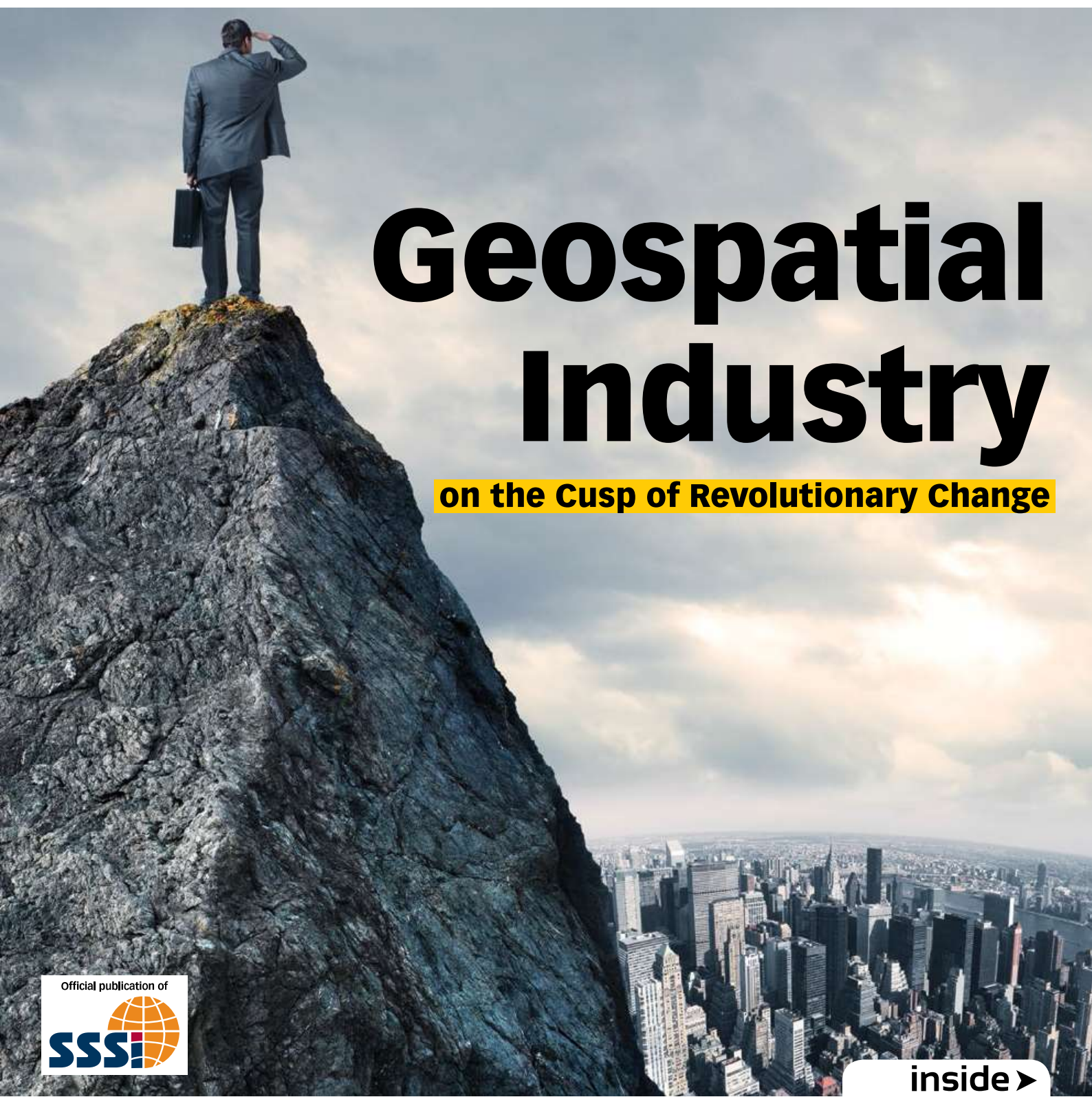


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Geospatial Industry

on the Cusp of Revolutionary Change



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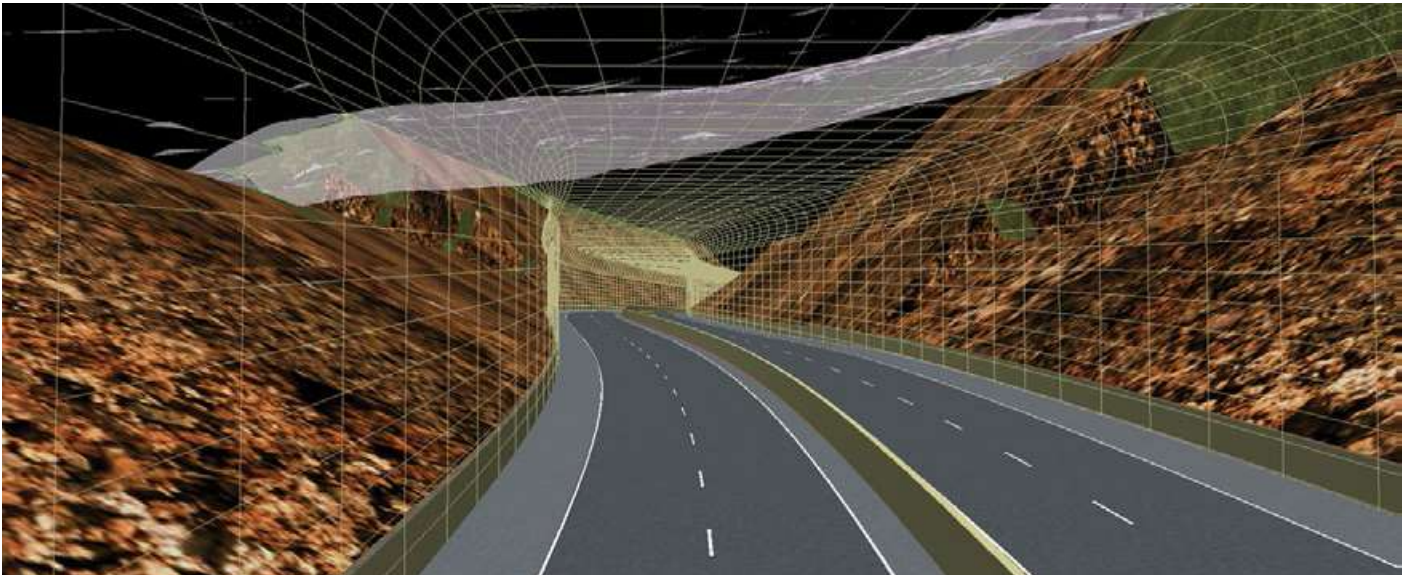


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The Digital Surveyor: a changing role into the future

In a recent Spatial Source interview NSW Surveyor General Narelle Underwood outlined surveyor's growing role as data managers. As accurate spatial data becomes more accessible to non-surveyors, she envisions "the surveyor's role will be to provide advice around accuracy and standards in order to make sure the data is fit for purpose." Speaking from decades of experience, Graham Wirth discusses just how this change may unfold and how to make the most of it.

GRAHAM WIRTH



NSW Surveyor General Narelle Underwood's forecast of the next five years in Surveying is very solid – we are currently seeing the effects of this changing nature of data capture and management.

Australian Surveyors, and our spatial industry as a whole, are very advanced by comparison with those of many other regions. Adoption of state-of-the-art data capture equipment, methods and management has been immense to date, and it is evident that this trend will continue into the future. The Australian spatial industry is a world leader that other regions will look to for direction and trends.

Traditional survey methods continue and will survive, in part because a large portion of survey data is historical in nature. However, as Ms Underwood states, new technologies are enabling non-surveyors to provide captured data and information. This is a dangerous situation and one that requires legislation and

monitoring to ensure the end users of this information receive 'fit for use' spatial data.

With the advent of drones, scanning and BIM, many formats use a flat earth format. On a small scale such as a building structure this is sufficient, but for looking at this data on a regional scale, it falls short. Geodetic and scaling factors must be applied to provide data that is 'fit for use' for regional or larger areas. Software providers work to supply software applications for surveyors to apply geodetic transformations in order to ensure their clients receive real world information. Surveyors are the best suited professionals to ensure this information is correct, and this will be an important foundation of the role into the future.

As data managers, Surveyors are faced with many challenges, and are responsible for ever increasing spatial and metadata information sets. Much of this data is of a basic x,y,z nature, without attributes and quality assurance (QA) information. Software providers such as 12d Solutions

has developed applications to not only to view this data, but also to apply practical tools to utilise, extract, section and manage the point cloud data to a usable size and format for their end users. These include civil designers, architects, construction contractors and government agencies. It is clear, then, that a Surveyor's role into the future will not diminish.

The Australian digital end-to-end cadastral lodgment of property development is ongoing. This also ensures an exciting digital future for Surveyors. This planning and developmental transition requires quality applications to ensure surveyors have the tools to provide individual Australian state authorities with the required digital formats.

The Surveyor's role will, in fact, increase in the future, with the need to provide digital QA, As-Constructed and metadata to all clients, agencies and authorities. The development of the ADAC standards and others has only increased the need for professional survey management.

With current trends in survey equipment and the demands placed upon the survey industry to merge historical, current and future survey data, we have seen survey equipment manufacturers moving towards windows Tablet PCs. These – compared with CE platform controllers and data collectors – provide surveyors with a ‘fit for purpose’ platform to manage their future needs. The office software will be the field software. This continuing hardware development for data capture and setout means the professional surveyor must have the best application tools. Companies such as 12d Solutions, whose 12d Field modules were added to 12d Model from 2008, have seen and acted upon this need for software to meet the requirements of the future.

The current NorthConnex tunnelling project in Sydney is an excellent example of the surveyor’s future role. With the use of 12d Field and Leica’s MS50 and 60 scan stations, this project’s surveyors can deliver previously unheard-of time savings in capture and subsequent QA reporting of the tunnel excavation. This project will, at its peak, have more than 19 roadheader tunnelling machines running simultaneously. 12d Model and 12d Field provide the tools to create the tunnel surface using Trimesh solid surface modelling.

The scanned excavated or finished tunnel sections are captured live into 12d Field, providing the contractor with live information for areas requiring rework, QA reporting and as-constructed point clouds with rich attribute information. All survey data for the project is managed through the 12d Synergy data management system – another way in which the industry is rapidly changing



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using data collaboration solutions. This NorthConnex tunnelling project is an intensely demanding environment for surveyors and tunnellers alike, but with 12d Software tools and the latest scanning survey equipment, a mammoth task has been made surmountable.

It is clear that the role of the Surveyor in the future will continue to evolve, as it has over the past 30 years. We’ve gone from field books and notes to large point cloud data sets, and adapting to these changes will continue to provide challenges we

will face with the same alacrity we as an industry have always shown...and with software developments there to help us manage future digital formats as they arise, that future looks bright indeed. The sky is, in fact, not the limit!

Graham Wirth has extensive industry experience as a survey manager building major Sydney infrastructure projects such as the M2 Motorway and the Cross City Tunnel. He is now a product manager with Australian surveying and civil software company, 12d Solutions. ■

