

GIM INTERNATIONAL INTERVIEWS RAY O'CONNOR™

Innovation at the Heart of Geospatial Growth Strategy



The geospatial industry is involved in an ongoing transformation. From its headquarters in Livermore, California, Topcon Positioning Systems (TPS) manages 31 operations located in 15 countries on five continents, employing more than 2,100 people. Here, we speak to Ray O'Connor, CEO of TPS, on the role his company is playing by providing connectivity with software and precision-measurement hardware for a range of market sectors.

What's TPS's growth strategy?

Topcon has an 82-year history and remains a major player in optical surveying instruments. When I joined the company in 1993, there was a major drive to identify areas for growth, with an emphasis on helping people to improve productivity in the surveying, construction, agriculture, civil engineering, mapping and GIS sectors. That drive continues to develop markets for our new products and to diversify, ensuring there are always areas for advancement. Connecting 3D modelling with data was the genesis of real growth for our company and has driven its expansion over the last two decades. In 1993, even though Topcon enjoyed a strong market share, particularly in the surveying sectors, our sales were a fraction of what they are today. This growth is, of course, influenced by advances in our GNSS machine automation, scanning and collaborative software systems — but our growth strategy is not strictly technology-based. It is society-based: realising that the demands for affordable infrastructure and sustainable agriculture will insist on the efficiencies that our solutions provide.

Which are the most important regions for Topcon?

We have a relatively strong presence in every region of the world, supporting approximately 2,000 distributors. Honestly, in today's economy, there is no such thing as an unimportant region. For example, areas that have been slow to adopt our construction-machine control or scanning technologies are in some cases our fastest growth areas in precision agriculture.

On which applications is the business focusing its research and development?

We have developed great applications that add real value across every segment of the business. In the geomatics segment we have seen substantial growth in vehicle-mounted 3D mobile mapping systems. With scanning at 1.5 million points per second, the level of accuracy is unparalleled. There is also an ongoing demand for field-ready traditional surveying instruments, as well as the design of new instrumentation. What really powers each of these is the unprecedented productivity that is realised through the rapid integration of data that our software provides, regardless of application.

Our unmanned aerial systems (UASs) are providing exciting promise for automated mapping of construction sites, pipelines, disaster areas, mines and other sites where terrain may be difficult to navigate. These drones are fitted with hyperspectral imaging cameras with excellent image quality. These are fully integrated systems that have all the software needed to acquire and analyse hyperspectral data. It's one of the most innovative and exciting areas we are involved in.

We are also promoting our OEM integration in the construction sector, and expanding our market and strengthening our OEM business by introducing innovative new products to the agriculture sector. There is much room for growth in agronomy especially with precision solutions for crop and farm management — helping to boost farming efficiency and increasing crop health and yield.

I'm fascinated by how the iPhone changed everything. It ushered in a new era of intelligent, connected devices that have had an enormous impact on consumers' lives. The new computing power, this democratisation of data, has enabled consumers to help drive the development of applications that advance efficiency in virtually all industries. Coupled with the increasing affordability and miniaturisation of technology, and of memory in particular, computing power has altered our world in ways that were once unimaginable.

What's land surveying's position in the company's spectrum of applications?

High-precision land surveying is the foundation upon which this business was built, and it remains extremely important. The most significant developments in this area of the business are being driven by mass data and content accessibility, and how they are being applied in order to very precisely measure large distances and activity across the planet in order to manage its development and

sustainability.

What's the current status of surveying?

It remains a very traditional business. As an industry, we need to do a better job of educating surveyors about adopting new technology. There is a perception that machines are taking over and that surveyors' jobs are under threat. That is simply not true. While there may be less physical surveying required, surveyors have a major role to play in data management and analysis. The construction industry, for example, will continue to rely on professional surveyors because of the particular set of skills they bring to projects. Technology is helping them to do their jobs better — it's not placing them at risk. We need to edify the industry and help people to see progress in that light.

How do you see the role of surveyors in the future?

The future of the surveying profession is bright. As I just mentioned, new technologies require new training. Instruments like 3D laser scanners are providing solutions to many of the challenges land surveyors have encountered in the past. No longer are they functioning as data gatherers; their role is expanding into consulting with clients. They can concentrate on what the data means rather than on the data collection itself. 3D modelling also gives surveyors greater flexibility, as they no longer have to work around obstacles to measure properties. Because 3D laser scanning is so accurate, surveyors can provide clients with a precise picture of each property — with speed and clarity that only elevates their position within the new domain of information modelling.

Do you believe the economic crisis is over? And have geospatial businesses learned anything from it?

In the US, yes, the recession is behind us. Europe is still suffering from its sting, especially in specific regions. The slowdown in China is worrisome and could slow the overall recovery if its economy weakens much further. From TPS's point of view, China's current balancing act is impacting the mining and commodities industries in Australia, but we have definitely seen business improving worldwide as recovery continues to take place.

I'm not sure if all businesses, as well as many governments, have learned from the crisis. It's amazing to see how quickly we seem to have forgotten those difficult years. I think a big takeaway is to be very cautious of seemingly limitless expansion. We all need to be more conscious of the realities that surround us and scale our plans according to what we see happening globally. It's critically important in today's economic environment to be able to make adjustments to business models and strategies when necessary. Agility is key, but it must be balanced to help ensure that investment for long-term growth stays planted as our core obligation to our customers and society as a whole.

What's Topcon's message to the geomatics world?

I have a saying that usually results in looks of confusion: "You don't know what you don't know." I've been in this industry for more than three decades and I have never seen change take place at the rate we are witnessing right now. The pace of development over the last five years has been simply phenomenal. I find that speed of innovation incredibly exciting. We have systems that can measure up to 1.5 million unique Lidar points per second. That's 300 percent more than ten years ago, when we thought it couldn't get any faster. Thankfully, we didn't know what we didn't know. Now I know to never underestimate the unknown and do all I can to not just be prepared for it — but also to create it!

Today, surveyors have the ability to measure complex areas more quickly, accurately and safely than ever before. We've all heard the old business adage, "If you can't measure it, you can't manage it." But in today's surveying industry, it's more a case of "What you can't measure in real time, you can't manage in real time". Today we process measurement data in real time, in a single application. In the past, surveyors would go out into the field, measure vertical and horizontal positions and reference systems, repeat that manual process for hours on end, then go back to the office and analyse their findings, hoping they hadn't missed any critical point or corrupted their data. Now all of that happens in real time.

There are even more exciting times ahead. One of the challenges, however, is to ensure we have not only qualified, but also enthusiastic people entering the industry. That's where the real future lives. That's where new ideas are generated. The geomatics industry needs to do a better job of promoting itself. We recognise the value of strong educational programmes in the areas of surveying, engineering, GIS, agriculture and construction technology, and we have partnered with more than 600 colleges, universities and trade schools around the world to help educate the future leaders of our industries. New technologies are bringing exciting opportunities for the surveyor to move beyond the traditional surveying activities. It should not be difficult to attract people to this industry — everything on the planet needs to be mapped and the job opportunities and career options are virtually limitless.

On a practical level UASs, or 'drones', used to be the stuff of science fiction. We need to be out there showing students how marvellous the technology is and what fun they could be having in the real world, making real contributions with these and other amazing tools. Geomatics is a sector that impacts every aspect of our lives, from environmental management to urban planning and disaster informatics. Can you tell I'm excited? When I was a student, I was frustrated at how antiquated everything seemed; now I know that the possibilities are endless.

Ray O'Connor

Ray O'Connor is president and chief executive officer of Topcon Positioning Systems, Inc. (TPS), a position he has held since 2002. He is also general manager of the Positioning Operating Company, one of three companies that form Topcon Corporation, where he serves as senior managing executive officer. Additionally, he has served as chairman of the Topcon Europe Positioning business since 2005, and he is a director of Topcon America Corporation. After joining Topcon in 1993, O'Connor led the growth of TPS through strategic initiatives beginning in 1995. Since then, TPS revenue has grown tenfold, and he continues to lead the company in its mission to help meet the increasing demand for sustainable agriculture and modernised infrastructure. Most recently he directed the acquisition of four global manufacturers: Digi-Star, headquartered in the United States; RDS Technology, headquartered in the United Kingdom; Wachendorff Elektronik, headquartered in Germany; and NORAC, headquartered in Saskatchewan, Canada.

