoPlace Annual Conference, attended by over 350 people, took place on 11 May 2017 at the grounds of the Leeds United Football Club. The programme included networking, roundtable discussion sessions and speakers like Eddie Copeland (director of Government Innovation at the Nesta Innovation Lab), council officers, the Valuation Office Agency, the Land Registry and the Chartered Institute of Public Finance & Accountancy (CIPFA). And of course, the stage was for the award winners!**

The Exemplar Award is awarded to a council for the best example or demonstration of local address and/or street datasets providing quantifiable benefits. This year, the winner was Northumberland County Council for its pilot project rolling out 30 hours' free childcare a year in advance of full availability nationally, doubling the existing free childcare for 3-4 year olds. Using the Unique Property Reference Number (UPRN) from its local address data, the council developed an up-to-date, digital solution to reduce the administration processes needed

*Presentation of the Exemplar Award to Northumberland Country Council.*



to secure efficient implementation of this new statutory duty and respond to parents' applications swiftly. As a result, over 675 families have been able to access additional childcare support, with the average saving of £2,131.80 per household.

The winner of the Peer Award is Rachel Antcliffe from Leeds City Council. Rachel has been an LLPG Custodian for many years, always achieving 'Gold' status and Best in Region for several years. She is an active member of the addressing community – being deputy chair for many years and working on the Improvement Schedule working group. She is always willing to share best practise, offer advice and guidance to anyone who may need it.

### DATA QUALITY AND IMPROVEMENT AWARDS

A key focus of the 2017 Exemplar Awards is on those Custodians who have invested time in creating and continually improving their processes and who have made and achieved a real commitment to improving both the accuracy and quality of the data submitted to the GeoPlace hubs. These authorities are recognised within the Data Quality and Improvement Awards. South Mole Valley District Council and the Royal Borough of Greenwich were announced as winners of the Data Quality and Improvement Award for Addresses 2017 and the Data Quality and Improvement Award for Streets 2017 respectively. Awards were also presented for Best Address Data in Region and Best Street Data in Region together

with Awards for those at 'Gold' Standard.

The Most Improved Address Data Award is given to the authority which has shown the most improvement over the last year in England and Wales. In presenting the Award to Mole Valley, Jason Houghton, Deputy National Address Data Manager, mentioned that Mole Valley has achieved the greatest improvement in data quality which demonstrates excellence and commitment to a process that brings local and national benefits.

Royal Borough of Greenwich went home with the Data Quality & Improvement Award in recognition of the management of its street information database. Street data is used within councils and incorporated into a national Highways dataset – Ordnance Survey's Highways Network. The resulting data is a combination of data from local highway authorities via the National Street Gazetteer, Highways England data from the Trunk Road Street Gazetteer and accurate detailed geometry and additional road content from OS. This is why the Data Quality & Improvement Award is important. It is testament to the hard work and skill that goes into maintaining a constantly changing dataset. The Award is given to the authority which has shown the most improvement over the last year in England and Wales.

*For more Information go to [www.geoplace.co.uk](http://www.geoplace.co.uk) or if you would like to see more images go to [www.flickr.com/photos/geoplacellp/with/34698434795/](https://www.flickr.com/photos/geoplacellp/with/34698434795/)*

# Advanced Analytics Solves the Solar Power Conundrum

**PowerScout is an online, data-driven marketplace for smart home improvements that allows consumers to enter their address and get an assessment of whether their homes are suitable for solar power. Once homeowners have made this determination, they can calculate how much solar power will save them on their electric bills.**

In addition, the online marketplace saves potential solar power customers money on sales and marketing. Most importantly, consumers are spared the time-consuming cost of a site survey, which is the current industry-standard practice before installation can even begin. Even after accounting for government subsidies, the overhead costs of selling solar power can well exceed the hardware cost of the panels. PowerScout can let consumers skip these expenses and processes by using artificial intelligence to understand behavior in the context of location.

## SMART, PREDICTIVE SALES STRATEGY

Machine learning is an artificial intelligence technique, which is at the heart of PowerScout's software. This technology involves using information from commercial databases and Lidar imaging to predict which households are most likely to be interested in solar power, and why. For instance, families with hybrid vehicles and high education are likely to purchase solar panels for prestige reasons. Lower income families are most likely to switch to solar power to save money. Digital surface models of roof facets, orientation and slope inform the user on how many panels can fit on top of a house. It then feeds this data into algorithms that identify patterns and perform predictive analytics that determine how much energy can be harvested from which house, and which of the houses in a neighborhood is likely to contain an interested homeowner. The process of connecting potential customers with the industry is simplified and reduced to an instantaneous calculation.

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## ONLINE MARKETPLACE DRIVEN BY DATA

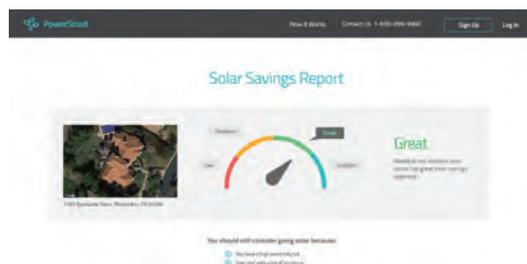
For homeowners interested in solar power, the interface makes it easy to find out whether solar power is right for them and how to go about purchasing it. All a person needs to do is enter their address, and they are given a curated list of certified local installers as well as a quote for the costs.

The problem inherent with solar power isn't the technology itself but rather the process of system integration.

This process involves making sure the existing infrastructure of an institution can handle, or is updated for, new forms of technology. Much like solar power, data itself can be daunting when we don't have the systems to understand it and unlock its full potential. Using machine learning and spatial analytics can allow not only better understanding of data but also more powerful predictive models. This advanced analytics connects new technologies like solar power with the people who benefit from them. Smart, predictive analytics will also push down the cost of new alternative energy technologies to make them even more competitive with traditional forms of power. That's good for consumers and the planet.



PowerScout is a marketplace for smart home improvement projects.



Reports identify how much a homeowner can save from solar power.



Lidar-Based Analysis of a Neighborhood in San Francisco.

Have you or your company developed a novel product or app that you'd like to tell readers about? Remember, it must be something truly new and not just an extension of an existing product line or service. Drop a line to [editor@geomares.co.uk](mailto:editor@geomares.co.uk)

# Creative Traps

**Maps undoubtedly play an important role in society. From use in daily life to professional applications, maps help us navigate, plan activities and gain insight into our surrounding environment. Although we know that all maps have a certain accuracy, we rarely question the existence of streets and places we find on a map. Throughout time, however, various cartographers have used our good faith in maps to protect their work from being stolen. Their creative ways to trap copyright violators has led to a variety of map 'mistakes', some of which have survived for years before being discovered. This article presents some of the strangest copyright traps to date.**

Known typically as 'trap streets', map makers have been deliberately adding minor errors to maps for ages. A fake street, dead end,

additional river bend or altered mountain summit altitude; all are examples of Easter eggs that can prove the origin of a map in case of

suspected copyright infringement. These trap streets are usually subtle, innocent alterations that do not interfere with navigation and generally go unnoticed. However, some map makers seem to have pushed the boundaries of cartographic freedom and have created entire villages that do not exist.

## TURNING FICTION INTO REALITY

One of the strangest examples of a phantom settlement probably



*View looking north from Bold Lane in Aughton, West Lancashire, towards empty fields. This is the supposed location of Argleton, a settlement shown on Google Maps which doesn't actually exist. Image courtesy: Small-town hero (Own work), via Wikimedia Commons.*

is Agloe, 'located' roughly 200 kilometres northwest of New York City. The settlement was added to the map sometime in the 1920s or 1930s by Otto G. Lindberg and Ernest Alpers of the General Drafting Company (GDC). The name of the town – which was nothing more than an intersection of two gravel roads – is the anagram of their initials and was meant to catch an unsuspecting copier red-handed. A couple of years after Agloe was made up it appeared on another map, of Rand

related to Argleton. Many people believe Argleton to be a trap street, but some think it was just an error. Map makers often deny the fact that they alter maps to prevent them from being copied. But whether or not Argleton was a mistake, it definitely got more attention than the average meadow out there.

#### PERSONAL INVOLVEMENT

Settlements and various other landmarks have been made up in the past – and not only for the

of Haggerston Park – and some claim this street atlas contains at least 100 trap streets although that number is difficult to confirm. Small lanes and dead ends are less likely to be discovered as trap streets than entire villages that are made up, which is why there are probably many more Easter eggs than we currently know.

#### REAL MISTAKES?

Strange street names or phantom settlements are not always put on a map on purpose. So-called 'paper streets', for example, are streets that are planned by city planners and included in blueprints, but not built eventually. Misspellings can find their way onto maps as well, and there are many other data errors that can become visible on a map. Since trap streets usually are only minor 'errors', it is not always clear whether a map error is an innocent mistake, or a real copyright trap. In addition, trap streets vanish from maps quickly after they are discovered, especially in the digital era with many online map suppliers that can be used to cross-validate such findings. Nevertheless, it goes without saying one should always be aware that maps reflect the real world only to a certain degree – there is always a chance to come across some artistic input of a cartographer.

### **. . . A real Agloe had been founded in the meantime. . .**

McNally, one of GDC's competitors. GDC believed to have a strong case against Rand McNally for violation of copyright. What they did not know, however, is that a real Agloe had been founded in the meantime: a store was now located in the phantom settlement, the Agloe General Store. The store had taken its name from a map of one of GDC's clients, so Rand McNally could prove Agloe actually existed. An illustrative example of fiction turned into reality.

#### ARGLETON

Another famous example is Argleton, located in Lancashire, UK. The settlement Argleton appeared on Google Maps and Google Earth for years, but is nothing more than an empty meadow in reality. Since Google's services are used by many other information services, Argleton was also included in various real-world listings, ranging from weather services to real estate agencies. After the phantom settlement was discovered in the autumn of 2008 it gained a lot of media attention in the years to follow; funny websites were launched and companies even started selling merchandise

sake of copyright protection. In the 1970s a map of Boulder County (Colorado) showed a non-existing summit known as 'Mount Richard' for a few years, although it is doubted whether this imaginary peak was meant as a real copyright trap. Some believe it was just a simple joke of the drafter, whose first name was also Richard. Another example of two phantom settlements that were put on the map as a personal statement are Beatosu and Goblu in Ohio, which were two fake towns put on a map of Michigan in the 1970s by Peter Fletcher, an alumnus of the University of Michigan. The names of those towns were inspired by the slogan of the University of Michigan ('Go Blue') and their rivals from the Ohio State University ('Beat OSU').

#### SKI SLOPE

Most trap streets are far more subtle than complete phantom settlements, and it is assumed many are still out there. London, for example, once had streets like Moat Lane on Google Maps, which do not exist in reality and have now disappeared from the map again. The London A-Z indicates there is an imaginary ski slope in the middle

#### ABOUT THE AUTHOR

Sabine de Milliano is an entrepreneur and consultant specialised in developing user-friendly IT applications of geospatial data. She holds an M.Sc. in Geomatics from Delft University of Technology and combines her engineering background with technical communication and business expertise to bridge the gap between users and engineers. She is also a contributing editor of GIS Professional and GIM International (email: [sabine@knalblauw.nl](mailto:sabine@knalblauw.nl)).



# OGC, GEO & UN-GGIM

## Driving the Global Geospatial Agenda

**This article sets out to explain the distinct but interrelated roles of the three international bodies which are driving the global geospatial agenda which underpins the need for smart and sustainable growth in the 21st century: the Open Geospatial Consortium (OGC), the Group on Earth Observations (GEO), and the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM).**

If you are interested in how the geospatial industry and associated policy supports government and broader commercial sector activities, then it is important to understand the global influences which are shaping these sectors. You need to look at the world from the perspective of policy-

makers who set the agenda for how geospatial tools, technologies, data, and information will be used to solve real-world problems; from the perspective of the people who want to help us to better understand our planet; and from the perspective of the people who wish to ensure that we manage

information about our planet to the very highest of standards.

It is important to mention that these bodies have been around for some time. Each has established foundations and are led by an international network of authoritative members. However, unlike many other industry representative bodies which are fighting off the 'legacy' label which is commonly used in today's disruptive world, the partnership between these organisations is undoubtedly among the most dynamic and forward thinking out there.



*A meeting in progress at the UN-GGIM headquarters in New York.*

Before explaining the synergy which has been achieved between these three bodies, we first need to briefly distinguish the role and background of each of the organisations.



**UNITED NATIONS ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT**

The UN-GGIM Secretariat is headquartered in New York where the intergovernmental Committee of Experts meets annually and reports to UN's Economic and

Social Council (ECOSOC). UN-GGIM's objective is to promote

**... the partnership between these organisations is undoubtedly among the most dynamic and forward thinking out there.**

through policy-making the use of geospatial technology among the global decision-making community and it provides a forum to liaise and coordinate among and between UN Member States and international organizations (including GEO and OGC). The Committee of Experts often provides a futuristic vision of the

opportunities facing governments worldwide and the challenges to

the industry in one of its regular publications.



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ability to collect and reference information about our planet. This is the primary purpose of GEO, a body which is focused on advocating the benefits of coordinated, comprehensive and sustained Earth observations to inform decisions and actions for the benefit of humankind. GEO, which is headquartered in Geneva, Switzerland is a partnership of governments and international organizations which works to Ministerial guidance from national government members (there are 105 today), and it has many relationships with international and multilateral organisations. It is worth mentioning that GEO's profile is likely to grow significantly over the coming years. It currently operates the largest open Earth observations portal in the world, [geoportal.org](http://geoportal.org).

org, which, with in excess of 200,000,000 open data and information resources, is already playing a leading and essential EO data provision role.



**OPEN GEOSPATIAL CONSORTIUM**

The OGC has been developing open geospatial standards for about as long as the web has existed and is much of the reason why geographic information about our world is easy to share and compatible with the systems we use. UN-GGIM and GEO are more focused on policy and decision making, while the OGC

provides the technical interfaces and specifications that they use and promote, as well as cross domain and industry communication. In particular, the OGC can be credited with opening up well-known data formats like KML, WFS, WMS and GeoPackage.

The OGC is a consensus-based voluntary standards development organization which is focused on developing quality open standards for the global geospatial community and it has a particular focus on interoperability and compliance. It has developed longstanding partnerships with other standards organizations such as ISO TC211 and ITU that see a number of OGC standards also co-published in other SDOs. Perhaps the reason why the OGC

**SENTINEL DATA ACCESS SERVICE (SEDAS)**

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To download data, or to find out more, visit: [sedas.satapps.org](http://sedas.satapps.org)

is so innovative is that it boasts an active membership from organisations in the business, government, academic and NGO sectors. If you don't believe this, then just attend one its quarterly technical meeting gatherings or check out its scenario focused 'Testbed' initiatives which are well represented by the likes of Google, Ordnance Survey, Esri, NASA, and the NGA. OGC views its openness and equality of access to all sectors of the industry as being of key

relationship with one another. The OGC is the only non-governmental member which interfaces with UN-GGIM along with IHO and ISO; GEO is a UN-GGIM Observer and vice versa; OGC is also represented across the GEO Work Programme. One of the main reasons why this relationship 'clicks' is because the bodies have a shared focus on advancing the geospatial industry for long-term purposes, in particular for achieving the UN's Sustainable Development Goals (SDGs). The second reason for the success of

is entering into an exciting age of technology which requires strong leadership from the geospatial community. Smart Cities, IoT, Machine Learning, AI, and even Augmented Reality are underpinned by locational information and an established global network of Spatial Data Infrastructure (SDI). However, it is becoming clear that if people are going to pass control of cars, utilities and devices to computers then, first, the right systems to oversee this need to be in place.

**One of the main reasons why this relationship 'clicks' is because the bodies have a shared focus. . .**

importance to developing quality standards to benefit the world's entire population.

**INTERDEPENDANT RELATIONSHIP**

Although each of these bodies serve distinct roles, the trio has a strong alliance and interdependent

this partnership is that in an age of social and political instability, the existence of stable intergovernmental international bodies which facilitate collaboration is considered to be of critical importance.

The OGC-GEO-UN-GGIM alliance is necessary because the world

In the age of mass proliferation of maps, data, and geospatial tools, there is growing recognition of the role of leading authorities such as the OGC, GEO and the UN-GGIM. When ripples in one part of the world can be felt far away, we need to be more aware of and adaptable to potential change. Ultimately, in the information age this comes down having relevant policy, having well designed standards, and having high quality, timely information about our planet. This is exactly what these bodies are providing.



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# Joining up the Dots

## Realising the potential of routinely collected administrative data

**The use of routinely collected administrative data for purposes other than those it was collected for has become an essential data resource for approved health and social science research.**

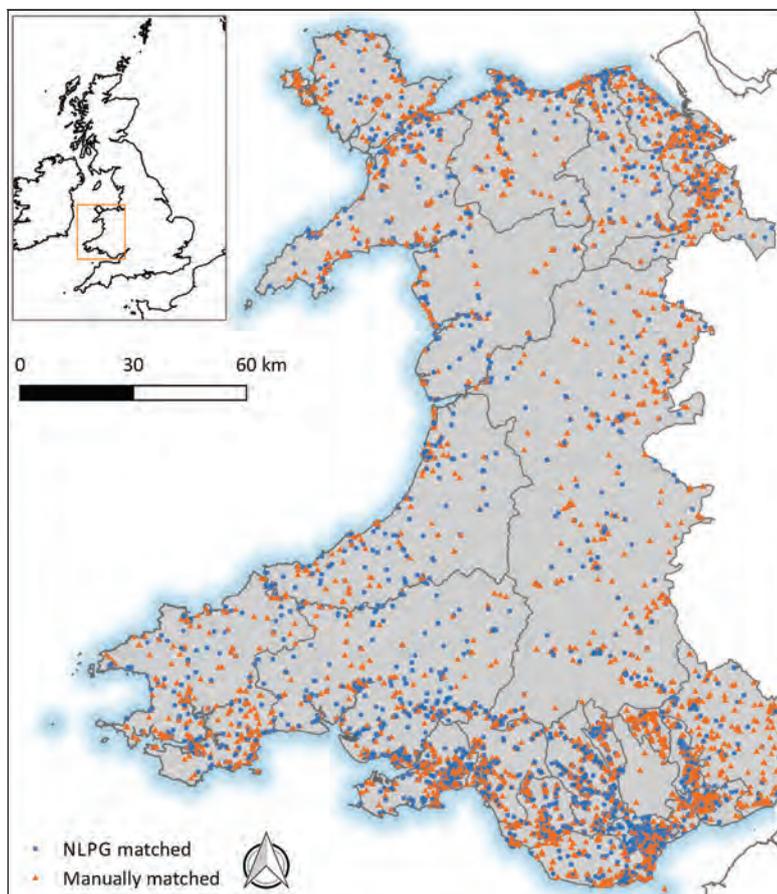
Initiatives such as the Data.gov.uk and the Open Government Licence underpinned by the Freedom of Information Act, has meant that publicly funded bodies have made their data available to researchers and the public. This shift has led to a number of data focussed research centres across the UK including the Farr Institute

([www.farrinstitute.org](http://www.farrinstitute.org)), Administrative Data Research Network ([www.adrn.ac.uk](http://www.adrn.ac.uk)) and the Consumer Data Research Centre ([www.cdrc.ac.uk](http://www.cdrc.ac.uk)) focusing research attention on facilitating and conducting approved research using health informatics, administrative data and consumer generated data respectively.

CHALICE, a recently published piece of research, examined the impacts of spatio-temporal alcohol availability on crime and health, utilised routinely collected alcohol outlet licence data collated from the 22 Unitary Authorities in Wales for a five-year period (2006-2011). Our research team assumed that this would be a relatively straightforward process as there is a legal obligation to keep a register of licensed premises within each authority as detailed by the Licensing Act 2003 (Part 2 - 8).

We found that, on average, only 51% of licence addresses could be precisely located using the address supplied. Although most Unitary Authorities could provide a list of outlets over the study period, despite a standard licence application form, the quality and details contained within each record varied greatly. None of the premise address details supplied had been verified against the Local Land and Property Gazetteer, thus licence data needed to be geocoded using the unverified address details supplied in the licence register. This resulted in a wide range of match rates (28% - 72%) of alcohol outlets successfully geocoded against AddressBase Premium.

Through innovative data linkage techniques developed at these centres, it is now common practice to link disparate data together, down to individual levels, in secure research platforms such as the Secure Anonymised

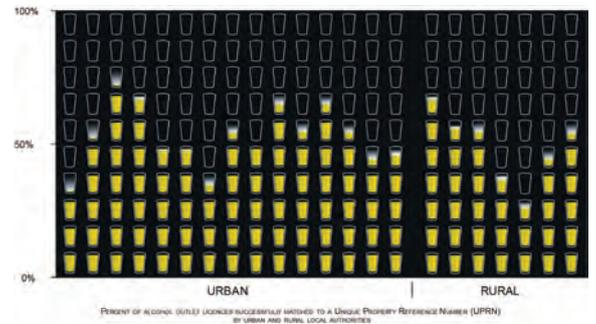


Information Linkage (SAIL) platform housed at the Swansea University Medical School. Data linkage requires a common reference framework to be successful. The Local and National Land and Property Gazetteer (LLPG and NPLG) and related Ordnance Survey AddressBase products provide a common reference framework for address level data, in the form of the Unique Property Reference Number (UPRN) but in our experience, it is being underutilised in all levels of administrative data.

Currently government and academic researchers alike are missing out on valuable insights into society and health through linked data research because of

data collection issues. The use of a standardised method for collecting and verifying address data against LLPG and NPLG registers has the potential to facilitate world leading longitudinal research in local and national government departments and UK research institutes. As GIS professionals, we must encourage best practice and use of geographic information across all levels of government, business, education and research so that the wider societal benefits can be realised.

A more in depth analysis of this work has recently been published in an open access journal Applied Spatial Analysis and Policy ([link.springer.com/article/10.1007/s12061-016-9184-4](http://link.springer.com/article/10.1007/s12061-016-9184-4)).



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# Digital Transformation in New Zealand

**In January 2016, staff from New Zealand's Department of Conservation (DOC) were supplied with tablets and smartphones equipped with Survey123 for ArcGIS, a form-centric mobile data collection application. The Hokitika township biodiversity monitoring field team used this mobile app as well as their current paper-based capture methods to evaluate the potential of digital data collection technologies in their workflows. This undertaking showed that not only can Survey123 improve efficiency and reduce field data capture operational costs, but it can also make captured data available easily and instantly for visualisation and analysis.**

Like many other government departments, the New Zealand DOC is going through a digital transformation, replacing paper-based workflows with end-to-end business processes in which information flows instantly across staff teams, departments and – when appropriate – the public. Modern enterprise geographic information system (GIS) technology allows everyone in an organisation to create, access and share information anywhere, anytime and from any device, making their work more efficient and meaningful.

At the New Zealand DOC, wildlife surveys are typically conducted using paper booklets. “The paper-based methodology that we use

at the moment is functional, but it requires a massive downstream team to digitise that information. It's sometimes even necessary to go back to the field team to confirm the data because it's unreadable due to smudging or rain,” says Benno Kappers, DOC natural heritage information project leader. “Real-time mobile data collection can significantly reduce downstream efforts.”

## SMARTPHONES INSTEAD OF PAPER

A pilot programme was initiated to expose the New Zealand DOC staff to using mobile devices for in-field data capture as well as to compare the end-to-end system and organisational processes of

both the electronic and traditional paper-based collection methods. Field crews were provided with Android smartphones and tablets. The software on these devices was Esri's Survey123 for ArcGIS, a data gathering mobile app that speeds up the collection process using simple forms. The programme's team visited three remote locations on New Zealand's South Island to survey possum crossings along fixed transects (paths).

## EFFICIENCY IN THE FIELD

Using a simple spreadsheet and the mobile app's desktop companion tool, Survey123 Connect for ArcGIS, customised forms were created and published in the ArcGIS platform. These forms were then downloaded to the mobile devices to facilitate the collection of information in the field.

Survey123 provided a simple, intuitive interface for users to input field data, which enabled staff to concentrate on making observations rather than on the process of recording them, which was one of the issues with paper-



Vegetation monitoring using standard methods.



Field staff surveying transects.

based data collection. Validation rules and expressions configured in the forms reduced the number of user-input errors.

### DOWNSTREAM GAINS

Capturing data via traditional paper-based methods involves not just recording field data but also scanning and uploading it to the server, as well as physical logistics such as inventorying and shipping completed booklets. Much of the work in these processes was greatly simplified – if not eliminated – with app-based data collection. Collecting data through forms on smartphones provided New Zealand DOC with greater control of field-user input. “People became far more concise about what they needed to say,” explains Kappers. “That is helpful not only from an efficiency perspective but also from a data management one.” Through the use of forms, the data captured was better structured than with paper submissions, and error-prone digitisation processes were eliminated as well.

### REAL-TIME ACCESS TO INFORMATION

Getting feedback on paper-recorded data can take several months. After inputting information into Survey123, captured data was directly transferred back to the ArcGIS platform, where other members of the organisation could access the data in tables, maps and other types of information products. This real-time integration of field-collected data into an enterprise GIS platform made the storage, quality assurance, analysis and viewing of information more efficient and less costly.

### RESULTS

Not only did the new software make the processes that staff undertook more efficient and less costly, it even rendered some processes unnecessary. Many tasks – including

printing field booklets for every recorded plot, scanning the pages and uploading the scans to the server; packing, sending and tracking field booklets to the server in Christchurch; and issuing, digitising and performing quality assurance on booklets – have all been made obsolete due to the capabilities of Survey123 for ArcGIS. Additionally, in the pilot programme, these capabilities showed a reduction of 336 staff hours per monitoring method, per season.

### SHARING WITH CITIZENS AND STAKEHOLDERS

For the New Zealand DOC, digital data collection with smartphones has been proven to make processes more efficient, in particular in downstream procedures but also in preparation work. In addition, departments can now provide almost-instant feedback on the data that staff supply, and once this data is integrated into online maps it can be shared with numerous citizen groups and stakeholders in the community with an interest in wildlife conservation, natural resource protection and stewardship of the planet. “These measurements that we undertake follow strict national protocols and could all be followed by community groups as well,” comments Kappers. “If Survey123 allows us to share these forms with private community groups, the same information management which enables us to start comparing measurements of New Zealand’s public land can also be applied to private land parcels. And that is a really valuable contribution to make.”

### FURTHER IMPROVEMENTS

New features and fixes are added to Survey123 for ArcGIS through monthly upgrades to the product. High-priority items in the road map include adding the ability for field users to capture areas and linear features as well as location data. Additionally, improvements are



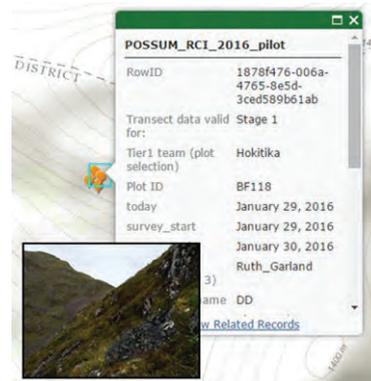
Mobile survey hardware provided for the pilot programme.



The Survey123 for ArcGIS app.

being made to workflow editing capabilities, including the ability to update existing database records. These two new features will become available in the first half of 2017 across all supported platforms.

*All images courtesy of the planning, monitoring and reporting team, Department of Conservation, New Zealand.*



Data visualised in ArcGIS Online.

### ABOUT THE AUTHOR

**Ismael Chivite** works as a senior product manager at Esri. With over 20 years of GIS experience, Chivite is passionate about building ArcGIS products that help organisations use geography to improve the way they work.



# Geospatial, IoT and the 'Digital Twin'

**The IoT phenomenon, although still in its infancy, has revolutionised almost every sector in today's world. Among the many buzzwords associated with the field is one known as the 'Digital Twin'.**

The Digital Twin concept refers to a means by which industrial machinery, buildings, devices and their component parts are designed, engineered, monitored and maintained both physically and digitally. Essentially, the Digital Twin is a virtual representation of an asset, and it's based on the rationale that one can better understand how it operates and interacts with the surrounding world through designing an exact replica.

## THE BENEFIT OF DIGITAL TWINS

The Digital Twin is revolutionising many industries across the world - especially the utilities sector - and the industrial internet is being embraced by service engineer managers because of the benefits it provides. From the perspective of engineering, maintenance and management of utility assets, the Digital Twin allows engineers to gain a better insight into the operational

performance of the asset in real-time. The key benefits of the above being that Digital Twins help to improve operational reliability and availability, minimise costs, reduce unscheduled downtime, and reduce operational risk. By 2021, digital grid technology is expected to deliver almost US\$19b in cost savings worldwide - mostly through reduced energy use and avoided emission costs. ('Smart cities - on the faster track to success', Juniper Research, 2016.)

## A MAP ISN'T A DIGITAL TWIN

A typical GIS map of a utility network is not a Digital Twin. Although it may consist of accurate locations and attributes of the network features, it's still merely a representation of the network. The data used in the GIS system is very often out of date moments after it is captured, meaning that it is not a true reflection of reality. As a result, asset managers are unable to make definitive assessments and informed decisions without first consulting site-based inspectors and relevant blueprints or scans.

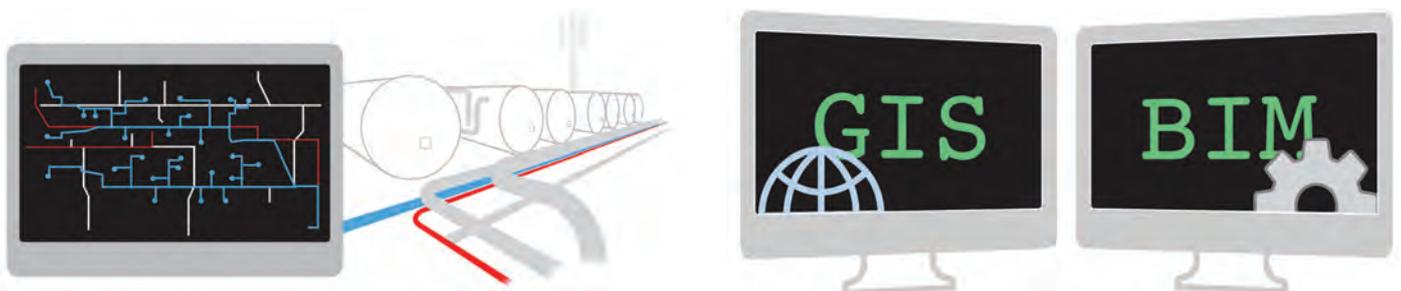
That said, providing locational context is where the geospatial world is beginning to augment the world of IoT. Geospatial information helps the

Digital Twin to become aware of both the actual and relative position of its real world counterpart - i.e. where the asset was/is in relation to its surroundings and the environmental conditions (e.g. flat or hilly terrain, hot or cold climates, safe or dangerous locations) in which it lives.

Naturally, this is where GIS is beginning to converge with systems such as Building Information Management Systems (BIM) software. While one is generally focused on what is inside and the other on what is outside, both systems are becoming inextricably linked throughout the industrial internet lifecycle. Government driven mandates, requiring the capture of asset data also require that certain materials and assets be restricted to specific geographic locations. Geospatial data, such as boundaries, land parcels, built surroundings and environmental data help to provide a digital context into which an asset's Digital Twin can be born.

Creating Digital Twins would be impossible if it were not for the increasing availability of sensors, image capture and analysis technology, as well as powerful data transfer and cloud-based

*Utility map vs digital twin.*



processing capabilities. As an example, some utility network Digital Twins can be continually updated and refreshed with data from LiDAR and other sources, while in cities such as Singapore and Manchester, Smart City initiatives are helping to create real-time urban digital representations.

**NEXT PHASES OF THE DIGITAL TWIN**

Even at this early stage, the Digital Twin technological era is advancing rapidly. The OGC's OpenSensorWeb, open source software platform for location-aware sensors is helping IoT innovators to augment their technologies with real-time location information. Meanwhile, other powerful technologies such as

GeoMesa (described on its website as "an open-source, distributed, spatio-temporal database built on a number of distributed cloud data storage systems") is allowing users to combine sensors and systems, such as GeoServer and Google Cloud Big Table, to powerful effect.

**THE COGNITIVE DIGITAL TWIN**

Perhaps the most exciting phase in the Digital Twin IoT era however is the Cognitive Digital Twin concept. Essentially, this is an artificially intelligent Digital Twin which serves as an 'autonomous maintenance engineer'. Perhaps due to a feeling of sibling rivalry, the Cognitive Digital Twin is highly self-conscious - it 'thinks' about the information which it receives, it makes its own performance-focused decisions,



it learns from past errors, and it is therefore continuously self-improving. Welcome to the Geospatial IoT era.

• This article was published at <http://www.geobreadbox.com/blog-1/2017/3/20/74-name>



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# It's not about Education, but Shared Learning



Abigail Page is Chair of the AGI's Council which is formed from elected members of the AGI. Its main role is to set the strategic direction for the organisation. [www.agi.org.uk](http://www.agi.org.uk)

**The pre-summer conference season is in full swing. It's a great opportunity for me and others on AGI Council, to meet AGI Members and the wider geo and data driven communities while learning about the latest innovations and discovering industry issues and challenges.**

Certainly the sheer volume and number of events happening with a relevance to geospatial illustrate the breath of what's happening on the UK geo scene. Let's take some space here to share some highlights of recent events that I or

fellow members of AGI Council have attended recently, broadly split into three types of event.

Firstly, fantastic events that are sharing the research and developments in our field. In April, AGI supported GISRUK (Geographic Information Science UK) again this year, held at the University of Manchester. Covering a wider range of disciplines (including Geography, Computer Science, Philosophy, Planning, Archaeology, Geology, Geomatics and Engineering), the programme this year was particularly strong. The AGI Early Career Network ran a workshop and AGI were delighted to support the GIRSUK Award for Best Conference Paper, which was presented by Council Member Elizabeth Stutchbury. I'm told that there were some particularly inspiring plenary sessions, including Professor Andrew Hudson-Smith (CASA) talking about Bluetooth gnomes!

I was able to attend an event of MSc GIS presentations held by one of our members, The University of Edinburgh. A much smaller affair, showing the range of interests and work being undertaken – from 3D visualisations to location related data privacy issues.

Secondly, AGI Council members have been out at a range of user focussed events. We've seen members presenting at user conferences and our members

continue to share relevant case studies and inspiration at local meetings. AGI Cymru hosted an event in May highlighting the increasing availability of free satellite data and the growth in services to support this data in Wales.

Finally, it's true that geo has relevance everywhere. The recent Data Festival event in Scotland, was a lot of fun. With an emphasis on data science, presentations were wide ranging including analytics from mobile phone data, developing user focussed approaches in health care and approaches for data to drive incremental improvements in F1. There was a lot to take from the event – and so much implicit geo.

Of course, it's useful to think about how to increase the value of days out - and how we can engage in our profession to create these opportunities. In that last category of "non-geo" events, I was privileged to hear Simon King talk about his experiences as a wildlife film maker in recent weeks. What came through from hearing Simon speak was that the future of conservation whether in Africa or closer to home to protect our UK landscapes cannot be based on education but on shared learning. Moving forward together.

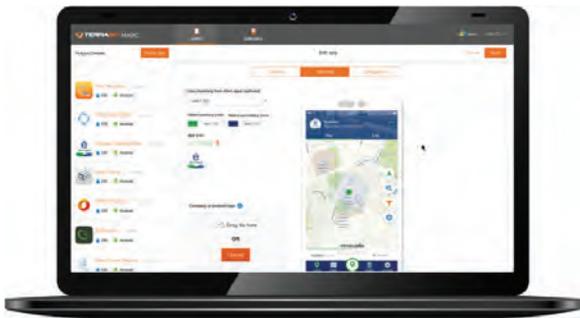
This message can be equally translated into our mission as AGI to see geospatial information being well used. It's about education and opportunities to share and learn together. Would you be able to commit to sharing back at the office, writing a blog post or even tweeting your own interpretation of what you've been listening to in recent weeks? We'd love to share some event reviews with our members - so even better why not write something and email it to me!

The highlight in my year for shared learning is the AGI annual GeoCommunity event on 26 October at the Royal Geographical Society in London with a range of speakers with insightful answers (and questions) about the use of geospatial in a 'smarter' and more connected world. You'll meet people who are already working with emerging geospatial technologies, and we'll hear who's leading the way with responses to policies and key geospatial strategies. Bookings are now open and I look forward to seeing you there!

**TERRAGO RELEASES NEW VERSION OF ZERO CODE PLATFORM**

TerraGo, a pioneer of geospatial collaboration, field data collection and enterprise mobility software, has announced the availability of TerraGo Magic version 2.0. With TerraGo Magic, an organization's end users can rapidly build cloud-enabled iOS, Android and web apps, customized with their unique branding, workflow and features, without the expense of mobile software development, maintenance and operations.

- [bit.ly/2rcrkYx](http://bit.ly/2rcrkYx)



The screen of TerraGo.

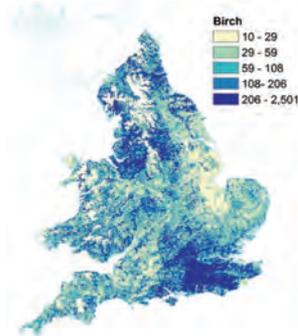
**MAPSPACER FOR ATLAS3D INTERACTIVE MAP PLATFORM**

concept3D, the leader in location-based software and 3D services, has announced the launch of MapSpacer, a space selection and event planning application that takes advantage of the detailed 3D models and floorplans of the company's atlas3D interactive mapping platform.

- [bit.ly/2rcdYlu](http://bit.ly/2rcdYlu)



MapSpacer Interactive Map.



Bluesky's Tree Map Mapping Birch in England and Wales.

**ALLERGENIC POLLEN PRODUCING PLANTS MAP**

A map of over 280 million trees nationwide has been used to create the first high resolution maps of allergenic plants and trees of Great Britain. Detailing the location of key plants and trees known to produce pollen

that can trigger allergies and asthma, the maps were produced, using Bluesky's National Tree Map data at the University of Exeter in collaboration with the Met Office. The maps are designed to help acute hay fever or asthma sufferers make informed decisions regarding their condition and give medics a greater insight into the impact of air pollution on asthma and other conditions.

- [bit.ly/2rcwOcu](http://bit.ly/2rcwOcu)

**TICKETS NOW ON SALE FOR AGI ANNUAL CONFERENCE 2017**

The Association for Geographic Information (AGI) is holding its Annual Conference on 26th October 2017 called #GeoCom17 Smart Geospatial and it will again take place at the Royal Geographical Society's headquarters at 1 Kensington Gore in London. Continuing with the streamlined one-day format, it will feature key presenters, guests, and lightning sessions by members.

- [bit.ly/2rcolR3](http://bit.ly/2rcolR3)

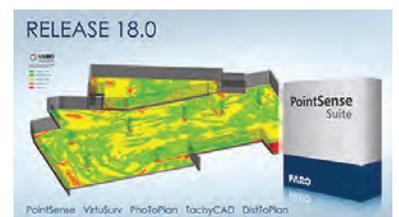


Last year's AGI Annual Conference.

**POINTSENSE UPDATE WITH ADDED FEATURES**

FARO has released the PointSense 18.0 update. The software now allows Autodesk customers to utilize the point cloud processing tools with the latest Autodesk 2018 design tools, released in March and April 2017.

- [bit.ly/2rcdlbK](http://bit.ly/2rcdlbK)



FARO's PointSense v18.0.



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## Got an event to list?

Go to [www.gis-professional.com/events](http://www.gis-professional.com/events)

### **EARTH OBSERVATION SUMMIT 2017**

20-22nd June 2017, Montreal, Canada  
<https://crss-sct.ca/conferences/csrs2017>

### **COMMERCIAL UAV EXPO EUROPE 2017**

20-22nd June 2017, Brussels, Belgium  
<http://www.expouav.com/europe/>

### **GI\_FORUM 2017**

4-7th July 2017, Salzburg, Austria  
<http://www.gi-forum.org/>

### **ESRI USER CONFERENCE 2017**

10-14th July 2017, San Diego, USA  
<http://www.esri.com/events/user-conference>

### **GEO4AFRICA SUMMIT 2017**

11-14th July 2017, Kampala, Uganda  
<http://geo4africa.com>

### **FOSS4G 2017**

14-19th August 2017, Boston, USA  
<http://2017.foss4g.org>

### **GEOSMART ASIA 2017**

22-24th August 2017, Putrajaya, Malaysia  
<http://geosmartasia.org>

### **BIG DATA SERIES 2017 - DOHA**

18-19th September 2017, Doha, Qatar  
<https://www.tresconglobal.com/bigdata/#home>

### **INTERGEO 2017**

26-28th September 2017, Berlin, Germany  
<http://www.intergeo.de/intergeo-en/index.php>

### **2ND INT'L CONFERENCE ON GIS & REMOTE SENSING**

2-3rd October 2017, Vienna, Austria  
<http://gis-remotesensing.conferenceseries.com/europe>



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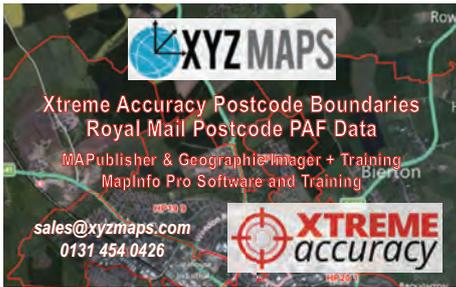
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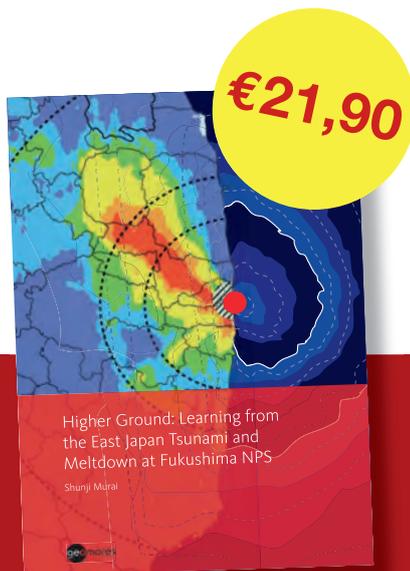
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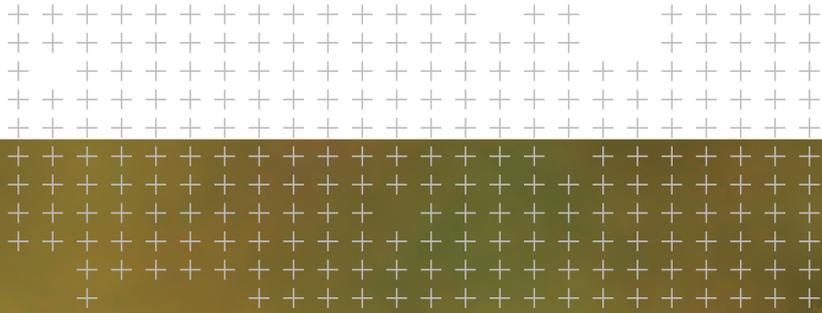
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**About the author:**  
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