

The Huge Potential of Virtual Reality for Geomatics



Following the recent '*GIM International*' readers' survey we concluded that, although the spotlight has been shining brightly on VR and AR, today's geomatics professionals have relatively subdued expectations of working in a virtual or augmented world. But in spite of the seemingly slow adoption of VR in the geospatial sector, we feel that this topic deserves extra attention. After all, 3D modelling is a key topic in our field and both VR and AR are already being shown to add value. Therefore, the upcoming edition of '*GIM International*' is focused on the visualisation of 3D data, with virtual reality as a key ingredient.

The 2017 edition of the *GIM International* Business Guide includes an article titled '[The Advancing Industry of Geoinformation](#)'. I wrote the article, together

with our contributing editor Martin Kodde, as a follow-up to a comprehensive survey we carried out among our readers. The article zooms in on the latest trends and developments in the surveying industry. In the article we state: "Two of the buzzwords that have been heard at geomatics trade shows across the globe in the past year are virtual reality (VR) and augmented reality (AR). In numerous keynotes and presentations, both technologies have been hailed as two powerful tools that may well make a revolutionary impact on the survey industry. But although the spotlight has been shining brightly on VR and AR, today's geomatics professionals have relatively subdued expectations of working in a virtual or augmented world. The question is: are geomatics professionals simply more conservative than their peers in other industries, or are VR and AR – apart from being nice gimmicks – not actually beneficial for geomatics applications?" Although just a couple of months have passed since our readers' survey and in spite of the seemingly slow adoption of VR in the geospatial sector, we feel that this topic deserves extra attention. Therefore, this issue of *GIM International* is focused on the visualisation of 3D data, with virtual reality as a key ingredient. As the engineering and construction (E&C) industry is a relevant vertical in the geomatics world, we believe it is necessary to keep you – our readers – informed about the wide-ranging technological possibilities opening up. After all, 3D modelling is a key topic in our field and both VR and AR are already being shown to add value.

In the construction industry, 3D models are used to facilitate project management, detect potential problems before the construction work starts and ensure a smooth workflow. Virtual reality enables users to experience the environment from a human perspective and hence gain a better sense of space. Now, virtual reality is on the brink of moving beyond just architecture, engineering and construction applications and evolving from a hype into a useful – if not essential – tool for many geospatial professionals. How about urban planning, for example? VR is ideal for planning purposes and is set to revolutionise the profession. City planners can use 3D mapping and VR to visualise new districts. A good example is Dutch company Tygron, which has developed a platform called the [Tygron Engine](#). It supports decision-making by visualising geodata, modelling it and facilitating interaction in a virtual 3D environment. Based on gaming technology yet strictly serious, this virtual 3D environment enables several 'players' – in this case representatives of government authorities, project developers, interest groups, citizens and other stakeholders – to [interact](#) simultaneously. This approach fosters consensus and understanding and streamlines the communication process to advance projects more quickly. The enormous potential of 'serious gaming' in a virtual 3D environment has already been recognised by various governments and other authorities across the globe.

So how are the key players in the geomatics industry exploring the potential of AR and VR? The most eye-catching example comes from US-based Trimble, which has teamed up with Microsoft and the UK's University of Cambridge with the aim of bringing wearable holographic technology (the Microsoft HoloLens) into the E&C field to provide construction-sector stakeholders with the information they need. Virtual reality can support informed decision-making and can improve the lifecycle management of physical infrastructure assets. For other applications of virtual reality and to gain an insight into the potential future of virtual reality, read the various articles and also the interview with Neil Tocher, CEO of NCTech, in the May 2017 issue of *GIM International*.