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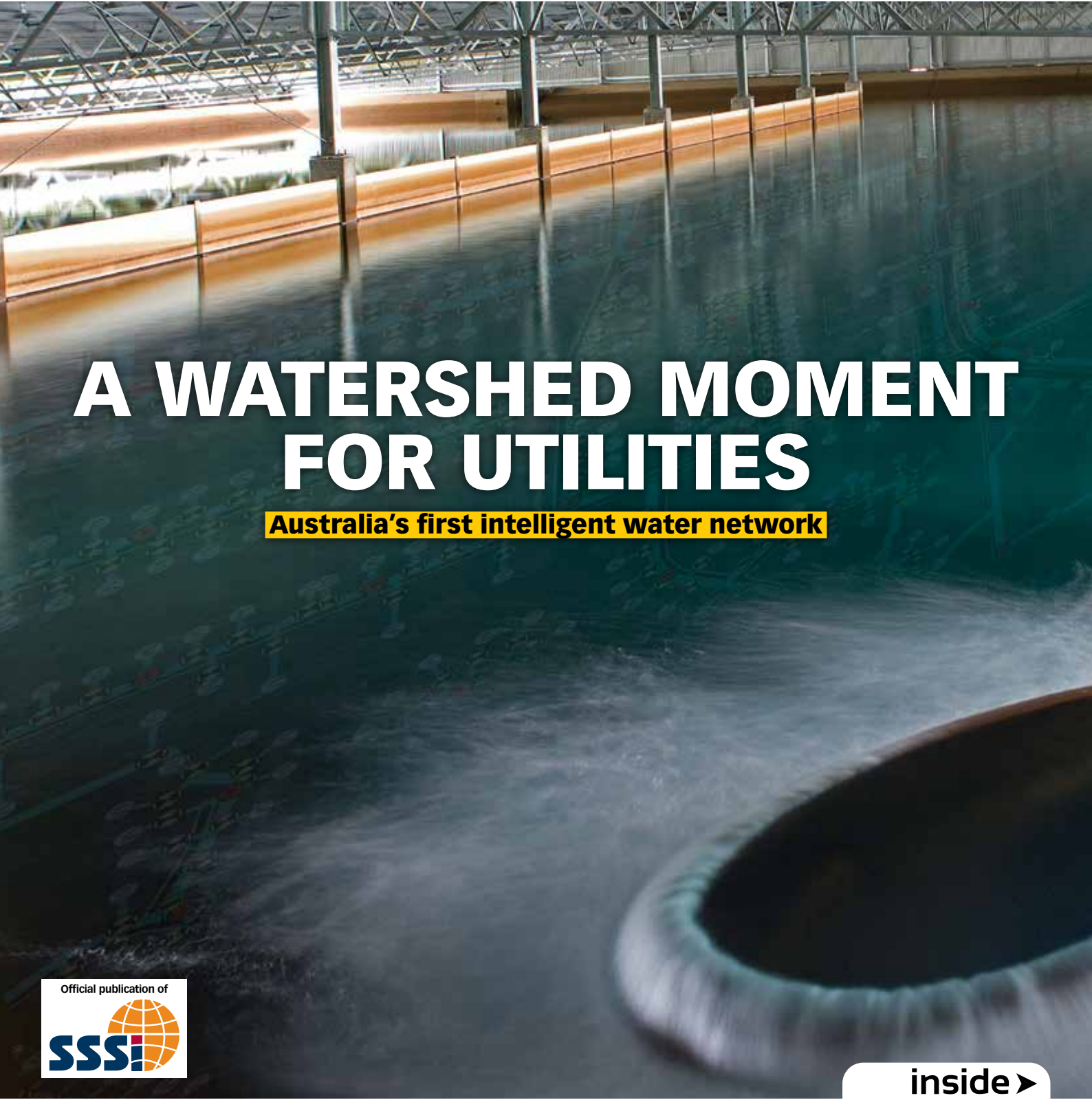**The Australasian magazine of surveying, mapping & geo-information**

A WATERSHED MOMENT FOR UTILITIES

Australia's first intelligent water network

Official publication of

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inside ➤

Kelfeera Basin, Benalla. In an environment of limited resources and increasingly complex networks, water utilities need a new wave of GIS-based network management.
Image source: North East Water.

How North East Water delivered Australia's first intelligent water network

ICT Project Manager, Tim Cover, shares how the organisation undertook a remote, large-scale digital transformation project to better deliver water services to communities across regional Victoria.

I t was during the height of the COVID-19 pandemic when Tim Cover, ICT Project Manager at North East Water in Wodonga, Victoria, answered a Microsoft Teams call from a GIS officer.

The query? A question regarding the process for customising a map.

Before greenlighting the change, the GIS team would normally spend hours coordinating with the ICT team to avoid system dropouts and ensure the updates were applied across all siloed systems.

But that day, for the first time, the GIS officer could make the change remotely via a web-based platform – instantly updating the data within both the GIS and the asset management system.

Facing an aging technology infrastructure and lack of integration, Tim and the team had just launched a new utility network – the result of a large-scale, remote digital transformation project to create a unified GIS and asset management system.

North East Water now had just one system to model the network, which serviced 39 separate towns dotted across a 20,000 square kilometre swath of land.

Armed with complete oversight of the network, North East Water's field crews could easily run a trace analysis in the aftermath of a pipe burst or leak to determine the number of customers impacted and understand exactly which valves to shut off – saving time and minimising interruptions.

The team are now exploring how they can use map data for emergency incident response by importing authoritative bushfire and flood overlays.

After answering his team member's question, Tim realised just how vast a difference the technology solution would make to data quality, system uptime and ability to inform the regional community of planned and unplanned outages.

"Now that we have a synchronised asset management system, we can jump between the GIS and asset management system and immediately see rich metadata on each asset", he says. "This represents a significant upgrade to our data quality – ensuring that we have a full representation of our water network that is fast and scalable."

"Once the integration

Making waves in utility management
A unified, web-based GIS is a capability that has been sought after by water, electricity, gas and telecommunications utilities for years, answering a need for a real-time operational view of people, services, assets and events.

Placing web-based GIS at the centre of utility network management unlocks critical information, drives smarter decisions, and ultimately reduces costs.

For North East Water, stakeholder collaboration is key as developers, councils, fire authorities and government agencies seek access to the latest network information.

Utilities lead for Esri Australia, Doug van Gelder, believes the outcomes achieved by North East Water will have a major impact on utility network management across the Asia Pacific region.

"Floods, bushfires and COVID-19 have all

goes live, the number of synchronous assets will total 306,000, split across 8 asset feature classes including Sewer Line, Water Line, Sewer Device and Water Device."

spurred electric, water, telecommunications and gas utilities to develop innovative technology solutions to democratise vital data, improve data currency and drive cost savings via web-based workflows," he said.

"GIS improves sharing and collaboration capabilities, enhancing each utility's ability to connect with the communities they serve".

"Utilities around the world are adopting Web GIS and the ArcGIS Utility Network – empowering anyone to access a-single-source-of-truth within seconds, drastically improving the efficiency and safety of field crews".

Expansive integration and watertight upgrades
A Web GIS platform offering a single-source-of-truth must provide a holistic view of core systems and for North East Water, this includes – but is not limited to – existing water and sewer modelling, the Microsoft suite and SCADA/Historian.

Overcoming software incompatibilities has enabled North East Water to leverage up-to-date aerial photography and verify the accuracy of the

data used for Information Statements, Build Over Easement Applications and Water and Sewer Connection Applications.

Tim Cover notes that more frequent product upgrades will ensure the utility keeps up with fast-paced changes in technology and information security.

"By adopting industry standard technology and keeping it out-of-the-box as much as possible, we no longer have a big technical debt to carry. We can now embrace quarterly updates – and by no longer being locked into a bespoke, hardcoded solution, we can maintain software currency with minimal interruption."

Enhanced data visibility
By transitioning to the ArcGIS Utility Network, North East Water will also access out-of-the-box apps to support multiple use cases – from field data collection, spatial analytics to situational awareness.

The organisation are now embracing a fit-for-purpose mobility solution to allow field workers to capture and correct data on the fly, enabling real-time data access with mobile response and touch-enabled interfaces. The updates will occur without the delays incurred by a cumbersome paper-based workflow.

In Phase 2 of the project, the team will enable cross-functional use of dashboards to monitor real-time events and provide customers with visibility of planned and unplanned network outages.

Driving digital transformation with GIS
While many utilities are at a proof-of-concept stage, North East Water is the first utility
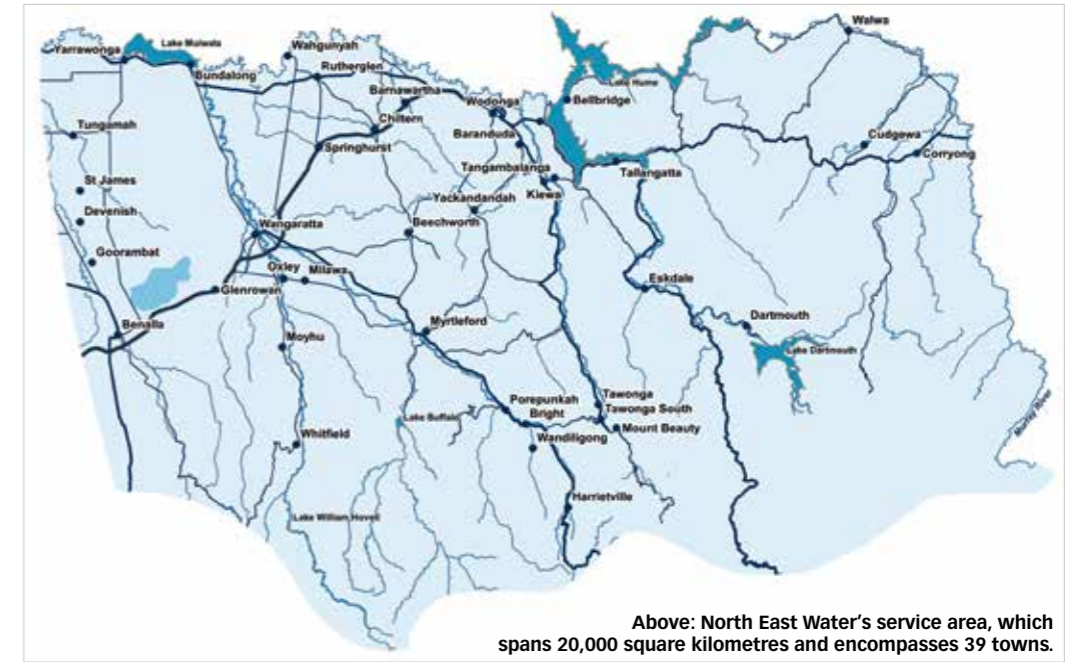
Above: North East Water's service area, which spans 20,000 square kilometres and encompasses 39 towns.

within Australia to complete the roll-out of a large-scale intelligent water network.

Although it is early days, North East Water's migration to the utility network has resulted in superior system stability and considerable time savings. By implementing an enterprise capability, North East Water now have the foundation and solidity to manage the network whilst automating the way information is consumed.

Doug van Gelder notes the solution pioneered by North East Water will set a benchmark for years to come.

"They're the first utility in Australia to move to the ArcGIS Utility Network and even more impressively, implement the project remotely throughout COVID-19 in partnership with our professional services team. The successful delivery of the project has enabled the organisation to establish the foundational GIS capabilities that will support the creation of a new system of engagement across the whole business – and illustrates for the first time, how an

Solution mix
+ ArcGIS Enterprise
+ ArcGIS Utility Network
+ Esri Australia professional services team

Above: The ArcGIS Utility Network offers comprehensive visualisation and analysis of the network system. For example, dynamic tracing enables water utilities to determine the exact valves to shut off when a pipe bursts.

intelligent network is within reach of all utilities, with all the benefits that come with a commercial off-the-shelf solution".

"The work undertaken by North East Water will serve as a blueprint for any utility working on digital transformation. You can get started gradually by employing location-based technology to enhance the software you already use or implement a large-scale change – either

approach will open up a goldmine of data to the wider organisation, driving smarter decision-making and collaboration".

A number of utility forums will be held in 2021 to take Australian utilities through the transition to intelligent networks. Register your interest in attending a free session at esriaustralia.com.au/utilities ∎

Information provided by Esri Australia.