*HELPING BUSINESSES TO MAKE MORE INFORMED DECISIONS*

Today's Challenges Put 3D Mapping Technology Centre Stage

In this interview Bobbie Kalra, founder of the rapidly growing Indian company Magnasoft, talks about digital twins and the future of the geospatial industry.

Digital twins form the basis for the digital transformation of all aspects of our world, from individual assets to entire cities. Magnasoft, an ambitious India-based digital geospatial information specialist, creates primitive and intelligent 3D models to enable better and more informed decision-making for all kinds of applications. *GIM International* interviewed Bobbie Kalra, the company's founder, who is looking forward to some exciting years ahead for the geospatial industry.
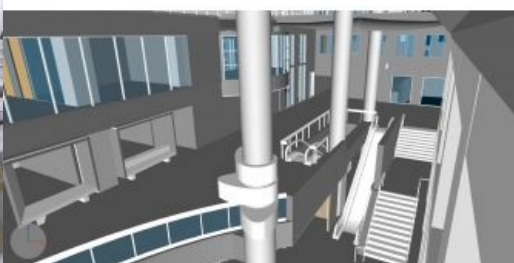
You recently announced that Bhupinder Singh, former chief product officer at Bentley Systems, has joined your company's board of directors. How does this reflect Magnasoft's ambitions?

This is the perfect time for Bhupinder Singh to join our leadership team. His 34 years of experience in the software product industry will play an instrumental role in realizing our ambition of emerging as the location-centric data-validation solutions provider for the new age. We have long been committed to facilitating digital construction with accurate and detailed 3D models and digital twins, and Bhupinder's extensive experience in these areas will help us add many more success stories to our repertoire. Together, we look forward to accomplishing several milestones while helping businesses to make more informed decisions.

A well-functioning land administration system, or cadastre, is the foundation of national stability and social welfare. How does Magnasoft contribute to this?

In our very essence, at Magnasoft we are committed to creating stronger land administration systems which enable the relevant authorities to make more informed decisions. In turn, this strengthens the social, economic and governance fabric of cities. Moving on from being recognized for our innovative property assessment programme in 2000, we have executed distinguished land-based projects for government agencies worldwide and mapped more than 40 million land parcels across multiple continents.

During the pandemic, we helped governments around the world to enhance their revenues and improve their operations through projects in property change detection and parcel mapping for property tax. These projects helped them to achieve more with less during those difficult times. The pandemic has led to changes in how people live and work. Accordingly, the ways in which cities are governed, land is used and infrastructure is managed will undergo major changes in times to come. Magnasoft is well-equipped to make a significant contribution in this changing scenario. In the post-pandemic world, we hope to continue playing a vital role in ensuring solid governance and social welfare through our innovative land use planning, 3D city infrastructure, city management and other relevant solutions.

Bobbie Kalra founded Magnasoft in 2000.

Your company's customer base includes the likes of BP, Shell and BMW. Which geospatial services do you provide to these multinational corporations?

In association with our partners, we have helped these corporations to achieve more efficiency in their operations – mostly in brownfield expansion projects in which we have created digital twins and done 3D mapping of entire plants as the basis for redevelopment plans. Using our domain knowledge and expertise, we have successfully created the whole 3D data fabric in line with each customer's requirements.

Nowadays, governments and businesses have to deal with huge volumes of geospatial data that need to be managed, updated and analysed. How can this challenge be handled efficiently?

While technological advancements in the shape of cloud computing, artificial intelligence, machine learning and so on are aiding the handling of geospatial data, adopting a well-planned approach to managing the data can significantly help to attain the desired outcomes. We believe that businesses can achieve the most effective results with a top-to-bottom approach in which the data is first used to solve the most critical business problems and subsequently the rest. It is very important to prioritize the data needs. Governments and businesses must develop and implement a roadmap for how the data is to be used. This will support the efficient management of the huge data volumes as the challenges can be addressed in order of priority.

Many major cities, such as Rotterdam, Singapore and Helsinki, have been developing 3D digital models, paving the way to becoming 'smart cities'. What is your view on the current state of geospatial data related to 3D city modelling? And which chances do you see for the geospatial industry?

Broad adoption of 3D modelling for building the cities of tomorrow is long overdue, but a number of ambiguities and the price remain major constraints. Adoption needs to happen on a larger scale in order to bring down the cost of the technology. Additionally, it is necessary to effectively integrate the IT and engineering workflows in order to achieve operational efficiency. These challenges must be addressed to make the technology more mainstream.

The pandemic has changed the composition of the urban fabric and many geospatial opportunities are now emerging in terms of re-urbanizing or repurposing city infrastructure. As the concept of remote working gains momentum, workplaces will undergo a lot of change. Land use planning will evolve accordingly and the role of geospatial data will be strengthened.

Geospatial data is used in many industries by many disciplines for many purposes, yet there seems to be a general lack of awareness of this. For example, the architecture, engineering and construction (AEC) sector seems to offer huge opportunities for the mapping and surveying profession. How is Magnasoft contributing to digitalization in the AEC industry?

It is true that digitalization in the AEC industry is not happening at the desired pace. However, the situation is improving. With the emergence of cost-effective and user-friendly technologies like laser scanning and drones (*unmanned aerial vehicles or 'UAVs', Ed.*), the sector is becoming more receptive to digitalization. Cloud-based systems are enabling different technologies to work together to ensure the smooth running of complex operations such as large airports, where the technological integration extends way beyond 3D models. The AEC sector is gradually adapting to this technological disruption.

The industry gradually advanced from paper drawings to CAD, which has now become the de facto standard for AEC. That will eventually be replaced by 3D, and that's when real transformation will happen in AEC. Magnasoft has been at the forefront of developing innovative solutions for AEC, from 3D reality infrastructure models for enhanced planning to digital twin models with high levels of detail and accuracy, and is therefore strongly supporting the sector's digital transformation.

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Mapping indoor spaces in 3D is regarded as being particularly challenging. Which solutions does your company offer in this context?

With infrastructure being largely repurposed and remote asset management gaining momentum, precision mapping of indoor environments will become ever-more important. Indoor 3D mapping is an integral part of industrial plant maintenance and monitoring, planning in the case of AEC facilities and indoor navigation. The pandemic has also accentuated the need for high-accuracy 3D indoor data which can enable users to stay safe in enclosed environments by issuing alerts about overcrowded areas. Such functionalities are taking indoor mapping to another level.

A lot of data is already being collected nowadays about large indoor spaces such as airports and malls, and that can be repurposed for solving problems related to last-mile navigation and so on. We are working with a few commercial mapping companies to see how such data can be used to solve consumer-centric problems, whether related to last-mile navigation or avoiding overcrowded areas indoors. Location-based augmented reality is another technology which is rapidly advancing and has the potential to transform indoor environments into immersive AR/VR (*augmented reality/virtual reality, Ed.*) experiences. We believe that all these developments will create many opportunities for the geospatial industry in times to come.

Magnasoft has completed over 5,000 projects in indoor mapping of airports, campuses, manufacturing and processing plants.

Which technologies are you following with special interest due to their possible future importance to the geospatial industry?

We are now living in the times of artificial intelligence (AI), deep learning (DL), machine learning (ML) and geographic artificial intelligence (GeoAI). When coupled with human operators, all these new technologies are opening up exciting possibilities and we are therefore continuing to take a keen and active interest in them. As Magnasoft evolves into version 3.0, we are gearing up to deliver more effective data management services for AI/ML applications. Our deep domain knowledge remains the driving force behind developing new solutions for the new world.

How do you view the market outlook for the geospatial industry in the years ahead?

I envision some really exciting times ahead! The pandemic has reinforced the importance of location technology, and consequently many new opportunities are unfolding for the industry. Although the situation is likely to remain challenging for the next few months, we can expect to see new business opportunities opening up in the realm of electric vehicles, autonomous vehicles, utilities, facilities management, re-urbanization, indoor navigation and more. Industry professionals need to evolve rapidly, equip themselves with the latest technological know-how and grab the opportunities. This is an excellent time for companies like us to couple their deep domain knowledge with the power of state-of-the-art technologies and create futuristic solutions.

About Bobbie Kalra

Bobbie Kalra has a bachelor's degree in mechanical engineering from Bangalore University and over 20 years of global entrepreneurial experience. Since founding [Magnasoft](), he has served the company in many leadership roles including vice president sales and COO. In September 2007, he took over as the CEO and grew Magnasoft into one of the leading global providers of location technology services and geodigital transformation in the specialized world of spatial information management. Today, the company employs more than 1,000 people and has clients in 73 countries.