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AGI
ASSOCIATION OF GEOSPATIAL INDUSTRIES

# Newsletter

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## From the President's Desk

The Indian Geospatial industry has experienced a much-needed transformation in recent years, with various policies impacting the industry directly or indirectly being amended and liberalized. The Government of India has also started taking cognizance of the tremendous value that the "sunrise technology" of Geospatial carries, evident from the Hon'ble Prime Minister's speech on the 75th Independence Day, Hon'ble Finance Minister's Budget Speech 2022, and an inclination shown towards the field in multiple ministry-led development projects.

The release of the 'Geospatial Data Guidelines' as well as upcoming National Geospatial and Remote Sensing policies continue to create a conducive climate for the use of Geospatial data and technologies in various government activities. The setting up of a countrywide CORS infrastructure. Increased public-private engagements and bridging of ideological and technological gaps between the two through industry associations like AGI are steps in the right direction. I would take this opportunity to commend that the floodgates to mainstream adoption, discussion, deliberation, and business for the Geospatial industry have finally opened.

The Association of Geospatial Industries (AGI), as the apex industry body for the Geospatial industry in the country, is trying to leverage and sustain this impressive momentum by hosting the India Geospatial Leadership Summit 2022. The idea is to promote wider adoption and optimal utilization of Geospatial technologies for key national and state-level development programmes, while developing a stronger understanding of user requirements and addressing some of the major roadblocks challenging business and government-private collaborations.

As a forum for exchange of ideas, techniques, approaches, and experiences by those who design, implement and use Geospatial technology solutions, AGI summons all the participants of IGLS 2022, and the broader industry beyond to start working cohesively towards further investments, adoption, value creation, and advancements in Geospatial technologies and content. What we need is to strike the right balance between a sustainable, well-paced, systemic transformation and energetic, innovative initiatives across the government, industry, academia, and society as a whole.

We hope this special IGLS 2022 edition comes across as insightful and enjoyable to all. Stay tuned for more insights, stories, and analyses from AGI in the coming months.

Enjoy Reading,

**Agendra Kumar**
President, AGI

## In this Issue

# Access to reliable and updated Geospatial information can bring benefits to a host of businesses

When consumers have better visibility into the services around them, they are better able to make decisions on when and where to access them, remarks **Anal Ghosh, Senior Program Manager at Google India.**

**The digital economy is now at the forefront, eCommerce being one of its most prominent drivers. And yet, challenges around last-mile delivery and fleet performance exist, including increasing demands, driver shortages, poor address data, steep fuel prices, and so on. How can Geospatial analytics provide a respite and remedy?**

Access to Geospatial analytics is a powerful way for businesses to leverage real-world insights to boost success, especially when an increasing number of products and services rely on delivery of real-world goods. When consumers have better visibility into the services around them, they are better able to make decisions on when and where to access them. This in turn enables businesses to estimate location-specific demand, optimize delivery times, and plan for more efficient logistics.

Google Maps Platform helps solve one of the most challenging aspects of segments like ridesharing and deliveries — from figuring out how to guide a car to an office location, or a cargo vehicle to a building's doorstep. Google Maps Platform enables businesses to create better experiences and improve operations with rich, detailed geospatial data, helpful mapping tools, and industry-leading reliability. It delivers features such as Map Tiles, Address Geocoding, Traffic Layer, Driving and Walking directions, delivering a powerful and scalable way for businesses to implement last-mile delivery solutions that can reach their customers across the country.

The challenges around last-mile delivery is exacerbated in India with millions of households lacking addresses that can be precisely geocoded. Plus Codes – the free, open-sourced, digital addresses for any place on Earth – is a solution for consumers and businesses alike to use accurate addresses for their locations. This can help e-commerce, logistics, and delivery companies better meet the growing needs of today's consumers, and reach them at locations that were not addressed properly.

WHEN CONSUMERS HAVE BETTER VISIBILITY INTO THE SERVICES AROUND THEM, THEY ARE BETTER ABLE TO MAKE DECISIONS ON WHEN AND WHERE TO ACCESS THEM.

**One of the major lessons of the COVID-19 pandemic for organizations in the public and private sector is that a resilient economy depends on building sustainable supply chains. With the Google Earth Engine now having become commercially available, what role could Geospatial data play in shaping this vision?**

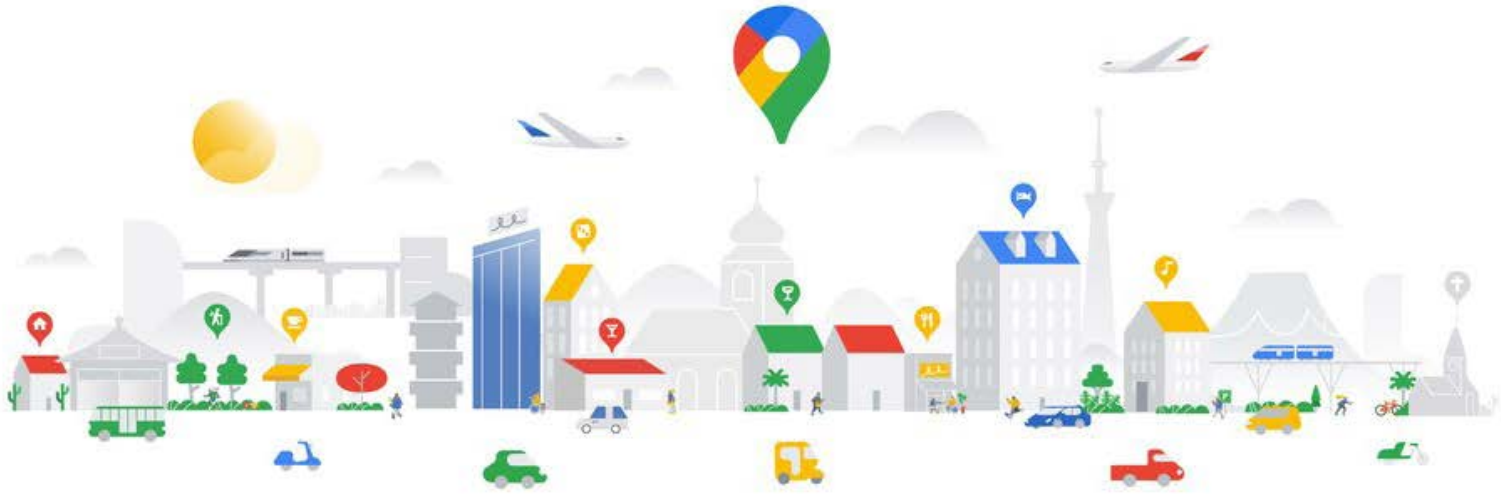
Access to reliable and updated Geospatial information can bring benefits to a host of businesses across the ecosystem, including logistics, food and medicine delivery, transportation, and more.

Google Earth Engine, in particular, has a long history of enabling sustainability impact by providing academics, scientists, NGOs and govt partners access to the world's largest archive of open Earth satellite data, a computational platform to analyze and visualize geospatial data. Commercial partners also get access to a collaborative ecosystem of tens of thousands of monthly active users and the collective knowledge of research and science in climate research, natural resources protection and building sustainable supply chains using geospatial data.

For 10 years, Google Earth Engine has been a free offering and it will continue to have a free offering for research and non-profit use cases. With the commercial availability, access is not just limited to non-profits but opened up to more organizations in the public sector and businesses who can use insights from Earth Engine to commit to know where their raw material is sourced from, invest in deforestation-free lending, prepare for recovery from weather-related events and reducing operational water use.

Our work with Unilever to help them achieve a deforestation-free supply chain for their palm oil is a great example of the potential impact for businesses in India.

**Floods are a serious risk for hundreds of millions of people in India today, especially during the monsoon season, leading to extensive loss of life and property. In fact, floods are among the leading causes of deaths due to**



**natural disasters in the country. What has been Google's Flood Forecasting Initiative's impact so far in transforming this scenario for good, with advanced technologies such as Geospatial and AI at hand?**

Since 2018, the Google Flood Forecasting Initiative has been working with governments to develop systems that predict when and where flooding will occur—and keep people safe and informed.

In the first three years, we started our pilot in Patna, Bihar, and quickly expanded our program to cover much of India and Bangladesh, working in partnership with the Indian Central Water Commision and with the Bangladesh Water Development Board. This initial outreach covered an area with about 220 million people, and we sent out 40 million potentially life-saving alerts. Then in 2021, our operational systems were further expanded to cover an area spanning over 360 million people. Thanks to better flood prediction technology, we sent out over 115 million alerts — that's about triple the amount we previously sent out.

Using crisis alerts, we are also able to give people information about the actual flood depth: when and how much flood waters are likely to rise. And in areas where we can produce depth maps throughout the floodplain, we also share information about depth in the user's village or area. These alerts show up on Google Maps, on Search, and even on the Android lock screen, in various formats so that people can both read their alerts and see them presented visually so it is earlier to understand. These are already available in Hindi, Bengali, and seven other local languages.

**AT GOOGLE, WE ARE CONTINUALLY LOOKING FOR WAYS TO ADD VALUE IN INDIA – FOR OUR USERS, FOR LOCAL BUSINESSES, FOR OUR PARTNERS ACROSS INDUSTRIES, AND LOCAL AUTHORITIES.**

To enable this critical information to reach affected users more reliably, we also partner with on-ground NGOs such as the International Federation of Red Cross and Red Crescent Societies to create local networks that can help deliver disaster alert information to people who wouldn't otherwise receive smartphone alerts directly.

As we continue to evolve our AI and machine learning approaches, we will continue developing, maintaining, and improving technologies and digital tools to help protect communities and save lives.

**Google Maps was a key enabler for the success of the Swachh Bharat Mission, with around 60,000 public toilets being listed across 2,300 cities in the country on the platform. Its integration with Google My Business for delivering powerful location-based analytics to enterprise owners, and the special "eco-friendly driving" feature to help drivers make more sustainable route choices have also created quite the buzz. What more can we expect from the platform in the near future?**

Thanks for highlighting some of the key milestones in Google Maps' journey - it's truly been a privilege to be such a trusted companion for users as they explored and navigated their world, and for businesses as they grew their digital footprints.

At Google, we are continually looking for ways to add value in India — for our users, for local businesses, for our partners across industries, and local authorities. We want to push the boundaries of people's perceptions of what a map can do for them, of the types of questions we can answer about their world, and the tasks we can help with.

In the future, you can expect innovation and investments across three broad categories:

First, ensuring Google Maps is fresh and updated as the world around us keeps changing, and building next-gen immersive experiences for users across the spectrum.

Second, partnering closely with local government authorities and entities in expanding the scope of geospatial service and unlocking opportunities across multiple sectors.

And finally, contributing to the geospatial ecosystem in the country through open datasets, developer tools and sustainability initiatives.

# GIS offers more than just visualization; it is one of the most powerful analytics tools at hand

Location data combined with other types of information – demographic, organizational, market – can lead to more efficient business decisions over a period, shares **Agendra Kumar, Managing Director, Esri India**

**Esri India is a name to reckon with in the GIS industry. You have also recently completed 25 years of services to the country's government, business, academia, and non-profit users through end-to-end GIS solutions. What are some of the major economic sectors that Esri India has been able to impact with its innovation and offerings down the line?**

Esri India is proud to have completed 25 years of collaboration with various government, academia, and private organizations. Our end-to-end GIS solutions have helped solve challenges across several major economic sectors, including governance, urban development, utilities, natural resources, and workflow improvement.

Considering our country's administrative structure, where groundwork takes place at the state level, bottom-up governance is paramount. Esri India has worked closely with several State Governments, including Rajasthan, Karnataka, Odisha, Jharkhand, Uttar Pradesh, and Haryana, using GIS to solve grassroots challenges, such as uplifting education levels, boosting industrial development, optimizing water resources, and so on.

Esri India has worked with various Smart Cities and ULBs towards urban development, including Municipal Corporation of Greater Mumbai, Gurugram Metropolitan Authority, Delhi Jal Board, and more. We helped implement GIS-based applications in these cities for tax collection, drainage and water supply, road networks, traffic and parking management, etc.

The utility sector is critical to the entire economy, where Esri India continues to play a pivotal role. Besides improving IT infrastructure for electricity management, we have worked on several gas distribution projects, using GIS for asset management across city-level networks and pipelines. Esri India is proud to have had strong relations with two of the largest private sector players in the Indian landscape – Jio and Airtel – using GIS to build new, robust applications for customer acquisition, customer satisfaction management, asset management, network management, and area mapping.

Water supply is a sector that where Geospatial technologies together with IoT have immense potential, be it for distribution of 24x7 clean water, water source availability analysis, water and pipe quality testing, water purification, leak checks, monitoring pressure to understand health of different pipeline components or more.

Apart from this, we have catered to numerous organizations in the water, forest, and land sectors for efficient natural resource management. Esri India's robust products have been at the forefront for providing authoritative data and maps that multiple government departments can use. Our collaborations with the Survey of India (SoI), National Thematic Mapping Organization (NATMO), Ministry of Statistics and Programme Implementation (MoSPI), National Informatics Centre (NIC), and National Remote Sensing Centre (NRSC) towards fundamental mapping of the country are based on enriched and improved workflows.

**Small businesses are at the heart of the economic development of India today, employing around 40% of India's total workforce. Uncertainties around business planning is one of the major fallbacks to their growth. How can Geospatial technologies pave the way?**

GIS offers more than just visualization; it is one of the most powerful business analytics tools at hand. Each organization, big or small, has lots of data that they work with. Interestingly, around 80% of this data has a location component attached to it, including data on vendors, components of the distribution network, dealers, bank branch locations, ATM locations, and so on.

Location data combined with other types of information – demographic, organizational, market, etc – can lead to more efficient business decisions and effective monitoring the impact of these decisions over a period. GIS-based workflow management can help streamline actions taken by different departments within an organization, allowing all business functions to be monitored from a single virtual platform.

Other traditional examples of small businesses benefitting from GIS include mapping and monitoring different stores/branches, supervising logistics, route planning, payments, distribution, etc. GIS is also being used by several organizations for risk management, thanks to its potential for predictive analytics.

**India's national development agenda is centered around the principle of inclusive growth for the 'whole of society'. And yet,**

**carrying out targeted actions to improve ease of living through universalized access to nutrition, health and education is no easy task. What role do Geospatial information and technologies play for such a vision?**

Nutrition, health, and education are, undoubtedly, three of the most instrumental areas for national development, where there is tremendous scope of work and improvement in the country.

Starting with health, the importance of GIS has best been realized in the recent couple of years during the global pandemic. GIS-based space maps and dashboards are being used extensively by national, state, and local governments to understand the spread of COVID-19, determining quarantine zones, delineating red, amber, and green areas, and analysing the impact of such decisions in the short and long terms. Hospitals have started using GIS and other technologies as analytics tools to assess the distribution of health facilities and assets at the city or state level, so that they can augment their services suitably.

Nutrition and health might seem interconnected, but the former requires very specific set of data, such as family income, availability of resources, allocation of support, and so on. The government has started using Geospatial technologies to understand specific needs from region to region, and judiciously allocating subsidies and targeted interventions, that can later also be tracked using GIS. The ground level data so assimilated can also be used to draw up region-specific pictures, culminating in more informed decision-making at the higher levels of government.

**NUTRITION, HEALTH, AND EDUCATION ARE, UNDOUBTEDLY, THREE OF THE MOST INSTRUMENTAL AREAS FOR NATIONAL DEVELOPMENT, WHERE THERE IS TREMENDOUS SCOPE OF WORK AND IMPROVEMENT IN THE COUNTRY.**

Education is another key focus area for us, and we have been working with several degree-granting universities and colleges in the country towards much-needed dissemination of Geospatial-related knowledge and research. The need for qualified manpower in the field is at an all-time high, which makes it important for institutes to include at least one dedicated GIS program tied to engineering, computer, or science courses.

**Q4: One of the biggest challenges to Geospatial adoption and implementation for problem-solving is the lack of well-researched, updated datasets usable for Indian geospatial applications. How is Esri India taking on this formidable challenge?**

Esri India has taken on this challenge very well, with a lot of advanced work has been done over the last 18 months. We started looking at various datasets, including non-spatial data from government departments and private sector, and consolidated what we call the Living Atlas.

The Living Atlas is a global framework, the Indian counterpart of which is hosted in the country on a public cloud and managed by the Esri India team. The Living Atlas has published over 500 layers over the last few months, starting from accurate international, national, and district-level boundaries to constituency delineations, population data, employment and income characteristics, land use patterns, forests, natural resource deposits, disaster patterns and damage, disease spread, health facilities, transport infrastructure and assets, SDGs, and more.

Further developments are in the pipeline, such as a population projection for 25 years, starting from 2011 to 2036, mapping the entire railway network in the country for future industrial development and logistics planning, including the part under construction, and ward and municipal boundary data for better ground management at the urban local body level.

Esri India is perhaps the only organization in the entire country offering such a wide mix of data layers freely accessible to all. This huge value offering is aimed entirely at offering well-researched, up-to-date datasets usable for Indian Geospatial applications, and we look forward to forging new partnerships with various government organizations for advancing this initiative.

# Geospatial Technologies Supporting Economic Development

**By Miriam Karthika Daniel,** VP and GM, Google Maps

In today's rapidly digitizing world, geospatial technology is fast becoming one of the defining forces for shaping global markets and developing practical plans to create prosperity and well-being. With Google Maps, we're committed to creating a rich, deep, and detailed understanding of the world. By digitizing and providing access to a wealth of information about the real world, we enable people to easily explore the world around them, provide tools for businesses to attract and connect with customers, power map and location experiences for third-party apps and websites, and enable NGOs and governments to leverage our map and resources as they continue to tackle real-world challenges.

Based on a comprehensive study Google collaborated on with AlphaBeta, the economic impact of geospatial technologies and services are realized across three broad dimensions.

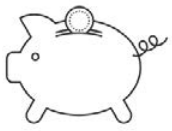
## Consumer benefits

Maps help people move around and find local businesses in a faster and more efficient way. For example, not only do digital maps reduce travel time, suggest alternate routes based on traffic & carbon emissions, and optimize for public transport, they also help people save time by making it easy to find and connect with local merchants. By helping people plan & track routes in areas they aren't familiar with, and checking live busyness at places, maps also help improve public safety.

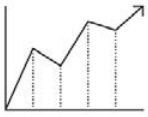
In India, Google Maps has mapped the length and breadth of the country (roads, localities, places, buildings, natural features) and made them easily accessible to people for free. It has amplified benefits by incorporating tailored, high-fidelity experiences like real-time traffic and public transport to the unique needs of Indian users. Features like two-wheeler mode, landmark-based navigation, offline mode, Maps in 9 Indian languages, real-time transit info, and more have been designed for India first, and have scaled the impact of geospatial technologies to hundreds of millions of Indian users, while simplifying their everyday challenges significantly.

## Business benefits

Maps help make small and large businesses more visible, productive and profitable. By providing useful facts such as location, store hours, contact information, photos and reviews, maps help drive sales — particularly important for small businesses that may find potential new customers without incurring additional advertising costs. Geospatial services also play a strategic role in helping companies in sectors covering approximately three quarters of the world's GDP raise revenues and/or diminish costs.



Digital maps have supported more than **$1 trillion** in sales for businesses.



Geospatial services help companies raise revenue and diminish costs by more than **5%**.

**Estimated business impact at a global scale based on the 2017 AlphaBeta study*

Today in India, more than 30 million small businesses have a digital presence through Google Maps for free — connecting with their customers, finding new users, listing their products/services and growing their operations. Every month, Google drives >700 million direct connections between merchants and consumers in India. Google Maps Platform API solutions have enabled hundreds of startups and Unicorns (eg. Licious, Dunzo, OYO Hotels) develop their products, optimize their business operations, and grow their revenue.

## Societal benefits

Finally, maps have massive positive spillover effects on the environment and societies around the world — for example, by creating jobs and reducing CO2 emissions through more efficient vehicle trips and easier identification of alternative transportation options. Geospatial technologies also play a significant role in emergencies and disaster response. Partnering with governments, NGO, and research organizations is a key enabler to maximize the benefits of geospatial services for the society at large.

When people have access to authoritative, relevant, and timely local information, it can drive impactful outcomes for society at large. In India, Google Maps is proud to have partnered with the government on a range of critical initiatives — i) driving social campaigns like Swachh Bharat Mission by mapping >57,000 public toilets in >2,300 cities, ii) amplifying covid-response efforts by surfacing food & night shelters, vaccine & testing centers, hospitals & beds availability, and containment zones, iii) aiding disaster response through initiatives like flood forecasting helping protect >200 million people across the country, iv) partnering with traffic authorities for real-time road closures and restrictions.

In addition, Google has made various geospatial data and tools publicly available to help solve India's most pressing problems — i) Google Earth Engine has enabled publication of 30+ scientific papers on nation-wide topics such as tiger habitat preservation, rivers and waterbody monitoring, forest cover mapping ii) Google Earth Engine Apps have helped startups and research organizations build operational GIS dashboards to inform water and nature conservation efforts on the ground, iii) Google Earth has facilitated livelihood research on sustainable living for indigenous communities and has helped consumers visualize impact of climate change on our surroundings.

Geospatial technologies are expected to unlock opportunities across multiple sectors including agriculture, healthcare, finance, logistics, transportation, and technology, and will be a critical enabler to realizing the country's vision of a $5 trillion economy. And Google is continually looking for ways to add value — for our users, for local businesses, for our partners across industries, and local authorities. We want to push the boundaries of people's perceptions of what a map can do for them, the tasks we can help with, and drive the next generation of geospatial innovations in India, spurring new technologies & industries.

# Economic Impact of Geospatial Technologies

## By Esri India

Data and insights are critical to informed decisions, which directly encourage economic growth. With the infusion of location intelligence across sectors, this growth is showing a steady increase. Geospatial technologies are bringing in higher efficiency in planning, monitoring and analysis, stakeholder collaboration, operational readiness, asset management, and customer services in the central, state, and district administrations, public and private industries, NGOs, non-profits, and academia.

### GIS – An enabler of economic growth

Agriculture is a significant sector of the Indian economy, but faces numerous challenges such as climatic uncertainties, unsustainable livelihoods, huge gap between water demand and supply, etc. Geospatial technologies, through intuitive mapping and analytics, can aid in revealing deeper insights into relationships and patterns, answering complex questions, and supporting informed decisions for fostering sustainable agriculture.

Advanced GIS capabilities like spatial modelling and predictive analysis using AI, ML & analytics provide enhanced location intelligence for an accurate forecast of likely scenarios to mitigate, plan and respond. With high levels of proliferation of the internet in rural India, mobile GIS tools are playing a vital role in democratizing geo-information and empowering farmers with small holdings with real-time information for informed decisions and risk mitigation.

Besides, such implementation of GIS-based solutions is leading to both huge savings in cost and time and higher customer satisfaction. For instance, insurance companies can acquire location-based insights for understanding and controlling risks, claim management, etc. Businesses can identify the best locations for growth based on insights on attraction, retention, and expansion. GIS is helping businesses identify the needs of communities, evaluate and visualize site selection, generate market value for sustainable growth, and reduce recruiting costs by streamlining workflows through a data- and location-driven approach. As businesses perform better, the economy develops.

Additionally, the use of GIS in infrastructure, utilities, water sustainability, transportation and logistics, citizen services, governance, forestry, environment management also contributes to the overall economic growth. For instance, better network monitoring, improved decision making, reducing distribution losses (up to 40%), improved efficiency and mobile workforce management (up to 30%), and reduced network downtime are some of the major benefits of using GIS for utilities. This clubbed with the economic value offered by geospatial technologies in supporting economic and social activities makes a significant impact on the overall economy.

### Government-led change

The government has been one of the early adopters of geospatial technology in India. GIS lies at the core of major mission mode programs like Digital India, Smart Cities, Clean Ganga Mission, Jal Jeevan Mission, SVAMITVA, e-governance initiatives, sustainable goals, and policy decisions. Today, Smart Governance has become an imperative at all levels of citizen-government engagement, whether it is a state, district, or an urban local body. GIS is a strong enabler of smart governance. Geo-hubs help administrators to bring all their data together and effectively engage with all stakeholders, like other government bodies, citizens, NGOs, etc. Actionable insights from these platforms aid in smart property tax management, efficient distribution of subsidy or other assistance, handling public grievances, bringing out improvements in health and educational infrastructure, traffic management, safety and security related issues, better management of city infrastructure and more. GIS is also used extensively by government agencies to map and analyse various environmental changes like rising sea levels, forest cover, changing habitats, etc.

### Sustainable Growth

Clearly, the Indian economy is on a growth trajectory with geospatial technologies as a facilitator with sustainable growth as it's the ultimate objective. Geospatial data plays a vital role in this realm; for instance, GIS helps organizations in getting a better understanding of their carbon footprint. Esri India's GIS solutions facilitate analysis of demographic shifts, employment growth, at-risk populations, trade areas, etc, for well-balanced long-term planning.

Interestingly, as geospatial continues to boost India's economic growth, the demand for a skilled workforce is also increasing. Consequently, new employment opportunities in geo-data acquisition and processing, hardware and software sales and support, software development, and maintenance emerge. This increased geospatial workforce demand, which is expected to touch 10 lakh (1 million) by 2025 fosters further economic growth. In parallel, as more and more institutions start making GIS an inherent part of their academic curriculums, India becomes a more geospatially aware economy.

# Impact of Geospatial Technologies on Major Economic Sectors of India

## By Sakshi Singh

Economic development, no matter where or at what scale, relies on effective decision-making that stems from comprehensive analysis of various types of data. Geospatial technology is a key enabler, deriving orderly data out of chaotic information, and working on such data to provide accurate analysis, modeling and predictions. On these lines, India's ambitious vision of becoming a $5 trillion economy by 2024 hinges on the pivot of modern Geospatial technology.

India has been witnessing a steady digital transformation across all economic spheres over the past few years, and this has opened more avenues for advanced technologies and tools, their rapid adoption and implementation. The impact of Geospatial technologies on Indian economic growth is now more pronounced than ever, reflected in every major sector.

### Agriculture and Fisheries

Uniformity and productivity in land records management, effective monitoring of crop lifecycle and health, precision agriculture, pest monitoring and management, disaster management and control, and supply chain monitoring are some agricultural use cases where Geospatial technology are used extensively today. Fisheries management and resource sustainability also relies on Geospatial data for defining habitats, migratory patterns and fishing zone availability, and water resource conservation.

Take for example the **Indian Farmers Fertiliser Cooperative Limited's (IFFCO) partnership with Amazon Web Services (AWS)**, under which countrywide digital transformation for the farming community was rolled out in 2017, including the launch of a dedicated digital platform where farmers could purchase Agri-products and have them delivered to their doorstep, just like other eCommerce services.

**THE GEOLOGICAL SURVEY OF INDIA DEPLOYS GEOSPATIAL TOOLS FOR SYSTEMATIC MINERAL EXPLORATION AND RESOURCE ASSESSMENT OF VARIOUS MINERAL COMMODITIES IN THE COUNTRY.**

### Mining

The **Geological Survey of India** deploys Geospatial tools for systematic mineral exploration and resource assessment of various mineral commodities in the country. The ability of GIS to perform spatial searches and query spatially referenced data is being leveraged to search for deep-seated/ concealed mineral deposits under the flagship programme UNCOVER.

The mining industry's commitment on enhancing worker safety, productivity, and total operating costs is also paving the way for improved Geospatial capabilities in ground operations, such as creation of real-time alerts within specified locations with Geo-fencing. Entire workflows are being automated and optimized using GIS to ensure productivity and speed, besides predicting future requirements.

### Manufacturing

Geospatial technologies assist the complete spectrum of manufacturing processes through smart maps, spatial analytics, real-time tracking and situational awareness. Entire supply chains can be visualized and tracked, from start to finish, on a single platform. Combined with AI/ML and IoT, Geospatial technologies are removing function and data silos, enabling predictive maintenance,

Company strategists and managers can leverage spatial analytics to determine potential high-performing markets, demographic patterns, supporting infrastructure, and logistics feasibility for setting up industrial bases.

### Infrastructure – Electricity, Gas, Water, Telecoms, Transport

GeoBIM, supported by 3D laser scanning, terrestrial photogrammetry, drone surveys, Augmented Reality (AR), and the Internet of Things (IoT), is assisting in contextualising infrastructure projects to real-world settings, enhancing accuracies, and eliminating discrepancies and misses. Infrastructure planners, providers, and distributors are using Geospatial data for need assessment, competitor analysis, and route optimization in initial stages, followed up with precise monitoring, identification and resolution of conflicts.

**MapmyIndia's eLoc** is a six-character alphanumeric digital address that makes it easier to identify complex addresses while providing an opportunity to link them to other information, including information on utilities like electricity, water and gas. The eLoc address can also be linked with other digital identification systems such as Aadhar, Voter ID, PDS cards, utility services registrations, etc., to streamline local governance.

## Construction

With the help of Building Information Modeling (BIM), the Architecture, Engineering and Construction (AEC) industry is rapidly moving beyond poor visualization, tedious calculations and low productivity to greater efficiency, organization, and advancement. Geospatial technology is suitably complementing BIM with assured data accuracy, scalability, and much-needed contextualization.

**ORGANIZATIONS ACROSS INDUSTRIES CAN SEGMENT CLIENTS AND USERS BASED ON THEIR LOCATION TO CREATE MORE EFFECTIVE MARKETING AND SALES STRATEGIES.**

Take **Trimble's Connected Construction Solutions,** for instance, enabling all stakeholders – surveyors, designers, visualizers, engineers, contractors, and workers – and components – measurements, data, equipment, and jobsite – involved in the construction workflow at every stage of construction.

## Business Intelligence

Organizations across industries can segment clients and users based on their location to create more effective marketing and sales strategies. Targeted online campaigns can be generated for reliable customer support, as well as for smoothening application, financing, and delivery procedures

## Governance and Public Services

Geospatial data is critical for numerous e-government applications like as property registration, utility management, and the construction of smart cities. Smart cities are being viewed by governments around the world as a sustainable solution to administrative, environmental, and economical challenges. Such a setup requires

intelligent and automated infrastructure on the pillars of robust data collection, analysis and modeling, and this is something Geospatial technology provides.

**Esri India's City-Wide Enterprise GIS platform for Varanasi Smart City** took cognizance of the city's chaotic urban development and critical public service infrastructure requirements to create a comprehensive solution. The ArcGIS platform includes an Integrated Command Control Centre (ICCC) for managing city transportation, security, and emergency response, an optimized Solid Waste Management System, and a real-time Environmental Monitoring System, among other components.

As part of Bharat Maps, the National Informatics Centre created a national image web service of natural colour products and imagery using **Hexagon's state-of-the-art ERDAS IMAGINE software** which is published as an OGC-compliant map service to Bharat Maps. Bharat Maps has resulted in several benefits for government departments, including resource optimization, workflow improvement, cost/time saving, etc.

## Education

In education planning and management, Geospatial data provides administrators with a way to visualise and manage everything from campus safety to mapping campus buildings, cable, and other infrastructure, routing school buses, planning school establishment, functioning and expansion, and strategizing recruitment efforts. In terms of teaching, it encourages students to think critically, use real facts, and connect with their peers.

## Healthcare

Healthcare organisations can leverage maps for plotting areas with high concentrations of patients or high health hazard indicators for rendering services. Hospitals, clinics, pharmacies, and primary healthcare units can be charted to offer routing guidance. The importance of Geospatial technology has emerged even greater in the wake of the

**GEOSPATIAL HAS TRULY EMERGED AS AN ECONOMIC DRIVER THROUGHOUT PUBLIC AND PRIVATE SECTORS, AND ITS USE CASES HAVE ELABORATED FAR BEYOND THE MENTIONED SEGMENTS.**

COVID-19 pandemic, where it was used to detect the spread of the outbreak through contact tracing, determining hotspots and demarcating high-risk locations so that help can be immediately disbursed where it is needed the most.

**Maxar Technologies' Open Data Program** released a comprehensive set of high-resolution satellite imagery in support of the COVID-19 response efforts. **Google partnered with the Ministry of Health and Family Welfare, Government of India** to provide helpful information about vaccine availability and appointments, powered by real-time data from the CoWIN API.

## Conclusion

With tremendous potential for enhancing productivity, cost and time savings, and resilience across economic sectors, the relevance and adoption of Geospatial technology is growing at a steady pace in India today. Geospatial has truly emerged as an economic driver throughout public and private sectors, and its use cases have elaborated far beyond the above-mentioned segments.

And yet, many organizations continue to use Geospatial technology as visualization tools alone, let alone in development, management and monitoring stages. Lack of awareness of the potential and expanding importance of this spectrum of technology is to blame. The need of the hour is for all levels of government as well as commercial groups to step forth, devise policy revisions, expert alliances, on-the-ground trainings and legislative/business incentives to promote Geospatial technology further.

# AGI India Members Showcase

## PATRON

### AllTerra India

www.allterra.co.in

AllTerra is Trimble's globally trademarked brand for distribution partners delivering Trimble's world-leading technology to surveyors and geospatial professionals. With a cumulative experience of 350+ years, Team AllTerra is committed to offer transformative solutions to customers, providing thought leadership and consulting in an evolving market. We are known for providing advanced geospatial technologies for SOI, High Speed Rail Projects, Metro Projects, Airport Expansion projects, Defence applications, Seismic exploration, Highways, Mining, etc. AllTerra India is a well-known name in the Indian market for 3D Technologies, offering state-of-the-art Trimble Scanning Total Stations & advanced Trimble 3D Scanners for various applications, besides spearheading the Trimble Tekla BIM solution initiative.

**Pradeep Rathor**, Managing Director & CEO
pradeep.rathor@allterra.co.in

### Google

https://about.google/

Google's mission is to organize the world's information and make it universally accessible and useful. Through products and platforms like Search, Maps, Gmail, Android, Google Play, Chrome and YouTube, Google plays a meaningful role in the daily lives of billions of people and has become one of the most widely known companies in the world. Google is a subsidiary of Alphabet Inc.

**Aman Jain,** Head –
Government Affairs and Public Policy

### Amazon Web Services

www.aws.amazon.com

For 15 years, Amazon Web Services (AWS) has been helping commercial and government customers build satellites, conduct space and launch operations, and reimagine space exploration. Our broadly adopted cloud platform comes with reliable global infrastructure and unmatched portfolio of services, equipping organizations in the private and public sector to process and transform space collections into actionable and accessible data. Today, our customers are accelerating space missions and removing barriers to innovation on Earth with the AWS Cloud. We now have more than 200 fully featured services across 25 geographic regions, with announced plans for five more AWS regions, including India.

**Sanjiv Jha**, Principal (Smart Infra), India & SA
sanjij@amazon.com

### Genesys International

www.igenesys.com/

Genesys is a Pioneer in providing advanced Mapping, Surveying and Geospatial Services for last 25 years. With 2000+ skilled-professionals, Genesys has worked on some of the world's most innovative and challenging projects for governments and enterprises. Our expertise ranges from LiDAR and Aerial-Imagery acquisition to 2D/3D mapping across various industries including Urban, Telecom, Agriculture, Navigation, Infrastructure etc. We have India's largest 360-degree panoramic immersive imagery platform covering all major cities and towns with corresponding countrywide fully navigable map and the largest road network captured. Now, we have launched Genesys '3D Urban Spatial Digital-Twin' Program for top 100 cities of India.

**Dr. Aniruddha Roy**, Chief Technology Officer
ani.roy@igenesys.com

### Esri India

www.esri.in/en-in/home

Esri India is an end-to-end Geographic Information Systems (GIS) solutions provider. As a market leader, it has successfully delivered cutting-edge GIS solutions, to more than 5000 customers in Land management, Utilities, Water, Infrastructure, Disaster Management, Telecommunications, Urban Development, Smart Cities, Forestry, Natural Resources Management and more. It's latest offering - Indo ArcGIS is ready-to-use GIS solutions and data products specially engineered for Indian customers. 500+ India data sets are offered free of cost as part of Indo ArcGIS offering. Company has a strong and growing base of 4.5 lakh users in India. Company has been recognized as a by Great Place to Work® Certified 2021 and 2022.

**Vishal Anand**, Senior VP and Head of Sales & Partner Business, vishal.anand@esri.in

### Hexagon India

www.hexagongeospatial.com/

Hexagon is a global leader in digital reality solutions, combining sensor, software, and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality, and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future. Hexagon has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at hexagon.com and follow us @HexagonAB.

**Manoj Sharma**, Director – Marketing & Sales Excellence
manoj.sharma@hexagon.com

# AGI India Members Showcase

## MapmyIndia

www.mapmyindia.com

C.E. Info Systems Ltd (NSE: MAPMYINDIA; BSE: 543425) is India's leading digital mapping, geospatial software and location-based IoT deep-tech company, offering proprietary digital maps as a service ("MaaS"), software as a service ("SaaS") and platform as a service ("PaaS"). The company provides its digital maps, software products, platforms, application programming interfaces ("APIs"), IoT and solutions to new-age tech companies, large businesses, automotive

OEMs, government organisations, developers, and consumers, in the Indian market under the MapmyIndia brand, and in the global market under the Mappls brand. The company has served more than 2000 enterprise customers since its inception.

**Rohan Verma,** CEO and Executive Director
rohan@mapmyindia.com

## Maxar Technologies

www.maxar.com/

Maxar is a provider of comprehensive space solutions and secure, precise, geospatial intelligence. We deliver disruptive value to government and commercial customers to help them monitor, understand, and navigate our changing planet; deliver global broadband communications; and explore and advance the use of space. Our unique approach combines decades of deep mission understanding and a proven commercial and defence foundation to deploy solutions and deliver insights with unrivalled speed, scale, and cost-effectiveness. Maxar's 4,400 team members in over 20 global locations are inspired to harness the potential of space to help our customers create a better world.

**Sai Arul**, Senior Director – Sales, SAARC
sai.arul@maxar.com

## Trimble

www.trimble.com/en

Trimble is an industrial technology company, focused on helping the world work, better. Since 1978, Trimble's technology solutions have been helping customers reach new levels of success by connecting information, positioning and communication. With our solutions at work in 150+ countries, Trimble offers high-quality, productive workflows and information exchange, driving value for our customer base of surveyors, engineering and GIS service companies, governments, utilities, and transportation authorities. Our technologies include integrated sensors, field applications, real-time communications and office software for processing, modelling, and data. We're pioneering the future of data intelligence, converging people, product, and place to help you make your mark.

**Amit Saxena**, Regional Sales Manager (Geospatial), India & SAARC
amit_saxena@trimble.com

## Oracle

www.oracle.com

Oracle is a cloud technology company that provides organizations with computing infrastructure and software to help them innovate and unlock inefficiencies. Oracle Cloud Infrastructure (OCI) powered Oracle Cloud regions in Mumbai and Hyderabad have cleared the audit and empanelment for MeitY certified cloud service providers. They provide organizations with state-of-the-art data store that can host spatial databases, with more than 100 inbuilt functions for easy development of applications. Governments and public sector entities can move their most challenging workloads to OCI, helping accelerate India's goal of becoming a 100 percent digitally empowered society and knowledge economy.

**Shailender Kumar**, Senior Vice President & Regional Managing Director
shailender.kumar@oracle.com

## CORPORATE TIER T3

## HERE Technologies

www.here.com/

With an experience of 35+ years, presence in 56 countries, and data powering 160 million+ vehicles globally, HERE is the world's leading location platform company. Our significant presence in India is marked with hi-tech products and solutions using digital map data, telematics services, location-based PaaS, and AI. Our Indian partners and customers include leading Automotive OEMs, businesses across telecom, logistics, FMCG, BFSI, industrials, supply chain & transportation, Central and State government organisations. HERE has been ranked the No. 1 Location Platform provider and one of the Top-25 Best Workplaces in India in IT & IT-BPM for two consecutive years 2020 & 2021.

**Sonam Sahni**, External Affairs Manager
sonam.sahni@here.com

## NeoGeoInfo Technologies

www.neogeoinfo.com

NeoGeoInfo, a technology oriented geospatial services organization, provides geographic insights to large government and corporate organizations that need geospatial intelligence to mitigate risk, plan for growth, better manage resources and advance scientific understanding. Our best-in-class end-to-end solutions and services offer acquisition, processing, analytics, and visualization in a range of technical and scientific disciplines – from Geology, Hydrology, Forestry, Power Transmission, Roads/ Utilities, Civil Engineering & Construction firms, Smart cities to the Military and major Government agencies (ULBs). We are a 15 years old Consultancy and Implementation Services Provider with the required proficiency and experience to deliver complex and big projects on data acquisition, data processing and data management solutions.

**GV Sreeramam**, Chief Executive Officer
sree@neogeoinfo.com

# AGI India Members Showcase

## Secon

www.secon.in

SECON Private Limited is an ISO 9001:2015, CMMI Level 3, ISO/IEC 27001:2013 and NABL ISO/IEC 17025:2017 accredited firm headquartered in Bangalore and present across India through its many offices. SECON is a Geospatial and Multidiscipline Engineering Consulting firm established in 1981 providing comprehensive and innovative solutions though its 600+ talented Civil Engineers, Urban Planners, Design Architects, and others in various domains of Water Resources, Highways & Infrastructure, cross country pipeline, water supply & Public health Engineering and geotechnical investigations.

**Deepak Awari**, Director – Strategy and Development
deepak.awari@secon.in

## TomTom

www.tomtom.com

At TomTom, we provide geolocation technology for drivers, carmakers, enterprises, and developers. Our highly accurate maps, navigation software, real-time traffic information and APIs enable smart mobility on a global scale, making roads safer, the drive easier and the air cleaner. Headquartered in Amsterdam with offices in 30 countries, TomTom is trusted by millions of drivers, businesses, and governments worldwide. Our customers include Microsoft, Uber, Verizon, Huawei, Daimler, and many more. One of our largest centres worldwide is in Pune, India. ML, AI, Cloud Computing and Big Data stacks are few of the technologies we use to build highly automated map-making processes and solve global mobility challenges.

**Ramesh Kajrolkar**, Director Maps - APAC,
Middle East & Africa
ramesh.kajrolkar@tomtom.com

## CORPORATE TIER T2

## Avineon

www.avineon.com

Avineon India Pvt. Ltd., a subsidiary of Avineon, Inc., specializes in engineering, geospatial, and IT services and products that optimize data visualization, usability, and effectiveness for government and commercial customers. We are an ISO 9001:2015 registered company with offices in Hyderabad, Kakinada, and Abu Dhabi. Avineon India's Information Security Management System (ISMS) reflects our commitment to global standards and superior service. We also recognize the importance of Health Safety and Environment (HSE) standards with ISO 14001:2004 and OHSAS 18001:2007 registrations. Incorporated in 1992, Avineon, Inc. maintains headquarters in McLean, Virginia with branch offices in Florida and Michigan.

**Raghu Ganeshan**, President
rganeshan@avineon.com

## Ceinsys Tech

www.ceinsys.com

Ceinsys Tech Ltd (formerly ADCC Infocad Limited) is a two-decade old, BSE Listed, fast emerging and evolving IT & ITES Company. Ceinsys is accredited with a distinctive CMMI Dev & SVC 2.0 Level 5 certification. The unique strength of the Company lies in its deep expertise and competences in enterprise level solutions and applications and providing cutting edge high end Geospatial, Engineering & IT technologies in the domains of Water, Electrical, Transportation, Land & Urban. Armed with highly energetic and passionate team of employees, the Company has a vast experience of implementing high volume turnkey solutions to its esteemed clients in Government, Infrastructure and Utilities, on a Pan India basis.

**Abhay Kimmatkar**, Managing Director
abhay.kimmatkar@ceinsys.com

## IIC Technologies

www.iictechnologies.com

IIC Technologies is a CMMI level 3 rated, ISO 27001, ISO 20000-1 and ISO 9001 accredited provider of geospatial solutions and services for the acquisition, management, integration, and dissemination of geospatial data. We provide end-to-end geospatial solutions to Aeronautics, Defense, Government, Infrastructure, Marine, Oil & Gas, Transportation and Utility sectors. The Innovation Centre based in IIIT Hyderabad, works in close collaboration with our multidisciplinary team to innovate, design, develop and deploy powerful software applications using both open-source and COTS platforms. The IIC Academy supports customers and industry in skill development and capacity building efforts of the governments from its premises in Hyderabad and Vishakapatnam.

**Ravi Dharmavarapu**, Vice President – Government
ravi.dharmavarapu@iictechnologies.com

## NVIDIA

https://nvidianews.nvidia.com/

NVIDIA's (NASDAQ: NVDA) invention of the GPU in 1999 sparked the growth of the PC gaming market and has redefined modern computer graphics, high performance computing and artificial intelligence. The company's pioneering work in accelerated computing and AI is reshaping trillion-dollar industries, such as transportation, healthcare, and manufacturing, and fueling the growth of many others.

**Vishal Dhupar**, Managing Director – South Asia
vdhupar@nvidia.com

# AGI India Members Showcase

## Planet

www.planet.com

Planet is the leading provider of global, daily satellite imagery and geospatial solutions. Planet is driven by a mission to image all of Earth's landmass every day, and make global change visible, accessible, and actionable. Planet provides mission-critical data, advanced insights, and software solutions to over 700 customers, comprising the world's leading agriculture, forestry, intelligence, education and finance companies and government agencies, enabling users to simply and effectively derive unique value from satellite imagery.

**Naveen Reddy**, Sales Head – South Asia
naveen.reddy@planet.com

## Pixel

www.pixelsoftek.in

PIXEL SOFTEK Pvt Ltd, a Geospatial Consulting and Services company headquartered in Bengaluru, provides services to international market through its subsidiary at Atlanta in the US. PIXEL is an ISO 9001-2015 and ISMS 27001:2013 Certified Company with nearly 400 professionals involved in delivering quality services in RS & GIS solutions for water resources, agriculture and infrastructure and broadband domains. With over two decades of experience in delivering reliable services to customers around the world, PIXEL's end-to-end solutions are tied with its vast domain knowledge and management experience. Our services include Geospatial Consulting and Web Applications, Interoperability and Data Migration, Mobile Application, Broadband (HFC and FTTH) Network Planning and Design, Agri. Solutions: Crop Monitoring and Water Management.

**Dr V R Hegde**
vrhegde@pixelsoftek.com

## ScanPoint Geomatics Ltd

www.sgligis.com

Scanpoint Geomatics Limited is a leader in the Indian Geomatics Industry. We pioneer the nation's geospatial domain through IGiS - an indigenous technology that brings GIS, Image Processing, Photogrammetry and CAD together on the same platform. SGL strives to provide end-to-end Geomatics Solution & Product development in partnership with ISRO Govt. of India. IGiS caters to a multitude of solutions across industries like Agriculture, Defence, Forestry, Disaster Management, Land Information, Mining, Power, Smart City, Urban Planning, Utilities, and Location-Based Services. With the vast number of possibilities and opportunities presented by the eld of Geomatics, our mission is to shape the future of a "GIS-enabled India".

**Vinod Mistry**, Vice President – Business Development
vinod.m@sgligis.com

## Tech Mahindra

www.techmahindra.com

Tech Mahindra offers innovative and customer-centric digital experiences, enabling enterprises, associates, and the society to Rise. We are USD 5.1 billion organization with 145,000+ professionals across 90 countries helping 1191 global customers, including Fortune 500 companies. We are focused on leveraging next-generation technologies including 5G, Blockchain, Quantum Computing, Cybersecurity, Artificial Intelligence, and more, to enable end-to-end digital transformation for global customers. Tech Mahindra is the only Indian company in the world to receive the HRH The Prince of Wales' Terra Carta Seal for its commitment to creating a sustainable future. We are the fastest growing brand in 'brand strength' and amongst the top 7 IT brands globally.

**Saurabh Rai**, Global Head Analytics & Strategic Initiatives
Saurabh.Rai@TechMahindra.com

## CORPORATE TIER T1

## Bhugol GIS

www.bhugolgis.com

Bhugol GIS is a company founded at the Society for Innovation and Entrepreneurship (SINE) of Indian Institute of Technology, Bombay (IIT Bombay) and the first Indian designed Geographical Information System (GIS) tool. Bhugol GIS has constructed a comprehensive suite of products that have competency in developing IT-enabled solutions based on a Geographical Information System (GIS) platform using Cognitive Data Analysis Matrices and Complex Image Processing templates.

**Deepak Choksi**, Co-Founder & Chief Technical Officer
deepakchoksi@bhugolgis.com

## Excel Geomatics

www. excelgeomatics.com

Excel Geomatics Pvt Ltd (EGPL) is a CMMI Lev3, ISO 9001:2015, ISO 27001:2013 certified Consultancy Company specialized in the exploitation of Earth Observation data and delivering GIS solutions to private and public organizations worldwide for Monitoring, Planning & Analytics of the network as well as business. EGPL provides Data Services, Modelling Services and Software Solutions for various sectors requiring advanced levels of image processing techniques and domain expertise, through Remote Sensing, LiDAR, Photogrammetry, GIS, and Survey (Ground and Airborne), re-selling of Satellite Images, Demographic data, Administrative and Pin Code Boundaries, Drone based analysis and Data Processing Software, Camera & Sensors.

**Rajesh Paul**, Founder & CEO
rajesh.paul@excelgeomatics.com

# AGI India Members Showcase

## Geospatial World

www.geospatialworld.net

Following its mission of "Making a Difference through Geospatial Knowledge in the World Economy and Society", Geospatial World is an open, diverse, inclusive, collaborative and humane organization that has pursued thought leadership, policy advocacy, technology evangelism for the past over 25 years. An integral part of the ecosystem, Geospatial World has been instrumental in strengthening geospatial ecosystems at business, national, regional and global levels and will continue to work as a knowledge organization, advancing knowledge for sustainability.

**Abhishek Kotangale**, Director, India Subcontinent
abhishek@geospatialword.net

## Micronet Solutions

www.micronetsolutions.in

Micronet Solutions operational since 1999. It was founded by a team of experts with domain and technical expertise. Micronet Solutions is the authorized Distributor of Airbus Defence and Space - France for their Intelligence portfolio in India. Over the last 23 years of service, we have extended our expertise and support to the special forces, paramilitary, defence forces, and military operations as well. Our specialty lies in providing world-class, end-to-end geospatial solutions.

**Dheeraj Mehra**, Founder & CEO
dheeraj.mehra@micronetsolutions.in

## Marvel Geospatial Solutions

www.marvelgeospatial.com

MARVEL GEOSPATIAL SOLUTIONS Pvt. Ltd. (MGSPL) is an ISO 9001:2015 certified Company, a business endeavor offering innovative, value-added Engineering & Spatial Technology Solutions to our customers globally. We cater to markets across borders through focused, innovative, efficient, quality products and services in all areas of spatial technology and applications. Incorporated in 2008, MARVEL GEOSPATIAL SOLUTIONS is headquartered at Hyderabad, India, with offices in US and UAE addressing the needs of local urban bodies, businesses, and Government bodies around the globe. Marvel brings horizontal and vertical integration of Satellite/Aerial Remote Sensing, Positioning Applications, Photogrammetry, GIS Databases and Applications, GIS Web-services and Networking of GIS Databases."

**Boyapally Raghavendra Goud**,
Founder & Managing Director
raghu@marvelgeospatial.com

## Roter Group of Companies

www.apiroter.com

Roter Group of Companies focuses on providing unique surveying, mapping, and surveillance solutions by integrating world-class technology with unparalleled hardware and software applications, backed with an efficient service network. Our portfolio includes drones for large scale mapping and surveillance, 3D Laser scanners and Ground Penetrating Radars for underground, above the ground and on the ground survey applications, includes sites which are sensitive in natures such as petrochemical, mines, and more. The company is the largest supplier of surveying drones to Government of India and is also recognised as 'India's Best Drone Company' by Ministry of Civil Aviation, AAI & FICCI.

**Kushagra Agarwal**, Senior Vice President
kushagra@apiroter.com

## ML Infomap

www.mlinfomap.com

ML Infomap is an Indian company with thirty years history of supplying reliable digital map data and developing GIS solutions on mobile, client-server and cloud platforms. Applying the integrative power of GIS, AI:ML, database and EO technologies, our solutions lead to direct economic benefit of the customer by automating repeat processes, reducing time and cost of the final delivery, improving controls, and supporting rapid scaling up. We have enhanced planning capabilities for the health and human resources sector by using GIS to identify and isolate populations and geographies for focussed delivery of services. The company has successfully enabled real time enterprise operations in the transportation domain. It also develops specific software for the defence and research verticals.

**Dr Atul Kapoor**, General Manager, atul@mlinfomap.com.

## Satpalda

www.satpalda.com

SATPALDA is an ISO certified organization with 20 years of rich experience and expertise in the Geospatial as well as IT / Engineering Services and a certified provider of various remote sensing solutions. The company has a team of experts with experience in mapping, photogrammetry, planimetry and IT development services and has successfully executed many projects globally. Some of our core services include Satellite imagery, 3D landscapes (DSM/DTM), Aerodrome Mapping Database (AMDB), Image processing, WebGIS and Photogrammetry. Our industry-based solutions include Forestry and Agriculture, Oil and Gas, Aviation, Mining, Telecom, Environment, Infrastructure, Disaster Management, Waste Management and GIS based Spatial Decision Support System (SDSS).

**Amit Seymour**, Director
amit.seymour@satpalda.com

# AGI India Members Showcase

## GSL Associates

www.gslgeo.com

GSL Associates Private Limited ("GSL") is a leading geospatial solutions provider in India, delivering high quality solutions through its in-house team of geospatial experts and strategic corporate partnerships in Australia, Israel and Europe. GSL is a market leader in India in aerial orthro, oblique, 3D Mapping and LiDAR, enabling infrastructure asset owners to identify risks and mitigate the effects in a timely fashion.

**Prashant Jain**, CEO & Founding Director
prashant@gslgeo.com


## Startup

## Drogo Drones

www.drogodrones.com

Drogo Drones is an end-to-end Drone Data Service Provider focused on commercial applications of UAVs. Surveying for any industry is highly skill dependent, and we at Drogo Drones eliminate human errors and adopt cutting-edge technology to deliver highly accurate, easily readable reports for the entire decision tree. Drogo Drones was founded by a team of IIT Guwahati Alumni, passionate about solving persisting global problems. We converge young talent and experienced individuals from diverse fields to build comprehensive solutions for a world that goes beyond better roads, smarter agriculture, and safer mines.

**Prem Kumar Vislawath**, Chief Operations Officer
prem@drogodrones.com

## DronaMaps

www.dronamaps.com

Maps make places on the edges of imagination graspable and placable. As drones become a popular tool for inexpensive data collection, there is a greater need for solutions like DronaMaps that can digest this data and create useful information from them. DronaMaps empower decision makers with robust insights using a combination of legacy geospatial approaches made more effective with deep learning. Our comprehensive solutions make mapping scalable, accurate, and accessible.

**Ayushi Mishra**, COO & Co-Founder
amishra@dronamaps.com

## GalaxEye

www.galaxeye.space

by providing the Most Meaningful Dataset from Space. Founded in 2020, the venture spun out of Team Avishkar Hyperloop, IIT Madras, and is now building an advanced constellation of Earth Observation Satellites. These satellites will be equipped with their unique "Drishti Sensor", providing all-weather high-resolution imagery, thus enabling businesses and governments to make efficient and data-driven decisions based on insights from satellite imagery.

**Pranit Mehta**, Founding Member & VP, Business Development, pranit@galaxeye.space

## Garudalytics

www.garudalytics.in

Garudalytics, a Telangana-based bootstrapped Geospatial-AI start-up, specializes in extracting insights from location data to solve spatial problems with location intelligence. With over 23 years of combined experience, we offer exclusive solutions based on geospatial science, artificial intelligence, IOT, and blockchain. We offer application development, cloud services, consultancy services, training, and staffing creation & utilization of AI/ML models High resolution satellite/drone images and videos to build functionalities like Image classification, Object Detection and Feature Extraction, & Pattern Recognition. Garudalytics has bagged 10+ projects, signed 3 MoU's and selected for 2nd Cohort of Telangana AI Mission.

**Dr V S S Kiran**, Director
vssk@garudalytics.com

## Prakhoj

www.prakhoj.com

Prakhoj Pvt Ltd. is a three-year-old company with the aim of developing application-based products and solutions for the industry partners and other organisations. Under their two verticals of biotechnology and Geoinformatics, they undertake contract R&D projects along with consultation projects to integrate well researched, applicable solutions for their clients. Under the Prakhoj – GIS vertical, they undertake services ranging from data processing and extraction, modeling and building of web applications to help the clients optimize and understand their processes better with the help of new emerging GIS technology.

**Rakhi Ojha**, Founder
rakhi.ojha@prakhoj.com

**To become a member of AGI India Contact: megha.datta@agiindia.com**

# IGLS 2022 Programme Schedule

| Monday, 25 April 2022 | |
|---|---|
| 0900 - 1000 hrs | Registration & Welcome Tea |
| **1000 - 1100 hrs** | **Inaugural Session** |
| 1000 - 1010 hrs | Welcome Address by Agendra Kumar, President, AGI |
| 1010 - 1020 hrs | Address by Lt Gen Girish Kumar, Former Surveyor General of India |
| 1020 - 1030 hrs | Address by Anoop Singh, IFS, Director General, FSI* |
| 1030 - 1040 hrs | Address by Hukum Singh Meena, Additional Secretary, DoLR |
| 1040 - 1055 hrs | Industry Address by Anal Ghosh, Senior Program Manager, Google India |
| 1055 - 1100 hrs | Vote of Thanks by Sakshi Singh, Manager, AGI |
| 1100 - 1130 hrs | Networking Coffee Break |
| **1130 - 1215 hrs** | **Session 1: Geospatial Technologies Supporting National Programmes** |
| 1130 - 1145 hrs | Rahul Kapoor, Director - Smart Cities Mission, MoHUA |
| 1145 - 1200 hrs | D N Pathak, Director, Survey (Air) & Delhi Geo-spatial Data Centre, Survey of India |
| 1200 - 1215 hrs | Vishal Anand, Senior Vice President, Sales, Esri India |
| **1215 - 1300 hrs** | **Panel Discussion on Geospatial Policies Impact and Future Roadmap** |
| | *Moderator*:: Sreeramam GV, Secretary General AGI & CEO NeoGeoInfo<br>• Pramod Kaushik, Managing Director, Hexagon India<br>• Rohit Kaushik, Head of Product Portfolio, HERE Technologies<br>• Sajid Malik, CMD, Genesys International<br>• Deven Laheru, President, Scanpoint Geomatics |
| 1300 - 1400 hrs | Lunch |
| **1400 - 1515 hrs** | **Session 2: Empowering State-Level Programmes with Geospatial Technologies** |
| 1400 - 1415 hrs | Akhilesh Srivastava, Advisor, IT, Government of Uttarakhand* |
| 1415 - 1430 hrs | Abhijit Agrawal, Project Director, MPSEDC |
| 1430 - 1445 hrs | Dr. Ashok K Joshi, Director, Maharashtra Remote Sensing Application Centre |
| 1445 - 1500 hrs | Upkar Pathak, Suptdg. Surveyor, Survey of India |
| 1500 - 1515 hrs | Vinaybabu Adimulam, National Head - Business Development, Hexagon |
| **1515 - 1615 hrs** | **Panel Discussion on Urban Data for Future of Cities** |
| | • M G Sarath Babu, Lead - Data and Technology, Climate Centre for Cities, NIUA<br>• Dr. Sultan Singh, Head GIS, Gurugram Metropolitan Development Authority<br>• Srinivasa Rajamani, Programme Director (SRU), Greater Visakhapatnam Municipal Corporation (GVMC)<br>• Shaily Gandhi, Program Chair Geomatics, CEPT University<br>• GV Sreeramam, CEO, NeoGeoinfo Technologies<br>• Deepti Dutt, Head Strategic Initiatives - Public Sector, AWS |
| 1615 - 1645 hrs | Networking Coffee Break |
| **1645 - 1730 hrs** | **Session 4: Leveraging Cloud and IT Infrastructure for Geospatial Implementation** |
| 1645 - 1700 hrs | Vishnu Chandra, Deputy Director General, NIC |
| 1700 - 1715 hrs | Dr. Manoj Khare, Senior Director and HOD, CDAC |
| 1715 - 1730 hrs | Sanjiv Chauhan, Senior Sales Director - Public Sector, Oracle |
| **1730 - 1815 hrs** | **Panel Discussion on Geospatial Data and Analytics for Infrastructure** |
| | *Moderator*: Megha Datta, Director - Market Development, AGI<br>• Anand Sirohi, Director, Trimble<br>• Nikhil Kumar, President - Geospatial, MapMyIndia<br>• Milan Dave, CEO, Bhugol GIS |
| 1815 - 1830 hrs | Presentation of AGI India Awards |
| 1830 - 2130 hrs | Cocktail Hour and Dinner Reception |

| Day 2 - Tuesday, 26 April 2022 | |
|---|---|
| 0900 - 1000 hrs | Registration & Welcome Tea |
| **1000 - 1145 hrs** | **Session 3: Harnessing the Power of Remote Sensing data for Economic Development** |
| 1000 - 1015 hrs | Dr. Prakash Chauhan, Director, NRSC |
| 1015 - 1030 hrs | Dr. Brijendra Pateriya, Director, Punjab State Remote Sensing Centre |
| 1030 - 1045 hrs | I.M. Bahuguna, Deputy Director, Earth, Ocean, Atmosphere, Planetary Sciences and Applications Area, Space Applications Centre |
| 1045 - 1100 hrs | Jaychandran Mani, Project Director, Karnataka State Remote Sensing Applications Centre |
| 1100 - 1115 hrs | Sai Arul, Head of Sales (SAARC and India), Maxar |
| 1115 - 1130 hrs | Networking Coffee Break |
| **1130 - 1300 hrs** | **Session 5: Addressing the Elephant in the Room: Strategies for Developing Geospatial Skillsets** |
| 1130 - 1145 hrs | Rajesh Mathur, Past President, AGI India and Advisor, Esri India |
| 1145 - 1200 hrs | Dr. D Dutta, Head - SEEDS, DST |
| 1200 - 1215 hrs | Dr Bharat Lohani, Professor, Dept of Civil Engineering, IIT Kanpur |
| 1215 - 1230 hrs | Prof. Dr. Shamita Kumar, Vice Principal, Institute of Environment Education and Research, Bharati Vidyapeeth University* |
| 1230 - 1245 hrs | Dr. Sumit Sen, Chief Executive, GISE Hub, IIT Mumbai |
| 1245 - 1300 hrs | Pankaj Mishra, Deputy Surveyor General, Survey of India |
| 1300 - 1315 hrs | **IGLS closing and Vote of Thanks**: Megha Datta, Director - Market Development, AGI |
| 1315 - 1415 hrs | Lunch |

*Online Address