Innovations that make sense of the world

Geospatial technology can help create better cities and better farms. Expert 3D modelling is also vital in industries such as mining and construction.

If you think geospatial technology doesn’t touch your world, think again. Governments rely on it to plan better cities, farmers use it to get the lie of their land.

AAM, a world leader in geospatial technologies, has been modelling the built and natural environment in 3D since 1995. When governments do urban planning, they often rely on AAM’s expert 3D modelling and mapping.

The company’s unique cloud-based geospatial systems have made the technologies accessible and affordable to all sorts of people. AAM provides cities across Australasia, Africa and Asia with 3D urban models and visualisation software to enable easier and quicker modelling.

Its expertise in geographic information systems (GIS) that enable the capture, storing, manipulation, analysis, and presentation of geospatial or geographical data.

Mark Freeburn, AAM’s chief executive, says the company’s GIS expertise is used in many sectors, including agriculture, mining, oil and gas, government and construction.

“From renewable energy, environment and across natural resources right into high density urban planning, we don’t restrict ourselves to a particular industry.”

Web-mapping is a big part of this technology. AAM’s cloud solution, Geocirrus, incorporates the power of Geocortex, a web-based GIS system that’s so functional it encompasses editing, geo-processing, analysis across multiple databases and mobile device capabilities.

“It’s important, it provides browser-based enterprise GIS interface that is light on resources and easy to use, yet still powerful and at a much reduced cost of ownership,” Freeburn says. “It’s elastic and flexible and we put all those information and data into a browser, which enables any user anywhere in the world to easily access it, and you don’t need special software to run it.”

Increasing computer capability and power, cloud and network proliferation and data integration are the factors that are helping to drive and expand 3D geospatial markets, he says.

“With that long ago that sensors and processing software had their own specialisations, but those boundaries are blurring. Bringing the integration together is a geospatial platform, such as Geocortex, which at its simplest form we can call WebGIS.”

“Terrain, asset vectors, imagery, 3D building models, meshes and textual data can be served to users with bespoke functionality that meets their specific business needs.”

AAM is the largest private holder of GIS data in Australia. The company has used a laser survey aircraft operating throughout Oceania and south-east Asia, equipped with a range of digital aerial cameras and airborne LiDAR systems. And AAM has plans to introduce long-range unmanned aircraft, which will add even more data capture capability and flexibility.

“Our airborne operations team can respond rapidly to your project, wherever the location,” Freeburn says. “AAM has the resources, experience and expertise to deliver cost-effective, fit-for-purpose solutions for any enterprise GIS, or engineering requirements.”

One example of AAM’s innovation is the NRM Spatial Hub. It helped develop for Co-operative Research Centre for Spatial Information (CRCSI). Known as the Hub, it gives farmers the capability to map, plan, analyse and monitor large properties’ infrastructure, land resources and ground cover, so that they can improve pastoral and natural-resource management.

The Hub comprises satellite data and AAM’s web maps and analysis tools, developed specifically to meet the needs of pastoralists.

“The Hub was developed in collaboration with CRC-S and more than 20 other organisations,” Freeburn says. “This project makes a significant contribution to the livestock industry and, there are now plans to roll out the Hub to thousands of farmers across the country. It has become an important element of the livestock industry’s adoption of digital technologies.”

For the first time, pastoralists can use and compare their data with government data in a secure, consistent and interactive way.

AAM is also a leader in laser scanning and building information models (BIM).

Moreover, the world-first technology that underpins the Hub will contribute significantly to the sustainable management of Australia’s rural properties. Farmers can use the NRM Spatial Hub to query and view maps of their property, and analyse seasonal trends in ground cover within a paddock or across their entire property in less than 30 seconds.

“The NRM Spatial Hub—Underpinning Better Management Decisions in the Rangelands” final report (published in April 2016), described the Hub as an Australian first that “has been acknowledged by members of the global scientific community as a breakthrough in sustainable agriculture.”

It noted that in January 2016 the Hub was the focus of a front-page article by NASA entitled “Satellite data helps Australian ranchers meet the rising demand for meat in a changing world.”

AAM is also a leader in laser scanning and building information models (BIM). A 3D model of the physical and functional characteristics of a building or structure.

AAM was engaged to upgrade the BIM of the Royal Melbourne Hospital ahead of a major expansion.

“The laser scan proved invaluable in upgrading the accuracy of the BIM,” Freeburn says. “In some areas, windows and columns were displaced by up to 50mm from their actual position.”

“The spatial upgrading of the BIM ensured that the model was accurate enough for construction design.”

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The building information model (BIM) for the Victorian Comprehensive Cancer Centre served as the centrepiece for better communications and well co-ordinated construction. PHOTO: AAM GROUP
Tech company helping to create smarter cities

Singapore sets the pace for smart cities. AAM is working there, using 3D mapping and geospatial information to improve life for everyone.

In many parts of the world, urban planners have only just begun to think about mapping out cities in 3D. Singapore’s government is far ahead of that.

“GIS has been widely adopted throughout the Singapore government, and this project literally added another dimension, allowing marketing departments and building managers to visualise entire buildings in 3D – both inside and out.”

“This all carried out through a web browser, making the system easily accessible for all relevant stakeholders.”

In 2011 AAM completed an extensive 3D city modelling project in Hong Kong. The company’s role was to provide spatially correct and photorealistic models, deployed in a versatile and functional 3D GIS.

AAM is now working to help transform 100 Indian metropolises into smart cities.

The purpose of the Indian Smart Cities Mission is to drive economic growth and improve people’s quality of life by harnessing technology to transform existing urban areas, including slums.

AAM is helping to build maps and virtual models for the Indian government and private sector as a framework for geospatial systems of the future.

Already in India, AAM is mapping thousands of kilometres of infrastructure project routes across the nation, using its mobile laser scanning (MLS) technology.

“Compared with traditional manual survey methods, which cover just a few kilometres a day, MLS is able to map road and construction routes at hundreds of kilometres a day without disrupting traffic or compromising safety.”

While the uptake of spatial data city modelling in India is in its infancy, as an Australian company, we are ready to help India with its smart city goals and at the moment, we are tendering to do work there,” Freeburn says.

AAM

enabling smart cities

real city models
building information models
3D visualisation

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