



Water monitoring, simplified.

Connect any water asset,
anywhere. Safeguarding water for
the future of people and planet.

Introduction

Myriota was founded in 2015 to revolutionise IoT through simple, secure and affordable access to data anywhere, using advanced, direct-to-satellite technology. Myriota IP covers all aspects of an end-to-end solution; edge, satellite and cloud.

Enabled by anywhere connectivity, a vibrant ecosystem of Myriota Partners including Solution Providers and Original Equipment Manufacturers are unlocking previously impossible or impractical use cases to deliver tangibly better outcomes across agriculture, Defence, logistics, environmental sectors and more.

From safeguarding scarce water resources and optimising crop yields, to maximising operational efficiency, global organisations now have access to critical data, anywhere and everywhere it's needed.

**Water monitoring,
simplified**

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**Water management
and monitoring:
Challenge
meets opportunity**

The background of the page is a blue-tinted photograph of a mountain range with a lake in the foreground. The mountains are in the distance, and the lake is in the foreground, both rendered in shades of blue. The overall aesthetic is clean and professional.

Water scarcity is a growing issue. Currently, almost 20% of the human population live in areas of extreme water vulnerability.* This is not limited to developing countries. Indeed, freshwater—the water we drink, bathe, grow our food and cook with—is incredibly rare. Only 3% of the world’s water is freshwater, and two-thirds of that is locked in frozen glaciers or unavailable for use.*

Climate change, growing population, collapsed infrastructure, pollution, conflict, overloaded water systems and poor management are just a few of the human factors that are increasingly denying people their right to safe water and sanitation.

Put simply, available water resources and growing consumption combined with ongoing misuse, mean an unsustainable water future. Our global population is growing fast, and estimates show that with current practices, the world will face a 40% shortfall between forecast demand and the available supply of water by 2030.*

*UNICEF, Water Security for All, March 2021

*National Geographic Society, Earths Freshwater, 2022

There is also a growing disparity in access to water - in 2020 there were 2 billion people living without safely managed drinking water services, including 1.2 billion people lacking even a basic level of water service.*

Meanwhile, agriculture is haemorrhaging what water is available, accounting for 70% of the world’s accessible freshwater use. Shockingly, 60% of water used for agricultural purposes is wasted due to leaky irrigation systems, inefficient application methods and the cultivation of crops that are too thirsty for the environment in which they are grown.*

On top of this, climate change is exacerbating water scarcity by altering precipitation patterns, increasing evaporation rates, and causing more frequent and severe droughts and floods in many parts of the world.

*World Bank, Water Storage is at the Heart of Climate Change Adaptation, February 2023

*United Nations, The Sustainable Development Goals Report, July 2022

*World Wildlife Fund, Water Scarcity, 2020

Water monitoring, simplified

Though it paints a bleak picture, new technologies have the capabilities to protect this vital resource. Through affordable and scalable access to critical data, improved resource management is now possible.

Based on the combination of anywhere connectivity direct-to-satellite, sensors, big data and

AI technologies, water utility operators, farmers and companies can achieve less waste, and less consumption, improving their long-term management of this precious resource.



Ben Cade
CEO, Myriota

“ New space IoT communications are unlocking previously impossible or impractical use cases at a dramatically lower-cost with near-zero maintenance thanks to low-power consumption. ”



So, what is water monitoring?

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In an increasingly data-driven world where natural resources are under growing strain, IoT solutions present a highly valuable proposition in enabling better water management.

Simple, long-battery-life, direct-to-satellite devices are making monitoring of various water infrastructures possible and scalable.

Water monitoring involves collecting water samples for laboratory analysis, using sensing technologies to measure various water parameters such as temperature, pH, dissolved oxygen, turbidity or nutrient levels, and recording data on water volume and flow rates.

The information gathered from water monitoring programs can be used for scientific research, policy-making, and management decisions to safeguard the health of aquatic ecosystems and protect public health.

Conventional monitoring methods require a manual

reading, sending personnel out to remote locations to physically check water resources - on average, this process can take up to 2 months from site to lab results.

Although there are many challenges faced by the water management industry - with industrial uses on the rise and increasing pressures on clean drinking water - \$39bn USD could be saved through improvement in water management and monitoring.*

The value of the IoT smart water metering industry will be worth \$9.73bn USD by 2030.* Whether it's pump control, tank monitoring or lift stations, process improvement and reducing human intervention represents a massive opportunity to transform the operations of water management for a more sustainable business and water future.

*Liemberger, R. & Wyatt, A. Quantifying the global non-revenue water problem, Water Supply, July 2019

*Allied Market Research, Smart Water Metering Market, September 2021

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**What can be monitored,
anywhere?**



Resource Monitoring

Increase the understanding of water systems (recharge, discharge, interaction with surface water, changes in quality and quantity)



Pollution Containment Monitoring

Detect corrosion and clogging as early as possible and provide early warning information on the impacts of potential pollution hazards



Protection Monitoring

Predict potential impacts on specific water infrastructure or bodies. Identifying misuse and tracking key usage metrics allows you to implement predictive maintenance to reduce unscheduled downtime caused by equipment or system failure



Remote connectivity direct-to-satellite

IoT connectivity independent of topography, infrastructure and cellular service areas. Unlock global opportunity with affordable access to critical data, anywhere on Earth



Event-based notifications

Receive push alerts on critical water infrastructure for early warning signs before your assets are compromised



Location Data

Location monitoring provides positional data on maps, location reports and provides insight into your entire water asset



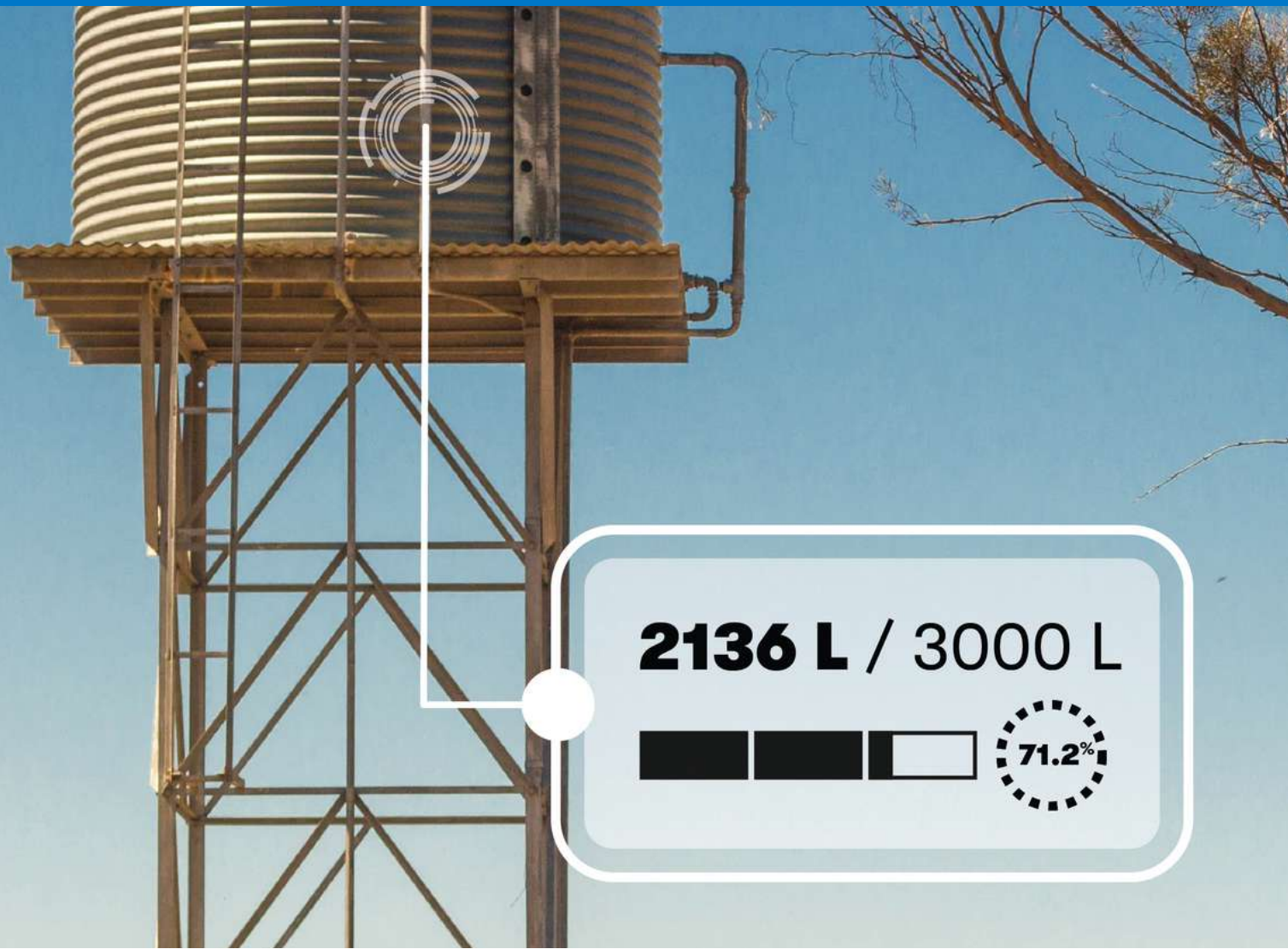
Monitoring at cents per message

Monitor more assets across multiple sites with flexible, low-cost data plans at cents per message

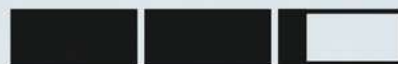


Meet Compliance Requirements

Increased regulation and compliance calls for more accurate and readily available trend data on various water usage, which can be obtained through IoT solutions



2136 L / 3000 L



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Myriota's direct-to-satellite data connectivity unlocks opportunities across the entire water industry to provide better visibility and management of this critical resource.

Myriota is solving previously impossible problems through remote data connectivity that just works; anywhere.

The economic imperative to turn the world's water crisis around is stronger than ever, a 2019 CDP study found that water insecurity presents a combined business value risk of US\$425 billion.*

*CDP, Global Water Report, 2020

Move beyond the barriers of location and manual sampling, connect anywhere with sky view to get deep insights into water infrastructure.

Long-term data collection and powerful insights are readily available, giving you trend data on water assets for more informed decision-making.



Collect data from anywhere on the earth's surface to track trends, save time, lower costs and get more from your data with affordable, scalable connectivity.

A sustainable, robust water future for people and planet. Monitor water quality, levels, temperature and pressure to reduce the environmental impacts of incorrect water management.

Meet regulatory requirements with reliable reporting and ensure even the most comprehensive water quality assessment or monitoring system is effective in meeting compliance.

Low-cost, long-battery life and simple to deploy – just point your device to the sky. Low energy use and maintenance needs means years of battery life. No gateways, no towers, no fuss.

Tank monitoring

Tank owners and operators with tanks positioned outside of coverage areas for cellular communications are often forced to either manually check tank levels through costly manual labour, or install and maintain local infrastructure to support available connectivity alternatives.

Insufficient, unreliable or non-existent knowledge of water tank levels leads to farm and cattle water stress. This stress is compounded by the impact of climate change and historically mismanaged water resources.



IoT-enabled tank monitoring is a critical technology: From reducing costs by millions of dollars through operational efficiency improvements to saving the lives of thousands of cattle through timely water monitoring.

Myriota helps to enable innovative tank monitoring solutions through simple, cost-effective satellite connectivity, providing access to data anywhere on the earth's surface.

Groundwater monitoring

30% of global drinking water is derived from groundwater sources, as such, its effective management is essential to protecting water quality and sustainability, while also providing social, economic

and environmental benefits and opportunities for rural communities. However, this natural resource is often poorly understood, and consequently undervalued, mismanaged and even abused.

Of 76,000 water bodies assessed by the UN, which serve at least 3 billion people, the quality of the groundwater they rely upon is unknown due to the lack of monitoring.*

*United Nations, The Sustainable Development Goals Report, July 2022

Today, most countries are placing unprecedented pressure on water resources, and with a 1% yearly increase in water extractions estimated until 2050 worldwide, reserves of precious, finite groundwater simply cannot match population growth.*

*The United Nations, World Water Development Report, Groundwater: making the invisible visible; facts and figures, 2022

Pump monitoring

Managing water pumps can be challenging. Unexpected events, maintenance issues and degradation make constant manual monitoring time-consuming and costly. Intelligent, IoT-enabled solutions are able to maximise pumped water efficiency to mitigate

water loss, helping us save more water than ever before. Remote monitoring of pumps provides operators with alerts on pump failures to minimise routine maintenance and ensure a steady supply of water to infrastructure or livestock.

Connect your IoT device anywhere, direct-to-satellite to access data regardless of the topography and cellular service areas. Manage faults, leaks, usage and quality across your assets to help save our most precious resources.

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Case study: Myriota & Grundfos



**Water monitoring,
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Solar Connect By Grundfos

For primary producers water assets are the lifeblood of their operations. Having limited visibility of critical water resources and of pump and bore efficiency presents ongoing challenges.

This is further inhibited by cellular black spots which reduce access to critical data, and limited available solutions that provide end-to-end oversight of the entire water asset.



Grundfos Solar Connect

Responding to this need, Danish-headquartered global pump manufacturer Grundfos created the Solar Connect range to support and monitor their bore, pump and tank infrastructure. Utilising Myriota's satellite connectivity Network, the devices can remotely monitor key assets and provide insight through useful data.

In developing this simple, "works anywhere you can see the sky" solution, Grundfos is tackling a major pain point for livestock farmers by enabling easy remote monitoring of water pumps and tanks, thereby significantly decreasing the time, fuel and labour necessary to regularly and manually check each water point.



Grundfos Solar Connect

Tracking and communicating sensor data is only one element of effectively monitoring your water asset; visualising the data is key to benefiting from its insights.

The Grundfos Solar Connect mobile app tracks water levels in storage tanks, delivering useful data on water pumps' status, and alerting users when supply is low or maintenance is required.

With 12 updates daily on only two AA batteries the sensors' life expectancy is two years, making the whole technology low maintenance and easy to install and use.

With only a single daily update, Myriota-enabled applications can see 7+ years of battery life.

The pastoral industry generates \$4.7 billion annually from livestock production in the Great Artesian Basin, with over 14 million beef cattle and 11 million sheep and lambs.*

The industry uses water delivery infrastructure worth more than \$3 billion, and extracts an estimated 187,000 megalitres/year from the Basin, making it the largest user in the region.*

Careful management of water resources is a strategic focus for the industry, and smart technologies such as Solar Connect can help usher in a more optimised and sustainable future.

With individual livestock needing on average 50 litres of drinking water per day, and more during summer, pumping and tank systems need to be reliable and efficient.

Using satellite-connected sensors attached to Grundfos' solar-powered water pumps and any existing tank, farmers will have a 24/7 water pump and tank monitoring system in their pocket.

*Frontier Economics, Economic output of groundwater dependent sectors in the Great Artesian Basin, August 2016

[Learn more at grundfos.com](https://www.grundfos.com)



Sam Ryder
Area Managing Director WU,
Grundfos Australia

“Introducing satellite connectivity to our range is a significant improvement for all farmers that spend valuable time on pumps’ maintenance. This partnership further enhances our system, empowering users with essential data for their daily operations.”

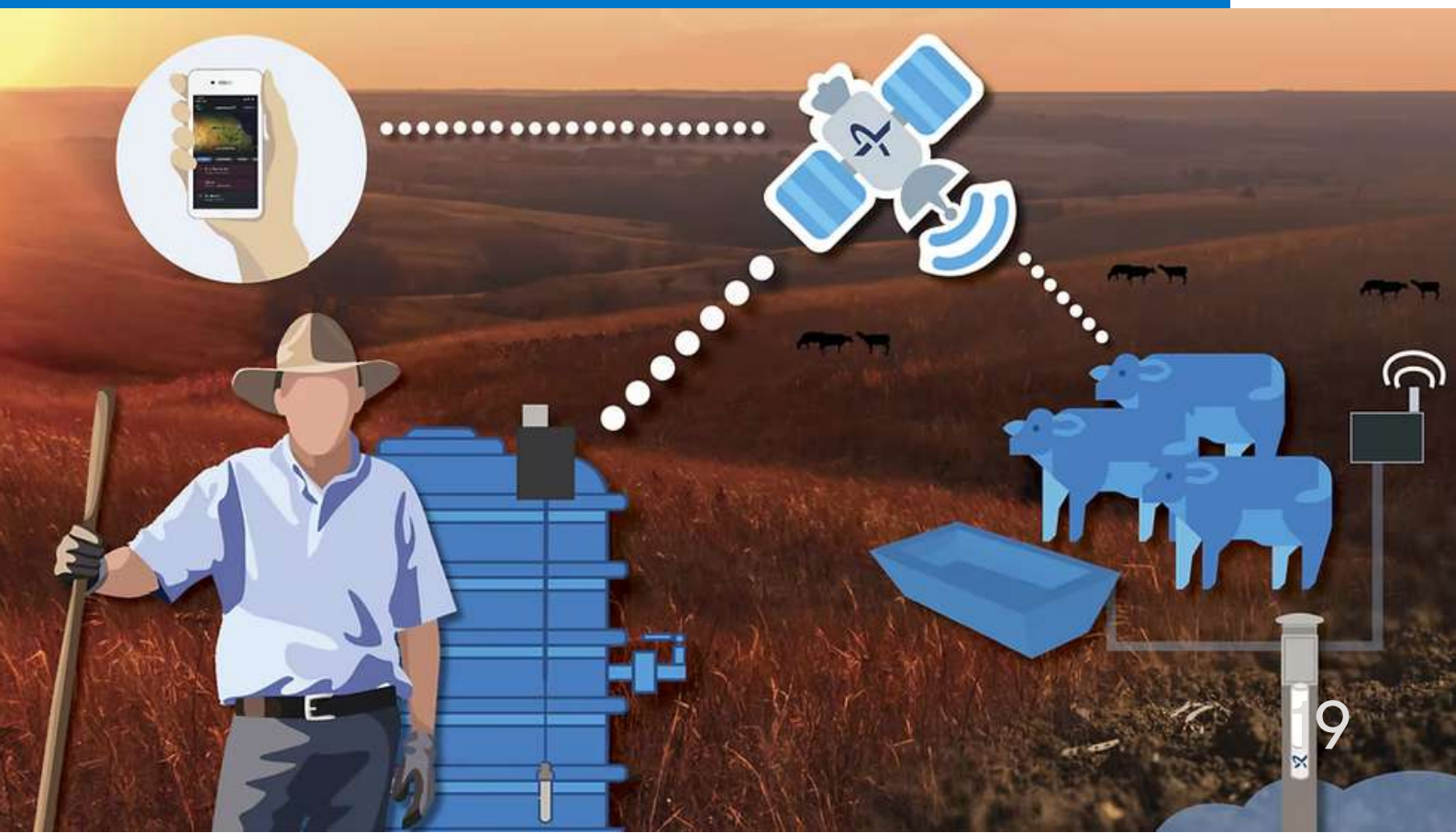
Grundfos Solar Connect

Solar Connect was built and tested against Australia's climate extremes. The robust UV-resistant modules are IP65 rated and designed to last for many years in the most remote locations, and with a simple plug-and-play install can be easily integrated with existing Grundfos bore systems.

On the Myriota Network all bulk data transmitted from the Solar Connect modules to satellite and ground-station links is encrypted and authenticated, employing a zero-trust security posture. Myriota meets ISO 27001 international standards for information security, and has achieved an Australian Defence DISP clearance.

Each year, global water loss through poor utilities infrastructure accounts for an estimated cost of \$39 billion USD.*

*Liemberger, R. & Wyatt, A. Quantifying the global non-revenue water problem, Water Supply, July 2019





Ben Cade
CEO, Myriota

“ Having the opportunity to partner with world leaders in their industries such as Grundfos, and develop new solutions hand-in-hand with them is a validation of the value we bring to deliver tangibly better outcomes for our ecosystem, through simple, affordable access to data, anywhere. ”

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Benefits of Myriota satellite IoT



Anywhere connectivity

Coverage even in the most remote and harsh environments



Long battery life

Years of battery life for sites without mains or solar power



All the data you need

From tank level to water flow and threshold-based alerts, anywhere and everywhere its needed



Dramatically lower cost

No infrastructure costs – no gateways, no towers, no setup fees

Flexible, ultra-low-cost data plans – only pay for what you need



Secure and private data

No additional cost or power to enable security – it's baked in

Trusted by Defence, our Network was built for security from the ground up

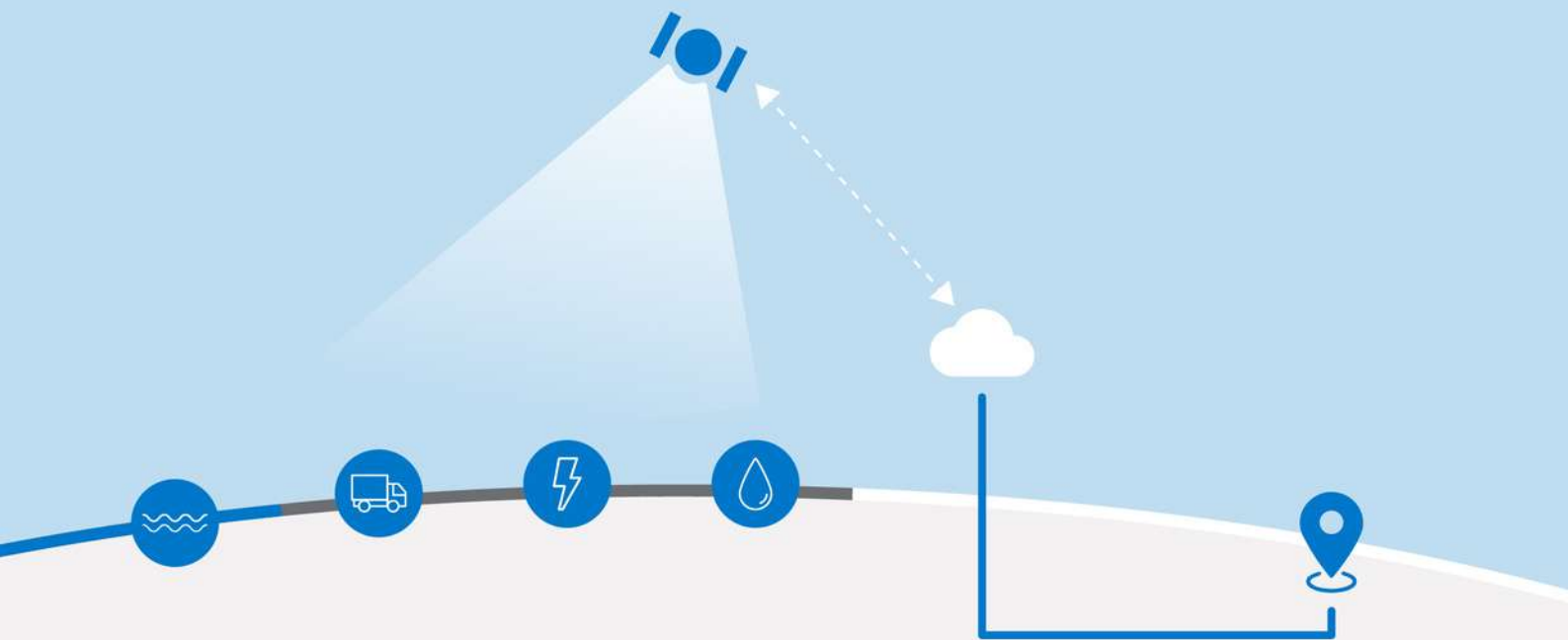


Single SKU for global distribution

No SIM cards or other regional modifications required



Direct-to-satellite communications made easy



1 Water monitoring devices

In-field devices record water asset sensor data

2 Wake and send

Myriota Module wakes as the satellite passes and sends data

3 Cloud transfer

Satellite receives and forwards data to the Myriota Cloud

4 Data distribution

Data is immediately distributed to the configured client cloud or server

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**Case study:
Myriota & DEW**



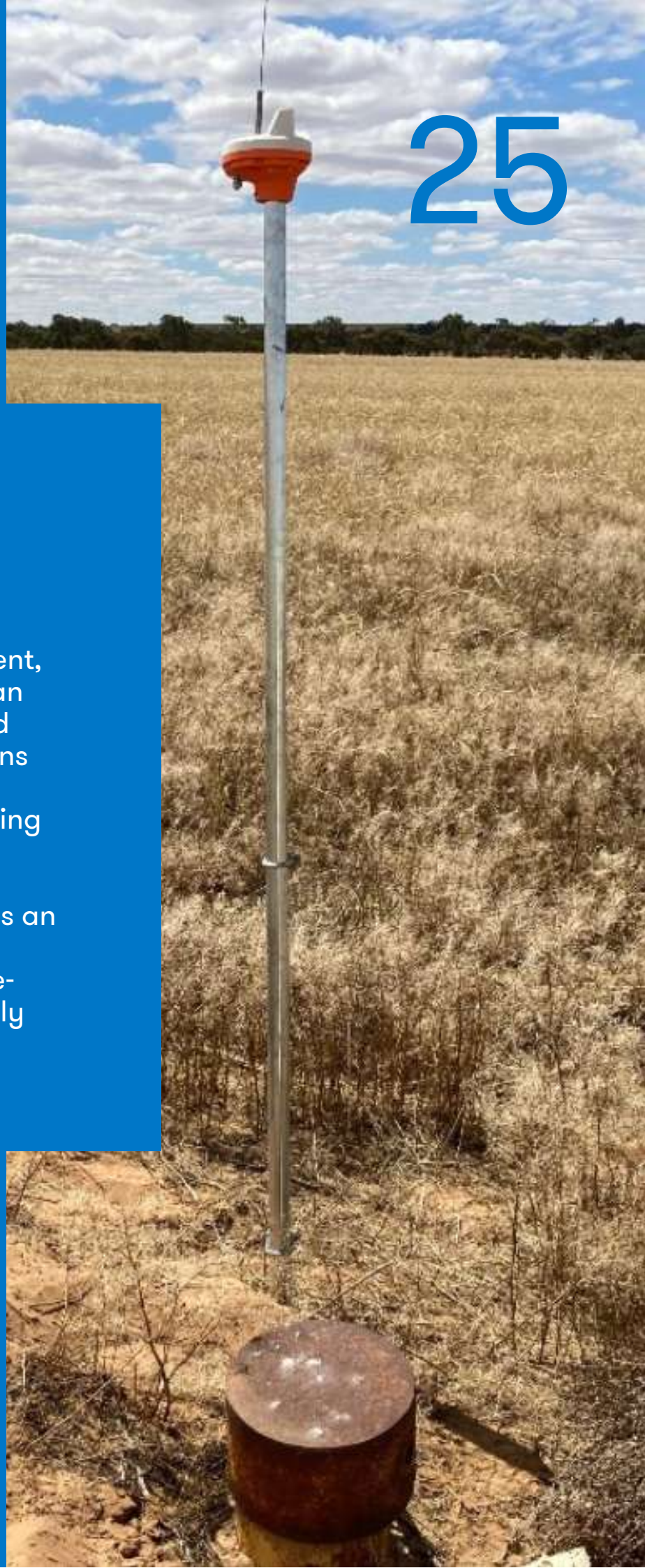
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Case study: DEW

Myriota partners with the South Australian government, demonstrating the use of an Internet-of-Things (IoT) and satellite telecommunications system to improve groundwater bore monitoring and management.

In Australia, groundwater is an essential natural resource, accounting for around one-third of water use nationally and almost two-thirds in Southwestern Australia.



The challenge

The South Australian Department for Environment and Water (DEW) is responsible for the operation and management of an extensive network of groundwater monitoring bores.

Currently, only 6% of DEW's 3,500 bores are instrumented, meaning bore observation information is collected only a few times a year.

At a national, and international level, there is a growing need for effective groundwater resource management. Through an increase in the frequency and spatial distribution of groundwater monitoring, in a cost-effective manner, organisations and governments could automate data collection to save time and money.



The solution

This project has developed a system that demonstrates the use of IoT and low-cost satellite communications as an end-to-end means to transmit and aggregate automatically collected information from groundwater bores.

It is estimated that the smart water metering industry will be worth \$9.73 billion by 2030.*

*Allied Market Research, Smart Water Metering Market, September 2021

These bores – often located in remote and harsh environments – are fitted with sensors to measure water levels and other water parameters.

The project tested the feasibility, reliability and cost-effectiveness of deploying an end-to-end IoT satellite communications solution in typical operational environments.

This includes evaluating, procuring, integrating and deploying both sensors and telemetry transmission devices in experimental sites in the field, operating these for a period of around one year.

During the course of the project, various aspects of the system were evaluated, ranging from the equipment deployed and its robustness to the evaluation of the resulting data outputs

The project has assessed the feasibility and cost of operating such devices autonomously for extended periods of time. In addition, the project delivered a capability to enable the end-to-end transmission of data from in-situ devices via satellite to end users through a dynamic dashboard.

The impact

Much of the world's groundwater use is consumed by agriculture, however, it is also a significant resource for the mining and energy sectors and a source of drinking water for many communities, while sustaining dependent ecosystems.

Australia is establishing itself as a world leader in technology development and application for improved groundwater monitoring systems. The outcomes of this Australian project will impact global groundwater management, presenting international opportunities.

Satellite communications and IoT approaches are capable of providing increased volume and variety of data collection more frequently and with greater spatial density.

Through shortened collection periods and at a lower cost than equivalent current approaches, this project has validated the effectiveness of groundwater monitoring in remote regions – an application which can be replicated globally.



[Learn more at Myriota.com](https://www.myriota.com)

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**Who is Myriota?
Solving the impossible
since 2015**

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Myriota, everywhere

**We believe in a world
made better through
seamless access to
critical data, anywhere
and everywhere it's
needed.**

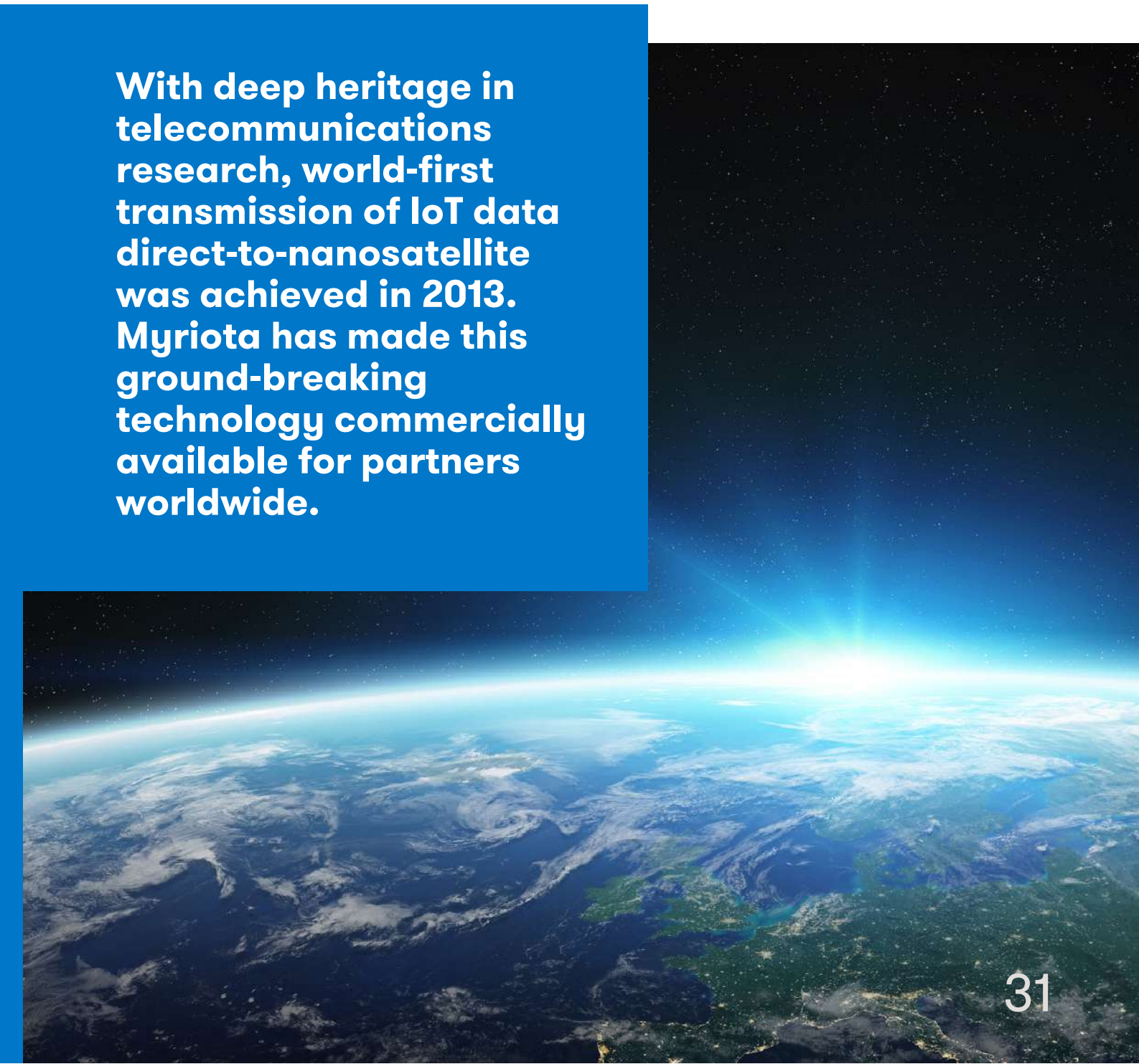


Myriota was founded to revolutionise the Internet of Things (IoT) through simple, secure and affordable access to data anywhere using advanced, direct-to-satellite technology.

With offices globally, Myriota is headquartered in Adelaide, a focal point of the Australian

space industry and home of the Australian Space Agency. Myriota has a growing portfolio of over 24 core patents, and support from major international investors.

With deep heritage in telecommunications research, world-first transmission of IoT data direct-to-nanosatellite was achieved in 2013. Myriota has made this ground-breaking technology commercially available for partners worldwide.





Myriota

Get in contact

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Webinar

Scaling IoT solutions in water management with anywhere connectivity

Deep dive into the digitisation of water monitoring with satellite IoT connectivity.

