

GIM INTERNATIONAL TALKS TO THOMAS HARRING, PRESIDENT OF HEXAGON GEOSYSTEMS AND CEO OF LEICA GEOSYSTEMS

At the Forefront of the Digital Transition



In this interview, Thomas Harring emphasizes that the geospatial industry should use the momentum of the 'new normal' to further accelerate the sector's ongoing transformation towards more customer-centric and autonomous digital solutions. Harring started in his position as president of Hexagon Geosystems and CEO of Leica Geosystems in early 2020. The year took a sudden and very

unexpected turn when the outbreak of the COVID-19 pandemic threw a spanner in the works.

How would you summarize the current state of the geospatial industry?

Despite the undeniably terrible consequences of the current pandemic, the geospatial industry has not lost any of its importance and will continue to grow at an above-average rate. Based on their various experiences with remote working and workforce protection in the field and in the office, many organizations will go on the offensive, disrupting legacy processes and systems. Governments in particular can play a strong role by opening up their infrastructure to digital solutions and boosting new service opportunities. This situation has brought several key topics to the forefront, such as real-time office/field collaboration using digital tools, frequent remote progress monitoring, and increased demand for accurate and reliable digital realities. I believe we should use the momentum of the 'new normal' to intensify our ongoing efforts to transform the geospatial industry towards more customer-centric and autonomous digital solutions.

Which new challenges and opportunities is the digital transformation creating for surveyors?

In the geospatial industry, the digital transformation will accelerate the convergence of real and digital worlds to provide additional value for current and future customers. The geospatial industry is at the forefront to facilitate automation. The underlying technologies, such as the cloud, big data analytics, the internet of things (IoT), artificial intelligence (AI), edge computing and sensor fusion, will play an active role in expanding digitalization beyond IT, making the world more sustainable by providing fast, reliable and accurate decision support autonomously. Surveyors and other geospatial professionals will continue to benefit from digital reality capabilities by pairing domain expertise and leading technology.

The number of acquisitions reveals a clear growth strategy. How would you describe Hexagon Geosystems' ambition?

Hexagon's growth ambition is unchanged; we're expanding in our target markets with software, sensor and service-based solutions that create customer value. We're strengthening our competitive advantage through balanced organic and inorganic growth. Our technology and solution roadmaps provide a framework for defining which technologies and domain expertise will make us even stronger. In the Geosystems division, we recently acquired Geopraevent, a solution provider of alarm and monitoring systems used to protect critical infrastructure from natural hazards, which also uses our leading software and sensing solutions. Another recent example is Tacticaware, a provider of Lidar-based 3D surveillance software used to monitor and protect critical infrastructure and buildings. Together with our new award-winning Leica BLK247, we can now offer our customers an integrated end-to-end security surveillance solution.

The surveying equipment manufacturing business is highly procyclical (i.e. strongly linked to GDP fluctuations). How is your company dealing with this?

As a global company, we are repeatedly exposed to gross domestic product fluctuations to varying degrees. To break or alleviate the

cyclical dependency, we always do what made us strong in the past: we stimulate demand for productivity solutions with innovative software and sensing solutions, regardless of whether we sell them or provide them as a service. Our solutions make customers more productive and successful and thus give them transparent, visible payback. A current example is the Leica GS18 I GNSS-RTK-Rover, which with its visual positioning technology allows users to reach previously inaccessible or obstructed points, to check the quality of the data while on site and to extract points later in the office.

Suppliers often regard themselves as solution providers, but many surveyors adopt a ‘mix and match’ approach and select independent software to process sensor data. What is your view on this?

There have been discussions in the geospatial industry regarding open, closed and selectively open architecture related to sensor-data processing software for many years and these discussions are intensifying. Our belief is unchanged that customers want to have choices and decide based on their needs. However, there is no guarantee that a multi-vendor solution will integrate seamlessly or perform optimally. Of course, the task of the whole geospatial industry is to educate customers about new possibilities. Therefore we continue to take independent software providers with us as far as possible on the shared journey into the future; we have worked successfully with many of them to integrate new scanning, photogrammetry or radar workflows in their offering as well as to use the edge computing possibilities of our sensing solutions with their software suites.



Thomas Harring, president of Hexagon Geosystems and CEO of Leica Geosystems.

The evolution of 5G is expected to bring many new opportunities for the surveying industry. How is Hexagon responding to 5G availability?

I would say the evolution of 5G technology brings additional opportunities for the geospatial industry in two respects: the deployment of 5G networks needs geospatial solutions, and the use of the network offers unlimited possibilities for business expansion. 5G telecommunication infrastructure must be secure, reliable and interoperable to handle the volume of applications and services. Accurate and reliable geospatial data is essential for the correct positioning of the base stations supporting denser networks. And in terms of business expansion in the geospatial industry, the possibilities are obvious – the 5G technology works like glue to network the individual sensors, speeding up data transfers and reducing latency. This will boost the convergence of the real world with the digital realities and increase the customer value of solutions such as the HxDR platform and all of Hexagon's other smart solutions that support autonomous decisions remotely and in real time.

GNSS technology is key within the geospatial industry. Which developments do you foresee in GNSS technology and services over the coming decade?

GNSS has become the leading positioning technology in numerous applications and the pace of technological advancement in the geospatial industry over the past 30 years has been impressive. Simply speaking, three different GNSS solutions have been introduced to date: the high-end RTK rovers, the handheld GIS data collectors and the machine control systems. Today, our handheld GIS data collectors have smart positioning technologies, such as with HxGN SmartNet included, providing professionals with accurate data and backup systems when connectivity issues occur. As positioning of objects in the real world is becoming increasingly important, the spread of GNSS solutions is also increasing. Regarding RTK rovers, we are proud to offer our customers leading innovative solutions such as the Leica GS 18 T – the world's fastest and easiest-to-use GNSS RTK with true tilt compensation – and the recently released Leica GS 18 I with its leading visual positioning technology. And let's not forget all the developments in our software offerings to support these exciting sensor fusion and edge computing capabilities. What's next? Trust us, our teams are already working on it!

Combining airborne cameras and Lidar sensors is the new trend in airborne mapping. How will this development impact on how the environment is mapped from above?

Since we launched the Leica CityMapper some years ago – the world's first hybrid airborne sensor providing both oblique and multispectral nadir imagery and Lidar data – the urban mapping and creation of 3D geospatial data for smart city applications has reached new levels. The advantages – such as reduced collection costs as two datasets are collected in one flight, reduced manual edits as fused data improves automatic modelling and many more benefits – support efficient updates of geospatial base layers for fast-changing urban environments. Last year we launched the [Leica CityMapper 2](#) and – when combined with the universal HxMap workflows in the Leica RealCity urban mapping solutions – customers benefit from digital surface and elevation models as well as qualitative data on vegetation, street information, built-up areas and land use. In addition, they have access to 3D information in the form of GIS-ready buildings for planning purposes and 3D meshes for visualization. Mapping is becoming more and more efficient, providing Hexagon's smart solutions with reliable and fresh geospatial mapping data.

How is the role of surveyors changing in the context of building information modelling (BIM)?

In the digital world, methods which previously existed separately – such as GIS or BIM – are increasingly converging. Data analysis is becoming more and more enhanced as AI capabilities help to deliver business insights that are available 24/7 and networked. Day-to-day work is being automated and – if coded properly – fewer errors occur. The blurring boundaries between the AEC (*architecture, engineering and construction, Ed.*) sector and the geospatial industries reinforce the need for surveying capabilities throughout the whole life cycle of infrastructure and buildings. The role of scanning and imaging technologies in accurate, reliable positioning and measuring as well as in planning and digitally simulating the real world is forcing all relevant professions to learn about the use of geospatial data. Surveyors have been, and will remain, critical for the adoption of geospatial technology in these life cycles.

Which other changes do you predict for the surveying profession over the coming years?

Geomatics as an applied science and a professional discipline is often described as an integrated approach to the measurement, analysis, management and visualization of geospatial data. Companies operating in the world of geomatics are facing ongoing innovation challenges due to rapidly changing technologies, such as Lidar, the cloud, IoT, artificial intelligence and many others. IT expertise is becoming increasingly important, and – as I mentioned earlier – surveying and geomatics professionals will continue to benefit from their geospatial capabilities in pairing domain expertise and leading technologies. Clearly, we must continue the dialogue with academia all over the world to engage strongly with the education of the future geospatial professionals. Last year, we celebrated 200 years of geomatics in Switzerland, an anniversary which demonstrates the impact and the importance of surveying. We see lots of new opportunities for

surveyors and hope to celebrate our combined rich history with them for many years to come.

Do you have a final message for the geospatial community?

The benefits of the geospatial industry are becoming more and more visible beyond the geospatial experts and that is why expectations of us are increasing rapidly. Hexagon remains fully dedicated to this industry and will continue to drive the adoption of technology and customer-centric applications towards autonomous connected solutions. We are geospatial enthusiasts who believe in the future of the geospatial industry and aspire to be role models, leading by example and demonstrating what can be done.

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