Expanding Horizons: Geospatial Predictions for 2020 and Beyond

From New York to Dubai to Myanmar, more smart cities are springing up across the globe. As more countries start to digitally transform, the futuristic cities and state-of-the-art gadgets that once belonged only to the realms of science fiction may soon become our reality... and they will be made possible with the advancement of the geospatial industry.

The global geospatial analytics market is estimated to be worth USD$134.48 billion by 2025, with the market registering a compound annual growth rate of 15% between 2019 and 2025[1]. Asia Pacific is also expected to see the highest growth during that period, fuelled by numerous smart city initiatives such as ASEAN Smart Cities.

These indicators point to the increase in demand for geospatial services, which will no doubt also bring improvements in quality to geospatial services and technologies. Led by factors such as increasing digitalization, access, ubiquity in unmanned aerial vehicle (UAV) usage and the opportunities of the Belt and Road Initiative (BRI), the geospatial industry is expected to remain a key player across the world in 2020.

Increasing Digitalization

Ever since the world entered a technological boom, we have been on a steady climb to become a digital world. Geospatial technologies will continue to enable us to build smart cities with the integration of digital technologies into work processes becoming a commonplace practice.

For example, the implementation of Integrated Digital Delivery (IDD) is one of the key elements in the Singapore government's Construction Industry Transformation Map. IDD integrates every team member and stakeholder into the workflow, increasing connectivity between each member to improve efficiency and effectiveness. Cloud-based visualization and collaboration platforms like the HxDR from Hexagon allow data to be sent to the cloud as they are recorded. 3D point clouds and Building Information Modelling (BIM) can also be easily incorporated into the IDD workflow. This way, all parties involved in a project have access to real-time data and are updated on any new or changed information.

This approach highlights how the digitalization of geospatial technologies supports the construction industry and is important in ensuring that urban planning and construction workflows are operated efficiently, and in tandem.

> The implementation of the Integrated Digital Delivery (IDD) is one of the key elements in the Singapore Governmentâ€™s Construction Industry Transformation Map.

Access for More Users

While the geospatial industry has always had a strong footprint in the construction industry, it can expand its horizons far beyond its roots. Lidar technology is used in laser scanners and trackers to provide accurate 3D models and land-over classifications to map areas as large as cities. However, there is a lot of anticipation about how geospatial technologies can be incorporated into

other businesses. For instance, the automobile industry is looking into how Lidar can be used as 'eyes' for autonomous vehicles. Authorities can similarly use Lidar for urban planning and disaster response.

Furthermore, geospatial services are increasingly moving online as Software-as-a-Service (SaaS), allowing users to access a software's functions over the internet. Geospatial services such as SaaS essentially mean that these services will become accessible to even beginning users. Geospatial providers are likely to improve the intuitiveness and user-friendliness of their products to make them more accessible for prospective users.

UAVs

The global UAVs market is forecasted to grow to US$40.6 billion by 2028 from US$17.0 billion in 2018[2], and will play an increasingly important role in optimizing processes in various industries.

Major construction companies in other countries have begun to integrate UAVs into their work processes. The engineering community is one of the first industries to adopt UAV technology to aid virtual design and construction. Not only do UAVs improve the safety of work sites and are cost-saving compared to traditional surveying methods, but their aerial perspective also offers near-limitless ways to gather and analyse data. UAVs in geospatial technology have been used to scope out massive areas, such as a whole city, within a few hours. The integration of 3D visualization tools in UAVs will further revolutionize the way that geospatial technology can inspect, survey and map.

> The integration of 3D visualization tools in UAVs will further revolutionize the way geospatial technology can inspect, survey and map.

Opportunities on the BRI

Since 2015, China's proposed SG$900 billion BRI project has encompassed opportunities amounting to SG$155 billion in the transport and building sectors. With over 200 projects spanning various continents[3], the precision and speed that geospatial services can provide are invaluable to such projects, and the ability to visualize the outcomes of projects is a great advantage for every party involved.

A notable BRI project is the Edirne to Kars High-Speed Rail Line in Turkey. The 2,000km line is the key link connecting the Guangdong and Shenzhen ports to Rotterdam, while also connecting the Asian markets of Myanmar, Bangladesh, India, Pakistan and Iran. A project of this scale will require rigorous and thorough planning to ensure that all these locations are linked, which may also present geographical problems. By using geospatial technology to map and survey locations, any construction challenges faced can be solved and even avoided well in advance.

Furthermore, critics have raised concerns regarding the BRI, such as the safety of sea channels and environmental concerns, as 90% of global commercial trade and 60% of the world's total oil volume is still conducted through shipping[4]. It is important that these channels remain safe for use. With technology like Lidar, accurate maps can be plotted to ensure new trade routes will not obstruct existing ones. Lidar can also be used to ensure that no excessive damage is caused to the environment during construction.

Conclusion

As the various factors look set for continuous growth, opportunities for the geospatial industry are abound in many areas. In particular, smart cities – a market that will be worth US$833 billion by 2030[5] – is in the driving seat to be the main growth engine for the industry as cities develop future infrastructure with geospatial technologies.

Please note that this article was written before the coronavirus outbreak.

[1] Bloomberg, *Geospatial Analytics Market Size Worth $134.48 Billion by 2025: Grand ViewResearch, Inc.*

[2] GlobalData, Drones in Construction

[3] GlobalData, Progress on the "One Belt, One Road" - Update

[4] Liu Haiquan, The Security Challenges of the "One Belt, One Road" Initiative and China's Choices

[5] GlobalData, Smart cities

https://www.gim-international.com/content/article/expanding-horizons-geospatial-predictions-for-2020