Interview mit

Theo Agelopoulos

**Senior Director of Autodesk
Infrastructure Bussiness Strategy & Marketing**

zfv | What are the effects of the corona crisis regarding digitalisation in the geospatial industry?

Agelopoulos | Across all industries the corona crisis has underlined that the old way of thinking isn't going to work anymore. In the geospatial industry, we are observing three significant trends that are emerging from the crisis.

Firstly, the corona crisis is accelerating the adoption of remote sensing technologies to capture spatial data. The adoption of these technologies is essential to respond to the increased speed at which this information now needs to be captured and brought into the decision-making process.

We also know that the pandemic has turned the remote workplace into a common setup that will continue to be part of how we work even long after the pandemic has passed. Many companies will need to accelerate the digitalization of their information sharing processes. This makes up the foundation of cloud collaboration, which has been in the making as the "next normal" for some time gaining traction by helping the industry address such challenges as labor shortages, outsourcing and working effectively in global teams. The coronavirus crisis has brought cloud technology to the forefront of the geospatial industry.

Lastly, as governments are putting in place accelerated funding for shovel-ready projects, geospatial data and visualization (e.g. Augmented Reality and Virtual Reality) will be an important element to get these projects moving through stakeholder approval processes and aid the economic recovery.

zfv | From what trends in technology will the geospatial industry benefit the most?

Agelopoulos | Continued convergence of BIM (Building Information Modeling) and GIS (Geospatial Information Systems) will become more common place throughout the project and asset life cycle. This convergence is at the heart of Autodesk's alliance with Esri. This year both companies released additional integrations between our respective solutions. The next chapter of this convergence will be to move beyond desktop integrations to connecting Esri's GIS cloud with Autodesk's BIM cloud. Making this next leap will provide the industry the ability to deploy true federated data environments that are open, integrated and interoperable.

The emergence of digital twins which provides a digital representation of the physical world can help owners like Cities become more environmentally, economically and socially sustainable. These digital twins aggregate geometry, asset information and geospatial data into a unified experience to better plan, design, construct and operate their physical assets. As the industry moves toward smarter infrastructure and smarter cities digital twins provides the foundational platform to build upon to achieve more aspirational goals. Connecting digital twins to real-time data, also allows operators to make real-time decisions to better manage and optimize their physical assets.

Artificial intelligence (AI) and machine learning will continue to reshape our vision of what will be possible. AI has already been adopted in areas such as indoor navigation, map digitizing and geographic feature extraction. More powerful capabilities are emerging such Deep Learning (DL) neural networks which bring new requirements and usage models to current systems and applications. For example, Deep Learning provides the ability to accurately detect objects and classify pixels at scale, exploitation of images and videos are becoming more common use cases. As an example, automated digitization and extraction of assets from acquisition systems to rapidly and accurately determine existing conditions will improve the downstream digital design process.

zfv | Often there's some skepticism in society regarding readily available geodata such as they are produced by the geospatial industry. What could the geospatial industry do in order to increase understanding of large amounts of data being a constructive basis for future guidance and decisions?

Agelopoulos | As the geospatial industry matures, there is an opportunity to address the concerns of society through geodesy and gain visibility and credibility outside of the AEC (architecture, engineering and construction) industry. Relevant use cases could include geospatial data that feeds mobility simulation for social distancing and safe reopening of businesses, schools and transportation hubs. Similarly, geospatial data can support analyses and simulations such as flood or hurricane risk assessments that will only become more urgent as the effects of climate change become stronger and more frequent. The advent of driverless cars is placing high demands on reliable, up-to-date and well-maintained geospatial data and presents another opportune use case for the industry. If the geodesy industry can help with these larger challenges, we could capture a lot of mindshare within society and among budget owners – ensuring we continue to be well positioned for the future.

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Thomas Harring

President
Hexagon Geosystems

zfv | How is COVID-19 affecting digitalisation in the geospatial industry?

Harring | COVID-19 has impacted nearly every aspect of our lives and is a serious global humanitarian challenge. Social distancing is now the order of the day and suddenly offices work remotely and more digitally. There might be some bumps in the fast-tracked adoption of digitalisation here and there, but basically during the last months organisations achieved what many managers and digitalisation consultants couldn't.

While the geospatial industry didn't need a crisis mentality to close the digitalisation gap, there is no denying this crisis is a digital accelerator for the industry. Whether it is also a business transformation accelerator is yet to be seen.

After the experiences with remote working and workforce protection in field and office, companies and governments in the geospatial world will focus on strengthening the resilience of their businesses and services. Many organisations will go on the offensive, disrupting legacy systems and strategies. For this, governments have a strong lever by opening their infrastructure to digital solutions and to give a boost for new service opportunities.

The crisis is not over, however, and Hexagon continues to provide solutions to support the response to COVID-19. Hexagon's simulation analysis software was used to demonstrate the interaction between droplets and fluids when we sneeze. Hexagon also made its aerial imagery library of the entire United States and Europe, provided through the HxGN Content Program, freely available to any government agencies and non-profit organisations managing the virus outbreak.

This pandemic brings great suffering to people, but it also acts as a trigger. We should use the momentum of the "next normal" to further accelerate the digitalisation and support the ongoing transformation of the geospatial industry.

zfv | What technology trends will benefit the geospatial industry the most?

Harring | In the geospatial industry, the digitalisation boost enabled by maturing technologies, such as Cloud, Big Data Analytics, internet of things (IoT) or artificial intelligence (AI), and autonomous technologies will accelerate the convergence of the real and digital worlds. Sensor fusion reduces the uncertainty of the data quality, making the data more accurate, current and complete. Edge computing allows the processing to start on the sensor while capturing, exemplified in the Leica RTC360 with its visual inertial system, the handheld imager Leica BLK3D, or the SLAM-enabled Leica BLK2GO.

Cloud-based visualisation and collaboration platforms for geospatial data and services, such as the recently launched HxDR (Hexagon Digital Reality) subscription-based SaaS, facilitate data fusion and provides accurate and immersive digital representations of the real world in compliance with data privacy. In the digital world, methods, which previously existed separately, such as GIS or BIM, are increasingly converging. Data analysis becomes more enhanced as AI helps to deliver business insights automatically, available 24/7 and networked. Advanced technology leads to disruptive solutions, such as Leica BLK247, a reality capture device that uses sensor fusion, edge computing of imagery and LIDAR to detect and report physical changes within a space and provide real-time and automated situational awareness.

Trends in technology provide a lot of opportunities. The geospatial industry is on the forefront to facilitate automation and to provide autonomous decision support. These technologies, therefore, will play an active role in making the world more sustainable.

zfv | Often there's some skepticism in society regarding readily available geodata. What could the geospatial industry do to increase understanding of large amounts of data as a constructive basis for future guidance and decisions?

Harring | In time of rapid technology changes and leaps, there is often a controversy between skeptics and enthusiasts. To overcome skepticism, geodata capture and processing must be transparent and trackable. Digital solutions should not be mislabeled as "black box" solution, and data access, privacy and security should be made integral to the market value of geospatial data. Our geospatial solutions are based on privacy by design without compromising functionality and productivity to enhance accountability, openness and compliance.

The value of geospatial data in the decision-making process is undisputed, and the industry has shown its tremendous efforts with many success stories. For more than 200 years, we have been part of the evolution of the geospatial industry. We have seen endless success stories from professionals across the planet in many different industries using our precise and accurate sensor solutions and customer-centric software and services.

There is an effective way to drive change, overcome resistance and gain buy-in. We as geospatial enthusiasts, believing in the future and relevance of the geospatial industry, should be role models leading by example and demonstrating what can be done and then doing it.

Hexagon Geosystems

Interview mit

Ron Bisio

**Sr. Vice President
Trimble Geospatial**

zfv | What are the effects of the corona crisis regarding digitalization in the geospatial industry?

Bisio | When INTERGEO convened in 2019, a pervasive global health threat was far from our minds. But in 2020, that challenge arrived as COVID-19, and the geospatial industry has come together like never before to provide solutions and support – hardware, software and satellite imagery – just as we have previously for natural disasters such as hurricanes, earthquakes and floods.

This global pandemic is unlike anything our industry has faced, and because everyone is affected, we shared the same sense of urgency in our responses. As coronavirus has unfolded, mapping and GIS professionals tracked the disease's spread and provided data to help national governments, states and cities respond and make difficult public health decisions.

People all over the world have relied on GIS data to understand the disease, its spread and now, the impact. Local governments also turned to providers such as Cityworks, a Trimble company, for a web-based, GIS-centric platform to manage their emergency response. In addition, governments and first responders relied on satellites and imagery worldwide for critical communications and to address humanitarian needs.

As our industry moves through and beyond COVID-19, we will find new opportunities for collaboration and knowledge exchange, and we will emerge stronger from one of the greatest global challenges of our time.

zfv | From what trends in technology will the geospatial industry benefit the most?

Bisio | The geospatial profession is evolving, and the next wave of technology innovation will be shaped by both the need for precise data and the ability to make that data useful.

Geospatial technology will be influenced in years to come by cloud computing, artificial intelligence, autonomous vehicles, sensor fusion, ubiquitous use of geospatial data and 3D modeling.

The surveyor's workflow will become quicker, safer and easier because of new technologies like scanning, mobile mapping and UAS photogrammetry. With its ability to capture large amounts of data quickly and at a distance, mobile mapping technology makes surveyors' jobs safer by keeping them out of right-of-ways and off the roads. Digital twins will be center stage in the transformation of the physical world into digital, and surveyors will be called upon to convey meaningful information from the model back to the physical. Surveyors and mappers should also monitor the autonomous vehicle revolution because large investments in the sector will improve sensors, onboard processing and vehicle connectivity, essentially resulting in millions of mobile mapping units around the world.

Innovation can fail if it doesn't clearly benefit those using it every day. At Trimble, we focus our innovation efforts on making the day-to-day work of geospatial professionals safer, faster, easier and more productive by aligning our product development with the work of our customers. This results in a wide spectrum of surveying and GIS tools for efficient and accurate mass data collection, and software solutions that make data integration and analysis possible for all.

Advances in geospatial technology are enabling rapid data collection at the pace of millions of data points per second, but a pressing concern for geospatial professionals is how to process the data into deliverables that matter. Surveyors are increasingly expected to play a key role throughout a project's duration and must be armed with cohesive business software systems that allow performance beyond expectations and specialization for many different activities, data types and trades.

By seeking new possibilities in technology advancements like deep learning and mixed reality, we are helping geospatial professionals and other stakeholders prepare for a future that is not only precisely mapped, but precisely modeled, in real time.

zfv | Often there's some skepticism in society regarding readily available geodata such as they are produced by the geospatial industry. What could the geospatial industry do in order to increase understanding of large amounts of data being a constructive basis for future guidance and decisions?

Bisio | As the public becomes more aware of the role of geodata in their lives, such as through smartphone apps or interactive maps for understanding issues in a geographic context, they will gain confidence in the data and increasingly value its role in solving complex problems in our world.

There may be skeptics of geodata – and science in general – but national and local governments, businesses and organizations throughout the world rely on it to make rational decisions. The reality is that any organization that works outside of four walls needs mapping and GIS and spatial analysis to manage all of their spatial resources.

One of the most impactful examples of geodata value is the use of GIS today to map the environmental impact of climate change. This includes water management tools, coastal impact, disaster mitigation, public works projects – and in the context of these changing models – endangered species mapping. There's a lot that fits in the bucket related to climate-change analysis. We've moved from tracking only what is physical to what is intangible, to understand and better plan for the future.

Trimble Geospatial