

Think of Maps, and you will most likely think of Google! A host of home-grown firms are, however, trying hard to change that perception. MapmyIndia, Genesys International and RMSI — to name a few — are taking on Google, aided in part by robust guidelines that give Indian companies a definite edge.

The guidelines for acquiring and producing geospatial data services, including maps, was released by the Ministry of Science and Technology in February last year and have come as a boon for Indian companies that provide digital maps, geospatial software and location-based Internet of Things (IoT) technologies. These companies say their products offer more detailed maps and technologies than those offered by global tech giants such as Google. Publicly listed MapmyIndia recently launched earth observation, satellite data, geospatial analytics, and simplified mapping services for the public, in collaboration with the Indian Space Research Organisation (Isro).

It put its Real View maps and technology live on its Mappls.com portal for end-consumers and plans to launch more technology and metaverse-ready maps to the Mappls app for Android, iOS, and the web in future.

"We signed a MoU with Isro last year for an indigenous end-to-end mapping solution. We are unfurling the ongoing results of that partnership and releasing some valuable applications and use cases," chief executive Rohan Verma told ET. "The combined maps and technologies of MapmyIndia and Earth Observation Data of Isro allow us to do so."

Mappls is ahead of Google in terms of detailed maps and technologies in this domain, he said. Verma cited the example of how snowfall cover can be checked on any route, with its use case varying across sectors like agriculture, research etc.

The Mappls app has seen a few million downloads so far on Android (over one million on Google Play Store) and iOS. On the web, the number is far higher, Verma said.

It is, however, hard to break into this market, he pointed out. "It is rare for PhonePe, Paytm, Alexa, or Amazon to use somebody's maps or APIs anywhere in the world. The choices would come down to global tech giants like Google, or some very strong players. It is hard to break through this market,

POSITIVE POLICY PLAY

The norms on geospatial data services, including maps, were released in Feb last year and have come as a boon for Indian firms

but it is exciting to see people attempt it. This will push innovation, and consumers will benefit," he said.

MapmyIndia has about 2,000 large enterprise customers, including some marquee names such as Apple, Amazon, Flipkart, Maruti, Hyundai, BMW, McDonald's, and HDFC Bank. On the government side, the Goods and Services Tax Network, Central Board of Direct Taxes, and Isro are among its customers. The company has already created maps for more than 8,000 pin codes in urban areas, and 800,000 villages and rural habitations, covering 6.4 million road kilometres. On the app, one can check soil moisture, the air quality index, weather, temperature, rainfall, vegetation cover, solar potential and heat maps. These will help various types of users: commuters, farmers, businesses, and government organizations. One can even search down to the house-address level or village level. "The information and geospatial intelligence are overlaid, and when consumers navigate, it is not just the traffic congestion information that we give, we also provide road safety alerts like speed cameras, unsafe zones, or speed breakers ahead," Verma said.

In Real View, the satellite data from Isro has been combined with the road data that MapmyIndia has been collecting for hundreds of thousands of kilometres, providing a 360-degree street view. This feature is available in the United States, but foreign players are restricted from offering the same in India under the geospatial policy.

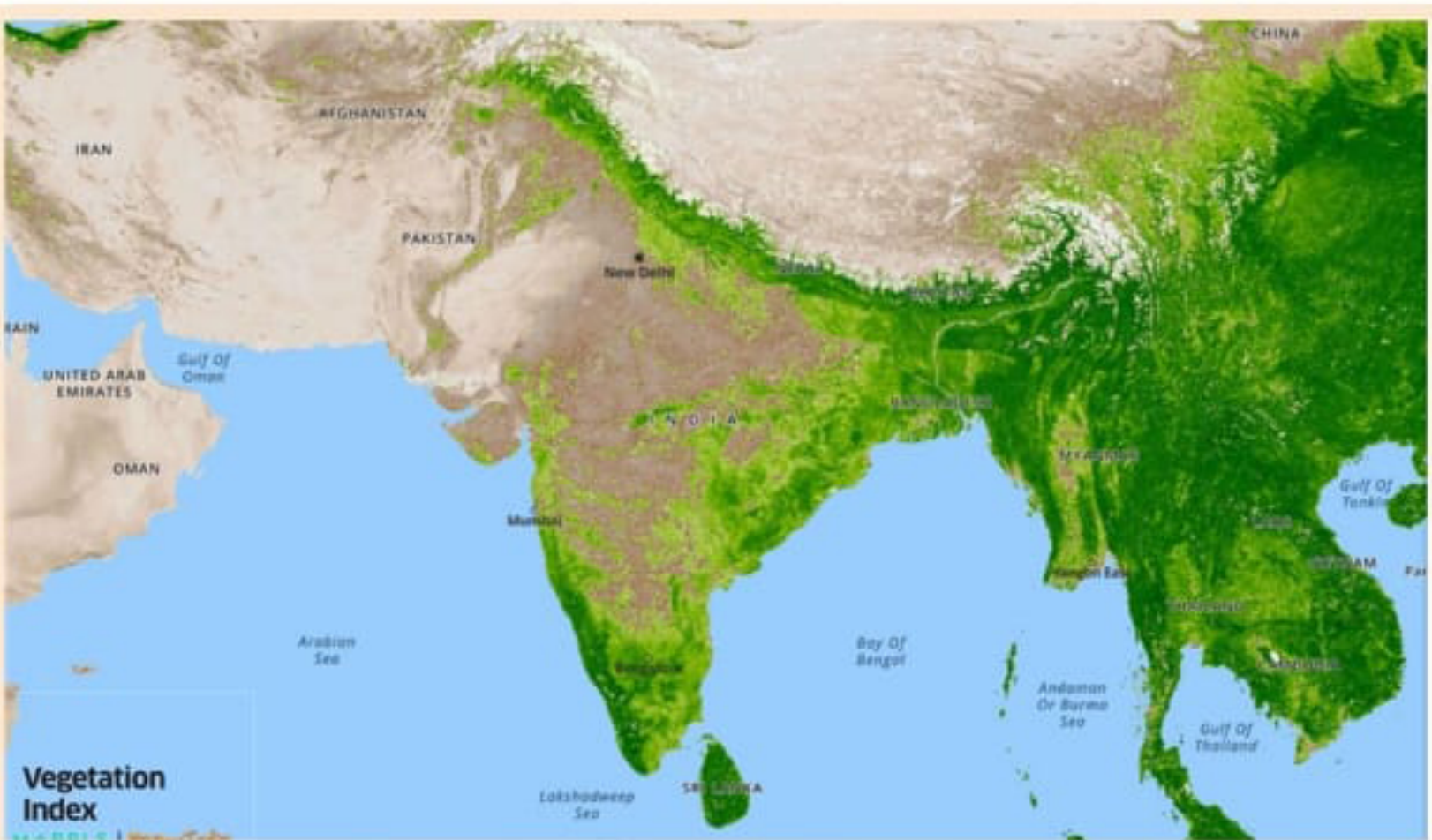
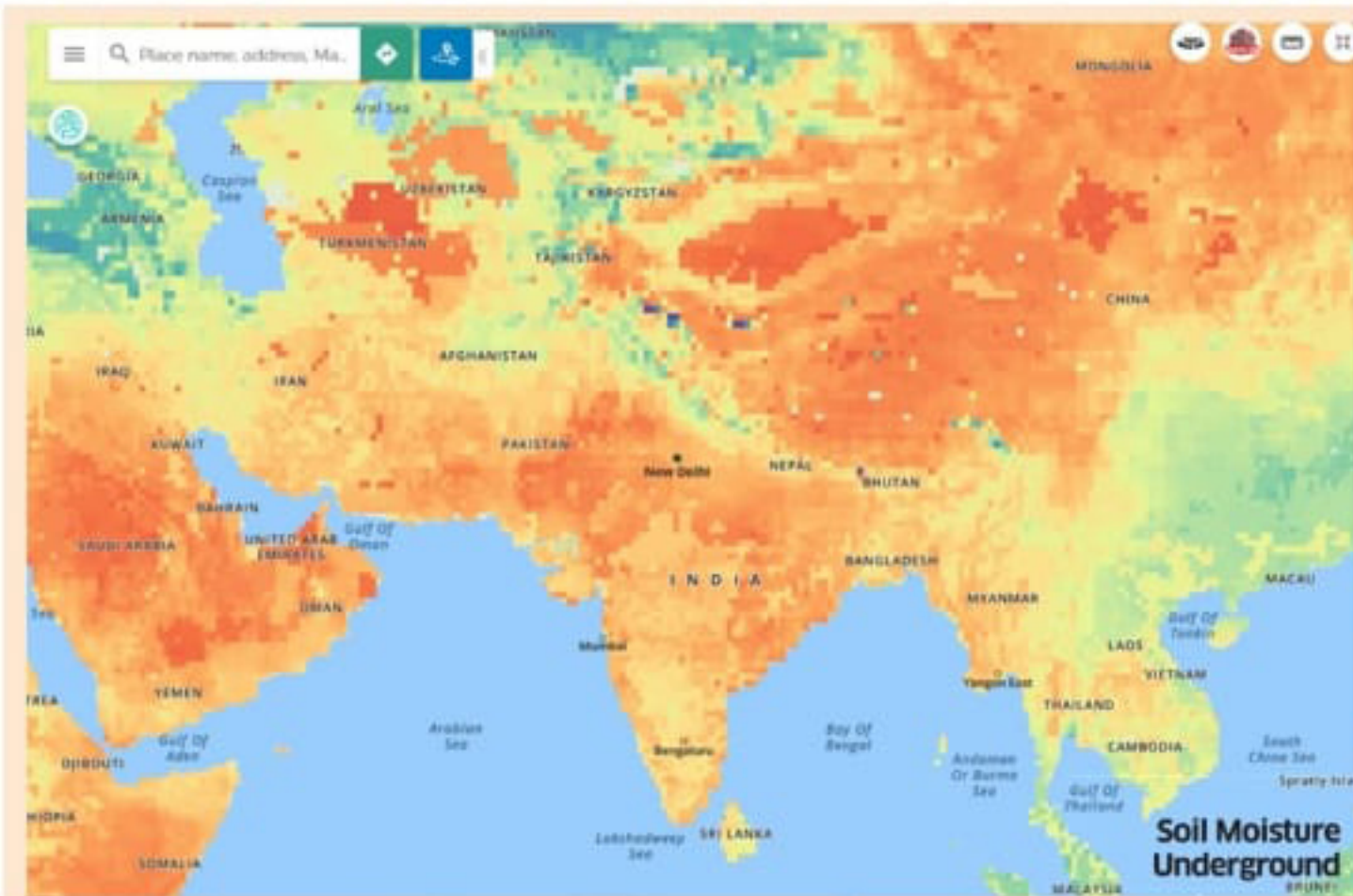
"India restricts foreign entities from doing ground survey and mapping. There are a lot of accuracy and depth reductions in maps produced by foreign players. They're also restricted from collecting, processing, publishing and hosting high accuracy/high-definition maps like 360-degree street view on their servers, whereas Indian entities are allowed to do so," Verma said.

POLICY CLARITY, SPEEDBUMPS

The new mapping policy promises to change the contours of the sector. It aims to open the field for public and private companies, ease regulations on making, storing and accessing geospatial data — previously the prerogative of a few government departments — and

A LOCAL ROADMAP

A bunch of home-grown companies are taking on global giants like Google with mapping solutions that they claim offer better features. **Suraksha P** explains how India's latest geospatial data policy is giving them an edge



3D Landmark: Laxmi Narayan Mandir



3D Landmark: Jantar Mantar

THE MARKET & SECTORS

- India's domestic geospatial market was valued at ₹14,050 crore in 2021 and is estimated to grow at a CAGR of 13.39% to ₹23,200 crore by 2025
- Sector-wise, the traditional sectors (including defence and intelligence, transport infrastructure, urban development and utilities) will account for maximum share of the geospatial market in India between 2021 and 2025
- Right now, up to 55% of the total market share is of defence and intelligence sector. Urban develop-

ment and transport infrastructure are future growth sectors for the geospatial market

- Non-traditional industries such as banking and finance, insurance, supply chain and logistics, are seeing nascent adoption of geospatial technologies -- primarily digital maps

- These non-traditional sectors form approximately 8% of the total domestic market

Source: Geospatial World Analysis

brings clarity on who can map what and up to which resolution. Finally, it gives a big push to domestic firms to steal a march on global giants. International companies that capture data about India through satellite-based operations can continue to do so, said Sanjay Kumar, CEO, Geospatial World, a knowledge organisation that advocates for technologies and organizations working in this sector. The advantage for Indian companies is that any geospatial data of spatial accuracy/value finer than the threshold value of one metre horizontally, and three metres vertically can be collected only by entities controlled by Indian citizens.

"This doesn't mean foreign companies cannot use that data. They can subscribe to that data through APIs (Application Programming Interfaces) from Indian companies. Through this policy, India intends to develop a robust geospatial data infrastructure for the country which is captured and managed by companies that are controlled by Indian citizens," Kumar told ET.

High-resolution geospatial data is not only an economic asset but also critical for maintaining security, internally and externally, he added. "India does not want that level of high-resolution data to be captured by companies that are not controlled by Indian citizens and wants to make sure that this data does not go beyond the cloud environment of India, or its territorial jurisdiction. To host this data, one must have servers in the country," Kumar said. "This applies only to high-resolution imagery below the threshold value. Above that value, anybody — Indian or foreign firms — is free to collect data," he added.

While Google did not directly respond to questions on Indian players competing with it, a company executive said many features of Google Maps in India have become possible only due to the deep partnerships with

Since the policy last year, we have now the largest advanced sensor network in the country. We have already finished around 150,000 linear kilometres of imaging and mapping, thanks to the policy



Sajid Malik, Genesys International

This is an opportunity to work with Indian entities and new entrants in the geospatial sector and generate employment

Abhijit Sengupta, HERE Technologies



local authorities and organisations.

Many global Google Maps features saw their genesis in the country. These include landmark-based navigation and public transport schedules (real-time bus information for Delhi, Surat, Mysuru and Kolkata is an example). Other products include offline maps (helpful in rural areas where Net is patchy), two-wheeler mode, Plus Codes and support for Indian languages.

Information about public sanitation facilities (showing over 57,000 public toilets in more than 2,300 cities across India) and amplifying Covid-response efforts (Google surfaces food and night shelters, shows Covid-19 vaccination centres for over 13,000 locations with vaccine availability and appointments) are other features.

It also aids disaster response through the Google Flood Forecasting initiative — systems that predict when and where floods will occur, can help better protect 200 million people across 250,000 sq km — and surfaces crisis alerts in Maps.

In many countries, Google offers Street View, but it does not do so in India. When it collects high-resolution data and satellite imagery, it does that through third-party firms. "Whether it is an Indian or foreign company, as long as products can be built to drive innovation for the end user, there is no challenge per se, but obviously Google is curtailed in its ability to do more things on its own," an industry executive said.

Mumbai-based Genesys International, which provides advanced mapping, survey and geospatial services, was one of the first to have immersive maps for major Indian cities. We now have the largest advanced sensor network in the country. We have already finished around 150,000 linear kilometres of imaging and mapping, thanks to the policy," its chairman and managing director Sajid Malik told ET. "We will invest close to Rs 300 crore in Indian high-definition content-making." Previously, security

concerns dominated discussions as to what could and could not be done. Under the policy, both Indian and foreign players have no ambiguity on this anymore. "The government has gone from a policy of suspicion to a policy of trust. Currently, if one collects data, it is largely self-regulated," Malik added.

If high-definition data is collected, a domestic company should do it as there is better oversight over its activity. "Foreign companies can access engineering-grade data through APIs. This isn't an exclusionary policy," he added.

In Afghanistan, Genesys undertook mapping in extremely hostile terrain to help build the TAPI gas pipeline. Within the Middle East, it mapped Dubai and Kuwait, undertook the Saudi-Kuwait border mapping, 3D mapping and beam modelling of airports and aerial orthophoto production of 18 major cities in Saudi Arabia, including Mecca and Medina.

In Africa, it undertook river basin mapping for the United Nations in Somalia, aerial mapping in Ethiopia, and the creation of a first-of-its-kind digital property tax solution in Ghana. Good high-resolution maps are the key enablers of a modern digital economy, said Anup Jindal, the chief executive and joint managing director of Noida-based RMSI, a geospatial solutions provider. The company's solutions address climate change, natural calamities, human habitation, food security, autonomous transportation, smart utilities and networks.

"Only because these maps were available for free and they were freely integrated with the sharing economy could the internet and e-commerce revolution happen in India," Jindal told ET. RMSI, a leading player in disaster risk reduction using geospatial modelling techniques, has worked with the World Bank, multilateral agencies, national governments and state governments across the world in addressing risks due to

By putting in some limitations on what some players can and cannot do, we're possibly creating a situation where we're slowing down investments in this vital sector



Anup Jindal, RMSI

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Rohan Verma, MapmyIndia



natural disasters like flood, earthquake, windstorm, and drought.

It has done state-wise planning for disaster risk reduction in almost every Indian state and assessed their vulnerability to disasters. The model, according to Jindal, is perhaps the only one created by an Indian company for floods, earthquakes and windstorms in the country at a latitude-longitude level. In growing cities, it is an expensive proposition to keep maps up to date.

"It is capital-intensive work. The returns are slow because it is being offered for free. By putting in some limitations on what some players can and cannot do, we're possibly creating a situation where we're slowing down investments in this vital sector," Jindal pointed out.

USE CASE, DATA PRIVACY

The restrictions put in place in February 2021 favour Indian-owned entities but are in fact less cumbersome than those that existed earlier, Ivo Bökterink, the spokesperson for Dutch multinational developer of location technology TomTom, told ET.

"Compared with local mapping companies, TomTom has the benefit that it owns a global map in a consistent format which allows customers that require map data of multiple countries to easily integrate into the applications," Bökterink said over email.

The updated guidelines on geospatial data and services are a welcome step, said Abhijit Sengupta, senior director and head of business for Southeast Asia and India at the Netherlands-based HERE Technologies, a multinational group dealing with mapping, location data and related automotive services to individuals and companies.

A liberalised geospatial industry will, however, provide huge opportunities for players across startups, academic research institutes, private sector, and the public sec-

tor, Sengupta said. While this is an opportunity to work with Indian entities and new entrants in the geospatial sector and generate employment, at the same time "we believe that we must establish policies and regulations with sight on the global markets and beyond self-contained products and services for the domestic market," he said.

It is also critical that the National Geospatial Policy establishes fair market practices for all players in the industry, Sengupta added. The new regulations also enable digital transformation across a variety of industries such as automotive, manufacturing, supply chains, transport and logistics, healthcare delivery, and smart governance, he said. Enhanced geospatial readiness is fundamental to realise the concept of Digital India, as high-quality spatial solutions and services are required to create smart cities, highways, interlinking of water infrastructure modernization, defence, and space modernization initiatives.

Applications like HERE Asset Tracking and HERE Last Mile can help change the supply chain from reactive to predictive.

The company also works with charging station operators, OEMs, and manufacturers to provide routing solutions for electric vehicles. HERE already has strategic partnerships with leading systems integrators such as Wipro, Tata Consultancy Services and Ramco.

MapmyIndia is also using 3D data from drones. This provides a high-definition view from the sky and from on-the-road. "One can think of it as a three-dimensional real-world metaverse or 'real verse'. This can be used for 5G planning, smart city planning, national master planning, real estate planning, tourism or e-commerce logistics," its chief executive Verma said.

Mappls Pin, another offering by the firm, will simplify navigational efficiency. Mappls has streamlined addresses, which are often complex, long, with flat numbers, tower numbers, society names, colonies and roads, and standardized this to six characters, like a pin code.

Going forward, as location data-driven products and services become integral to businesses, more players would map and handle big amounts of location data, and privacy and data security concerns are expected to arise with it.

"It is crucial for companies dealing with location and geospatial data to advance prosperity and innovation while protecting consumer privacy and data protection with paramount standards," Sengupta of HERE Technologies said.