



Staking out the future

Innovation and change topped the agenda as a KOREC-hosted Technology Day gave its partners and customers the opportunity to signpost the way ahead in surveying

It wasn't the sound of gunfire but the buzz of UAVs as KOREC's Technology Day got underway in late September at the London premises of the Honourable Artillery Company. The planned outdoor demonstrations were hampered by some decidedly heavy downpours, but it did nothing to dampen spirits as KOREC Group CEO Alan Browne welcomed visitors to the first in a series of events that saw repeat performances in Manchester, Belfast, and Maynooth.

Browne suggested that changes in surveying over the next five years would surpass those experienced over the past 15. Those changes would not be confined to technology alone, but profoundly affect the way in which business itself was conducted. He warned that care would be needed to deal with those changes ... and of the dangers of being left behind by them.

Trimble update

As one of the world's biggest distributors of Trimble surveying instruments, it was to be expected that the event made much of the 15+ new and improved products introduced under this company's 'Time to do more' banner, many unveiled just a week earlier at the INTER-GEO expo in Stuttgart.

Having touched on these developments, KOREC MD (and Geo-Connexion columnist) Oliver Brooks, updated attendees on news that Trimble is to distribute a branded version of ClearEdge 3D's EdgeWise

software. This automated feature extraction tool, when employed as a workflow solution alongside Trimble laser scanners and Real-Works® software, is claimed to deliver up to 50% time savings in data collection, point cloud registration, editing and final modeling for industrial and building construction applications.

Turning to practical examples of where Trimble technology is contributing to enhanced safety, productivity and financial performance, Brooks cited the case of the RSPCA. This had exploited the intelligent scheduling, mobile apps and performance analytics features of Trimble's cloud-based works management solution to good effect, not least by cutting annual fuel consumption across its 400-strong vehicle fleet by 80,000 litres.

Where next?

In addressing this question, Lee Braybrooke, European Segment Marketing Manager – Geospatial at Trimble Navigation, described geospatial as an industry undergoing rapid change. His message was clear: "The range of skills in the profession and the tools and data to support them is unparalleled. There has never been a better time for change."

Yet change is not always welcomed, and he quoted the words of Grace Hopper (1906-1992) – 'They love to say, we've always done it this way' – in pointing to the challenge faced by the newspaper industry in coming to terms with technology-driven changes. Yet

embracing change did not mean being blinded by technology *per se*, said Braybrooke, rather identifying its added-value benefits and applying them to everyday workflows. This, he suggested, was particularly so in capitalising on the fast growing demand for 3D and 'smart' data and where the ability to capture data at a rate of a million points-per-second was now commonplace.

But data was just the start. The ability to collaborate; the ability to connect and be connected; the ability to deploy decision-support systems and exploit 6D BIM models. This was the tomorrow envisaged by Trimble, said Braybrooke, referring to the company's partnership with Microsoft to develop a new generation of tools, integrated with the HoloLens holographic platform, that will improve quality, collaboration and efficiency in the construction sector.

Back to the future

Next to the rostrum was Trevor Pearson, Head of Imaging and Visualisation at Historic England (and formerly of English Heritage), who described how the organisation's surveying task had changed over the past 15 years.

A particular milestone was reached in the late 1990s with the introduction of GPS-enabled instruments ... a move that revolutionised workflows and boosted productivity in ways that were previously unimaginable. He went on to explain how contact-less instruments and techniques had revealed more and more hidden treasure at the nation's scheduled ancient monuments.

Perhaps the most notable of these discoveries came in 2009 at Stonehenge. Here, an integrated solution employing Trimble R8 GNSS and 5800 GPS receivers, 5600 Series Total Stations and GSA controller was employed to survey earthworks surrounding the famous standing stones. Given just a one-week 'window' to complete the first topographic survey of its type in almost a century, the analysed results, combining aerial LiDAR data, were spectacular: a hitherto hidden man-made ground feature that predates the stones themselves and opens a new chapter in the history of the World Heritage Site.

Today, Historic England uses a whole arsenal of surveying instruments to measure, map and document its estate. UAVs, Ground Penetrating Radar, 3D laser scanners and hand-held wireless data collectors are all part of the mix that complement GNSS and GPS-enabled Total Stations.

In looking to the future, Pearson believes the commissioning of UAV surveys will expand considerably. "The technology is coming on leaps and bounds and I think over the next couple of years we will be spending less time doing mapping and surveys on foot," he says. The cost-effective UAV option was put to the test last year at Thornton Abbey, a major Augustinian house in Lincolnshire, and Pearson says the detail of the 3D model developed from the acquired imagery far surpassed the LiDAR data available for that site.

On the right road

Following the mid-morning break, Paul Brodin, technical lead at KOREC Group software arm K-Matic, gave a rundown on its first deliverable: K-Mobile. This easy-to-use, fully customisable data capture software runs on all Trimble Windows Mobile hardware platforms including the Yuma tablet and Geo7X handheld. Already put to the test by Kelly Bros, one of Ireland's leading road marking contractors, it has given the County Cavan-based business an edge in tendering for motorway maintenance and renewals contracts.

Brodin described a variety of other practical applications where K-Mobile had proved its versatility: from forestry and marine fish surveys to conducting badger counts, and from gully cleaning to supporting the creation of real-time visuals and fly-throughs for major golf tournaments.

With equally versatile solutions emerging in 3D laser scanning, KOREC Group geospatial consultant Sion Rowlands traced the evolution of the technology and highlighted current developments such as the latest release (10.0) of Trimble's RealWorks point cloud modeling software. With an all-new user interface, faster cloud-to-cloud registration and refinement processes, automated classification of point cloud features, support for classified layers and for classification in LAS point clouds, it certainly has plenty to offer.

Flying high

The morning session concluded with a presentation from Jake Daniel, director of Scarborough-based Surefire Imaging, on the company's venture into UAV surveys. Established last year, and having satisfied CAA requirements, the business cut its teeth on acquiring video imagery for presentation purposes. However, the limitations of its first £15,000 UAV platform for professional asset inspection, monitoring and maintenance surveys quickly became apparent.

The search for a suitable airframe ended earlier this year when senseFly's eXom quadcopter made its debut. "The first thing we noticed was how it differed from the other UAVs we were considering, not least the safety shroud round the propellers. And when you are flying day-in and day-out, safety for everyone, operators included, has to be a key consideration," notes Daniel.

The drone's many other attributes - light weight, durability, sensor-rich payload, TripleView imaging, advanced situational awareness and full flight mode flexibility - did not go unnoticed. It was enough for Surefire Imaging to be the first domestic customer for the eXom, for which KOREC is the UK distributor.

Following lunch, and with umbrellas at the ready, the afternoon was devoted largely to outdoor demonstrations, discussions around the table top exhibits, and a UAS HOW TO session featuring a selection of drones including Trimble's brand new fixed-wing offering, the UX5 HP professional aerial mapping system.



Photos: KOREC & GeoConnexion



Shown on the outdoor display, the Trimble MX8 Mobile Spatial Imaging System combines imaging and laser scanning capabilities to measure objects in 3D to produce 3D, 4D and 5D data sets.



Surefire Imaging is the first British customer to take delivery of senseFly's eXom quadcopter. Here, Jake Daniel, director and UAV pilot of the Scarborough-based business (left) is pictured with senseFly sales manager Brock Ryder