



● ● Alastair Bovim, CEO of Insight Terra

Satellite Evolution Global

Q&A

Bringing IIoT efficiencies to the mining sector

Insight Terra, a platform-as-a-service solution, was launched by Civic Connect with the support of Inmarsat to bring Industrial Internet of things (IIoT) efficiencies to the mining sector via the monitoring of dangerous mine tailings. With the technology showing healthy results and functionality that could easily be applied to other remote industry and critical infrastructure business cases, Alastair Bovim, CEO of Insight Terra, explains the potential of the platform, and what went into making it.

Laurence Russell, Assistant Editor, Satellite Evolution

Question: In this era of rapid digitization, how can heavy industry interests such as mining benefit from satellite IoT technologies?

Alastair Bovim: IoT-over-satellite enables even remote sites in hard-to-reach locations to access the operational advantages and benefits provided by digital technologies like M2M, automation, cloud, and data analytics.

The combination of always-on satellite connectivity with platform-as-a-service providers like Insight Terra lets engineers gather, measure, and analyse important operational and environmental data in real-time, in far more detail and at far greater scale than was previously possible.

The quality of this data is vastly superior to what was previously available to engineers, who before had to rely on multiple spreadsheets of disconnected, siloed data. The data they now have is collected in real-time is granular in its detail and is validated and ready to be analysed.

By having access to this in-depth data, engineers and managers can optimize processes and the performance of machinery, boost operational efficiencies, and significantly improve the safety and security of personnel and the sites where they're working. From a business perspective, by making their sites and facilities demonstrably safer, operators are well positioned to seek reductions in their insurance premiums.

Question: Insight Terra has been launched thanks to Inmarsat's work with growth equity firm Atlantic Bridge and cloud software developer Civic Connect with US\$5.45 million at the close of series A funding. How did all that come about?

Alastair Bovim: Inmarsat has worked with Civic Connect since 2016 evaluating opportunities to combine satellite communications with IoT technology in the context of smart cities and urban infrastructure. Civic Connect's own data management platform has been used by numerous cities and public agencies to ingest, validate, and analyse millions of data points.

Both companies began to look at how data management platforms used in the smart city space could be applied in other scenarios, with a special focus on agriculture, transport, and mining.

In particular, tragic accidents at mine tailings dams at a number of sites around the world highlighted the clear need for a solution to reduce the risks of these failures. Tailings monitoring then became a focus.

Inmarsat's specialist insight into the mining sector and its development of hybrid edge IoT/satellite solutions was combined with Civic Connect's



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cloud-based data management capability to create the compelling, highly scalable Insight Platform full-stack solution. Uniquely in the market, the Insight Platform gathers data independently from a range of sensors, instruments, and systems, and is capable of addressing the serious issue of mine tailings failures.

As a high-growth technology investor, London-based global equity fund manager Atlantic Bridge clearly sees the wider opportunity for the Inmarsat-Civic Connect platform. Insight Terra was born.

Question: Insight Terra is built upon the Insight Platform, the integrated solution for monitoring mine tailings via satellite. What's the story of the software?

Alastair Bovim: The Insight Terra software platform has its origins in 2012 with the smart city cloud-based platform developed by Civic Connect. Inmarsat's desire to expand IoT-over-satellite into other segments, including agriculture, transport, and mining, led the two companies to explore how to evolve and improve the platform in order to apply it in other markets and scenarios in which the ability to ingest, analyse and visualize millions of data points can make a positive difference.

Inmarsat deployed its first pilot of what was to become the Insight Platform at the end of 2018. What puts the platform ahead of rival monitoring solutions is its scalable enterprise architecture coupled with the ability to receive, ingest, enrich, and store data from any source.

Insight Terra is completely sensor-agnostic. It's able to gather data from all sensors, instruments, and systems into a single management system for analytics, modelling and visualisation.

The platform synthesizes a range of diverse data to deliver real time actionable insights, alerts, and visual

guidance to key decision makers in mining operations to field supervisors; operations managers and engineers; sustainability directors; all the way up to the CEO. The effectiveness of the platform is a direct result of direct and meaningful engagement by Inmarsat and Civic Connect with customers and external experts, while also drawing on their own experience.

Inmarsat has 20 years of experience in deploying remote applications, including monitoring. Its Broadband Global Area Network (BGAN) satellite service has evolved over the last 15 years to enable and support mission-critical applications, including remote monitoring, remote communications, and remote automation and M2M capabilities.

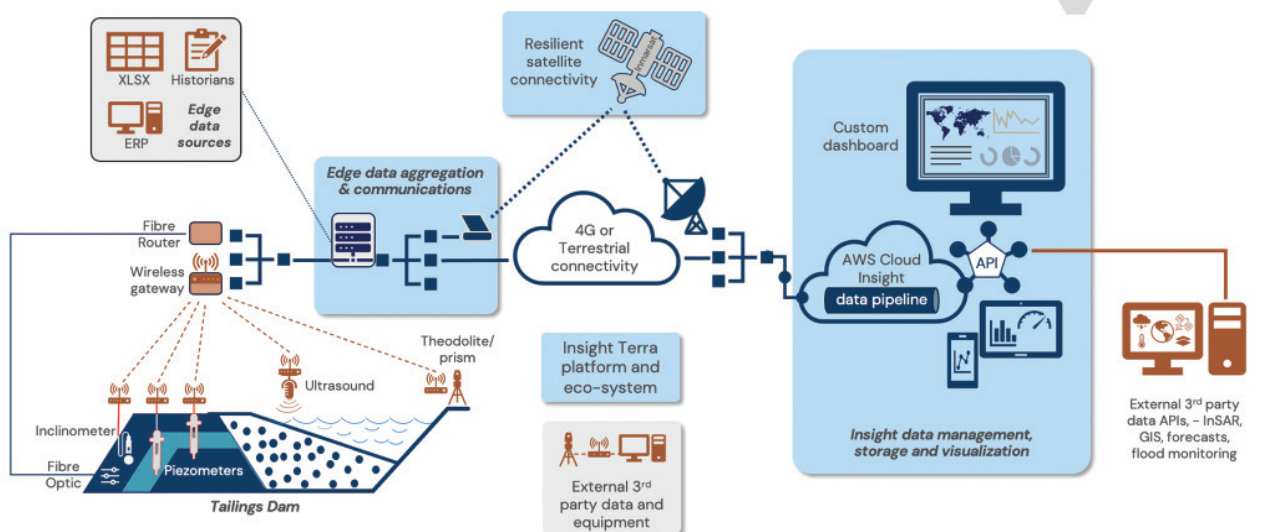
Insight Terra uses the Inmarsat BGAN satellite network and also the cloud and edge compute technologies to gather, optimize, transmit, transform, and validate data before it's analysed.

The Insight Platform today is a culmination of the expertise and experience of Inmarsat and Civic Connect, supplemented by feedback from mine operators and insight from consulting engineers, creating a full, end-to-end monitoring system that's applicable to mining and other sectors and industries.

Question: Increasing environmental and labour regulations have the potential to catch out any number of enterprise players. How can Insight Terra help them stay ahead of more advanced requirements?

Alastair Bovim: The availability on an ongoing basis of real-time data on critical variables relating to structural integrity and stability of key infrastructure contributes directly to reducing on-site risk, boosting operational efficiencies, and improving safety for workers and the surrounding

The Insight Platform eco-system



environment. Previously, such important data was only available at irregular intervals.

The data and analysis provided by Insight Terra enables companies to operate in a more proactive and transparent manner and comply with all applicable standards, regulations, international laws, and best practice. In so doing, the operating companies are better able to build credibility and trust with local communities: And also demonstrate their ESG credentials with increasingly environmentally conscious governments and investors.

Question: With academics and environmentalists often placing blame on heavy industry for issues of pollution, how vital is it that these companies invest in maintaining stronger sustainability standards?

Alastair Bovim: Sustainability initiatives and efforts are now massively important across every industry. The latest climate report from the Intergovernmental Panel on Climate Change (IPCC) is a sobering reminder of the collective responsibility of global communities – including business and industry – to assist and contribute to the climate recovery.

With greater and greater demand being placed upon

natural resources by a rapidly growing global population, businesses operating within heavy industry are under scrutiny in terms of their ESG commitments to 'practice what they preach.' Installing accurate, effective monitoring solutions are integral for businesses to achieve their ESG sustainability targets. Adopting these solutions also encourages other businesses to follow suit and make a positive contribution towards climate change.

Businesses which refuse to acknowledge green initiatives and technologies risk losing trust and may well earn themselves an outdated image from their clients and competition.

With so much scrutiny placed upon businesses and how they operate, transparent and ethical operations are more important than ever. More than ever, companies must now factor into their decision-making the environmental impact of their actions and keeping their carbon footprint to an absolute minimum.

Question: While the Tailings Insight platform is founded on serving the mining industry, the software is capable of supporting a multitude of environmental and infrastructure monitoring use cases. Could you expand on a few key applications?

Alastair Bovim: A well-designed cloud-based platform is not only scalable but flexible as well. The Insight Platform's ability to continually monitor large-scale infrastructure extends beyond mining. It is currently in use by the Norwegian transport and energy department to monitor the risks of landslides that could endanger lives and disrupt energy supplies and transport networks. And in the UK, the platform is monitoring the structural integrity of one of the UK's largest freshwater reservoirs, Kielder Water in north-east England.

This kind of behind-the-scenes monitoring is vitally important in maintaining a watchful eye on the stability and structural integrity of essential facilities and critical national infrastructure.

Question: How will the Insight Terra platform evolve and grow in coming years? What will it be capable of 5-10 years from now?

Alastair Bovim: The Insight Platform's ability to ingest data from almost any type of sensor or other data source, and to manage, curate and present data in a compelling visual manner, removes the challenge of complex integration faced by companies and critical national infrastructure operators who want to better manage their assets and make them safer and more efficient.

Our plan is for the Insight Platform to evolve, expand and improve in the coming years, with a wider range of functionality that will include machine learning, artificial intelligence, and more advanced predictive analytics. In this way, the platform will become both smarter and applicable for use in a wider range of industries beyond mining.

Intelligent, versatile resources like the Insight Platform will continue to play a critical role in improving infrastructure, improving safety, and protecting the environment across a broad scope of industries and sectors – now and into the future. ●



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