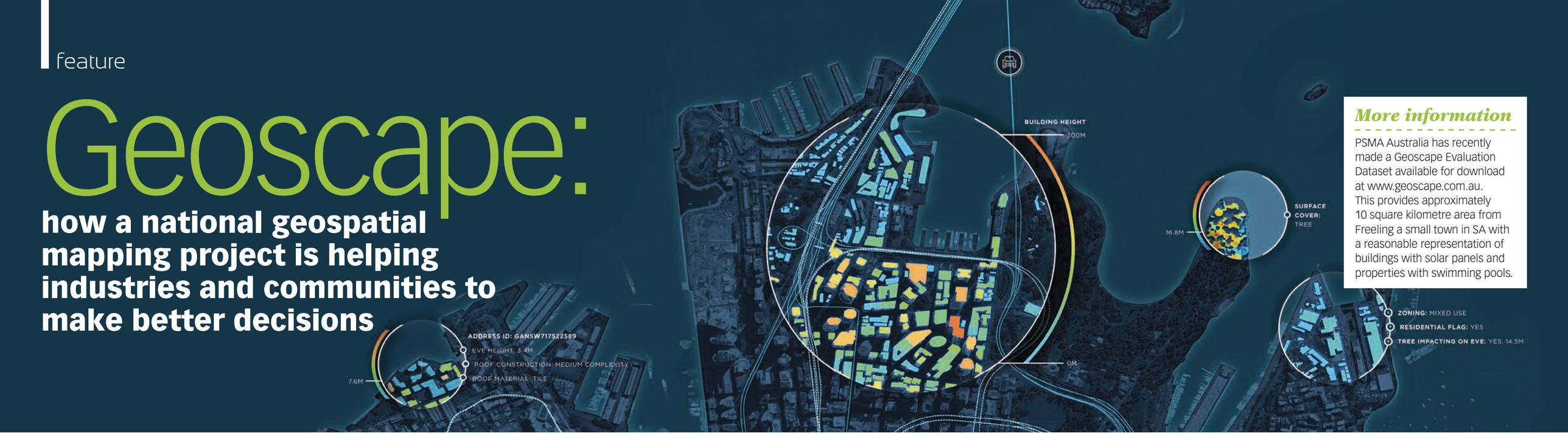
Geoscape:

how a national geospatial mapping project is helping industries and communities to make better decisions



More information

PSMA Australia has recently made a Geoscape Evaluation Dataset available for download at www.geoscape.com.au. This provides approximately 10 square kilometre area from Freeling a small town in SA with a reasonable representation of buildings with solar panels and properties with swimming pools.

When it set out to create its new geospatial mapping project, Geoscape, PSMA Australia saw an opportunity.

The availability of reliable geospatial datasets capturing the built environment was restricted to major cities or high value projects in Australia where investment in that kind of analysis could be justified.

There was a gap in the market for a program that could capture the built environment on a continental scale and at a price point that would make the information accessible to industries and communities across the country.

PSMA began rolling out Geoscape across Australia in 2016 and will officially launch the suite of 3D and 2D digital datasets in April 2017.

The company has collaborated with DigitalGlobe, the global leader in earth imagery and information to create the Geoscape dataset which uses a combination of satellite imagery, crowd sourcing and machine learning. Through this initiative Geoscape is generating product features such as continent wide building footprints and heights, rooftop materials, solar panels, and swimming pools– at every urban address in Australia.

PSMA Australia CEO Dan Paull says the potential uses for Geoscape are broadly spread across industry, business and government. PSMA partners, such as Pitney Bowes, are already combining Geoscape with additional attributes, including postcode data, to create enhanced products for their clients.

"In effect, we are democratising the availability of this information," Paull said.

"We're allowing it to be much more readily available by virtue of the new techniques that have been applied."

SCALE OF GEOSCAPE

Geoscape creates scope for innovation in areas as diverse as urban planning, emergency and disaster response management, insurance risk modelling and telecommunications thanks to its national scale.

Access to an unprecedented level of detail on Australia's built environment has the potential to accelerate decision-making for businesses and communities, increase efficiencies and open up new opportunities.

The reason for this is simple: a lot of problems or questions require reliable information about the built environment for businesses and communities to develop adequate solutions.

"The aim here is to provide much higher quality input for the sorts of work that people have already been undertaking, but also open up new opportunities with the availability of this data," Paull said.

"One of the most attractive things about this dataset is that, because it's national, organisations and communities can use it to conduct national analysis and compare the results of those analytics across the country."

GEOSCAPE USE CASES

The potential applications for a product such as Geoscape are numerous. Information describing the built environment provides a valuable reference point for business intelligence and a foundation for the internet of things (IoT). The introduction of self-driving cars and the ongoing emergence of smart cities, for instance, will transform the cities of the future, including how we map them.

"Connected vehicles will not only provide a massive amount of information about the location of individual vehicles but also about all the other vehicles around you," Paull said. Connecting this data to the buildings and key features of the city, to population movement and traffic flow enables smarter management of the city's infrastructure.

"Smart cities will benefit by being able to cost-effectively incorporate similar sensors into a variety of other static and dynamic infrastructure."

The value of this dynamic data is enhanced by its relationship with the more slowly changing built environment. Paull said that new business models for urban mobility could have enormous implications for the future shape of our cities.

Paull also sees enormous potential for Geoscape to assist in emergency and disaster response planning and management by giving emergency crews and services fast access to critical information about the built environment.

If there is a bushfire, for instance, emergency services could quickly assess which buildings are under threat, the total value of those buildings, and where people are likely to be located based on where those buildings are. They could also rapidly ascertain the location of assets such as swimming pools and other bodies of water.

"That kind of information is incredibly important and having it readily available for anywhere in the country can dramatically improve the response from emergency services," Paull said.

In the insurance industry, Geoscape is expected to help companies better understand risk associated with buildings and accurately set premiums. PSMA says this could assist in customer retention and service, because the more information a company has on a customer and their surroundings, the quicker they will be able to confidently deliver them the right premium. There could also be scope for insurers to use Geoscape to take a more proactive approach in notifying their customers of a potential hazard – such as a large tree, if they live in a high wind area – before that hazard causes harm.

For local and state governments, Geoscape could drive efficiencies and faster decisions in areas including urban planning, asset management and service delivery. Government agencies that undertake mass property valuations, such as for the setting of rates notices, could use Geoscape to increase the automation of those valuations.

"The ability to generate valuations that are of high enough quality to support a rates determination, but at a lower cost, would be a good thing for both ratepayers and for taxpayers," Paull said.

PITNEY BOWES AND GEOVISION

PSMA says one of the strengths of Geoscape is that it can be combined with other datasets to describe the environment in even richer detail and answer more specific questions. A global technology company and an established leader in Location Intelligence for the last 30 years, Pitney Bowes, sees the increased opportunity to help customers to increase the value of location based data and deliver competitive advantage. Pitney Bowes has used Geoscape to create an enhanced product, GeoVision™, which includes additional content such as address, suburb and property details.

> *"Having comprehensive and accurate data of building footprints and the built environment nationally is something that hasn't ever been available before. It's a game changer."*

Pitney Bowes Managing Director Nigel Lester describes Geoscape as unique and sees huge benefits for clients across government and the commercial sector.

"Having comprehensive and accurate data of building footprints and the built environment nationally is something that hasn't ever been available before. It's a game changer," Lester said.

"We're seeing great interest and excitement from our public sector customers for uses such as building and swimming pool compliance, planning and emergency response. Many of our clients work in the commercial sector in industries such as financial services, banking and insurance, and having that information is really critical for the work they undertake.

"This level of detail has never been available to them before so it's going to really help those organisations make better and more accurate business decisions."

Pitney Bowes also has a strong focus on telecommunications and says the company is excited by the potential for Geoscape and GeoVision to assist telecommunications companies in building infrastructure, given factors such as building heights and line of sight are crucial in the planning process.

"Understanding where buildings are, their height, how that may actually impede telecommunications signals is a really exciting use case for GeoVision," Lester said.

"The more we talk to our clients about GeoVision, the more excited they become and the more use cases we uncover."

GLOBAL POTENTIAL

Geoscape has already been rolled out for the Australian Capital Territory and South Australia and will include coverage of Sydney and New South Wales by mid-April. PSMA plans to complete its national roll-out over the next 12 months, but believes the project could, ultimately, have global reach and be built and implemented for many countries around the world.

Paull says the data could be used to accelerate land administration programs in developing countries and support initiatives conducted through the United Nations and the World Bank.

"The benefit for individuals in that circumstance, from a rich and consistent dataset such as this one, could be dramatic especially at the scale of a country or even a whole continent," Paull said. ■