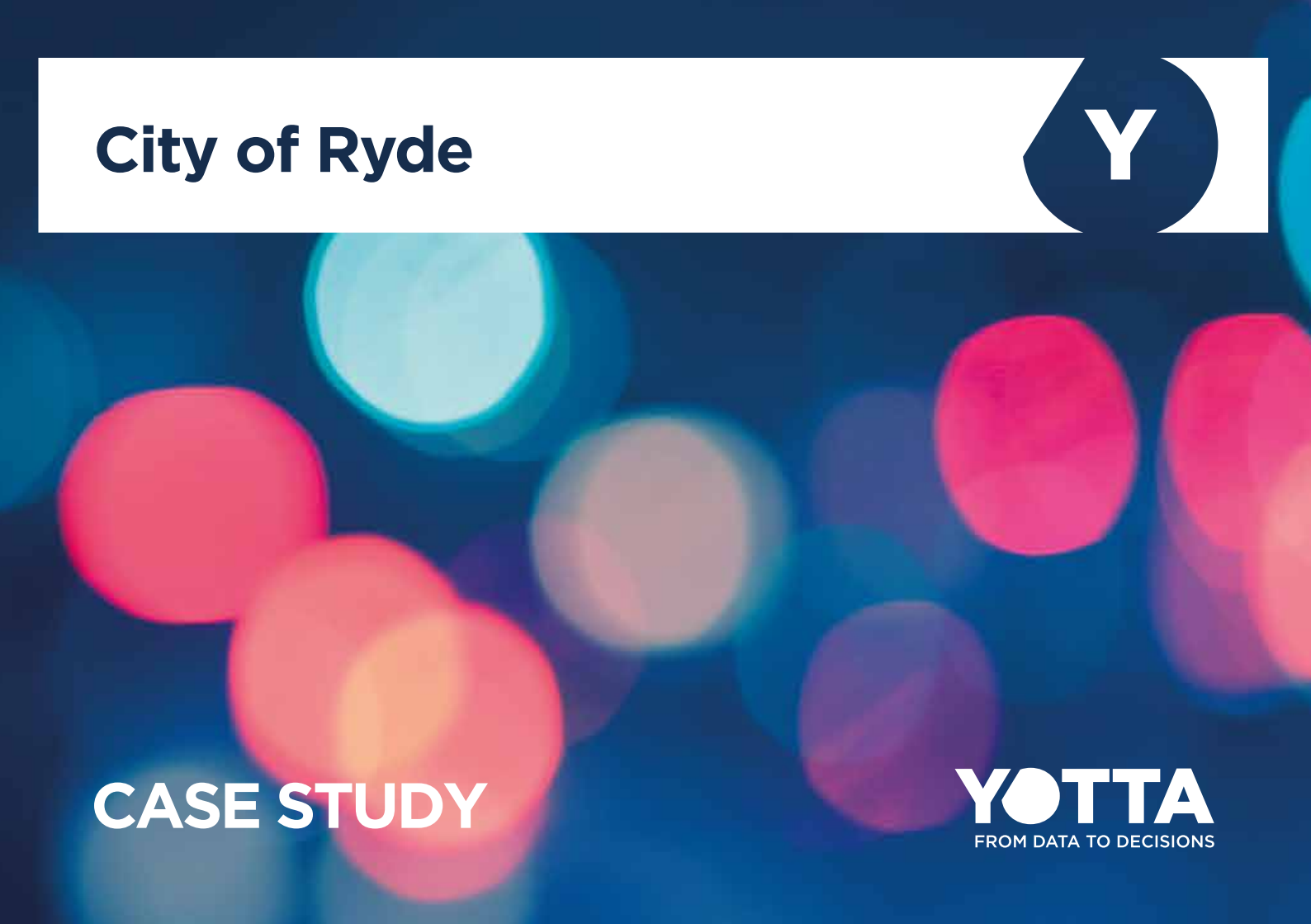
City of Ryde



CASE STUDY

YOTTA
FROM DATA TO DECISIONS

Yotta's Pioneering Connected Asset Management Software, Alloy Drives Proactive Maintenance of City of Ryde Green Bus Shelter

The A$50 million competitive Smart Cities and Suburbs Program (SCSP) is an Australian government initiative that supports projects that apply innovative technology-based solutions to urban challenges. The program encourages the delivery of collaborative smart city projects that improve the liveability, productivity and sustainability of Australian cities, suburbs and towns.

City of Ryde, a forward-thinking council based in Sydney, working in partnership with Meshed, an Internet of Things solutions integrator, and Macquarie University, one of Australia's leading seats of learning, recently won funding under SCSP to launch a range of pioneering initiatives.

Among the partnership's top priorities was to evaluate how IOT-based sensor technology could be applied to City of Ryde's existing Green Bus Shelter project to make it smarter and enhance the environmental benefits it delivers. A key feature of the shelter is a living green wall of plants - developed by Junglefy, one of Australia's leading living infrastructure specialists. The green wall helps to clean the air and improve the visual appeal of the local environment.

To maintain the bus shelter and green wall, City of Ryde sought out an effective way of using smart connected infrastructure to continuously monitor them and send alerts when action was required. Macquarie University had already established a low-powered LoRaWAN IoT network for the SCSP project. City of Ryde complemented this by installing its own LoRaWAN gateway on the Things Network (TTN), a groundbreaking global project that is effectively crowdsourcing an IoT telecommunications network.

By choosing LoRaWAN and TTN as well as calling on the services of Meshed to provide the sensors and the necessary radio frequencies over the network, City of Ryde Council can ensure it has a LoRaWAN water level sensor implemented within the Green Bus Shelter's Living Wall and reports several times a day on the water level around the plants.

Meshed has played a key role in helping integrate the LoRaWAN IOT data directly into the Alloy connected asset management software solution from technology company, Yotta. Alloy processes the data, regularly reports on the water level and sends alerts to the relevant engineering crew to top it up when it falls below a certain height.
Currently, the project primarily monitors water levels. However, solar panels have now been fitted in the shelter roof to monitor battery life and measure the quality of the local environment – and other capabilities are pending.

Scoping the Benefits

The proactive alert capability Yotta's Alloy provides is a key benefit for City of Ryde. Many council IoT projects in place in Australia simply use email as the communication tool. In a typical scenario, the system sends an automated message to the council head office when certain parameters are met. With Yotta's Alloy, the message is more targeted and there is a clear call to action.

Rather than simply emailing the council's offices, advising that a pre-set limit has been exceeded, the communication can be specifically sent to the maintenance crew with a clear instruction to visit the shelter and water the plants. It is an approach that helps eliminate delays and lessens any chance of confusion. Ultimately too, it reduces the likelihood of the council incurring unnecessary expense and lost time on crews having to replant the wall, or on having to make regular manual on-site checks of water levels, whether or not required.

This remote wireless management of the water levels within the Green Bus Shelter's Living Wall also brings cost efficiencies. Implementing the approach means the council no longer needs to use a SIM card or the cellular phone network.

All the data is transported on TTN 'free of charge'. However, the approach will also potentially bring much broader benefits to the City of Ryde Council in the future.

In particular, the breadth and quality of network coverage that the project partners are creating can potentially be used for other tasks going forward, such as street lighting control, air quality monitors, smart waste bins, smart parking, people counting, soil moisture readings and hundreds of other uses, and all on a network that is free to use. Moreover, not only can City of Ryde use it - but the coverage is also available to anyone in the community at no cost, effectively providing a fantastic community asset.

The use of IoT within City of Ryde Council today is still in its infancy but the proactive water level monitoring that the project team has delivered highlights the potential to provide a much greater scope of capabilities in the future. We are just embarking on the new age of connected asset management - but the best is yet to come.

Challenges:

1. Finding ways to use funding provided under SCSP initiative to improve the sustainability of the urban environment in City of Ryde council area
2. Building a partnership approach involving technology and service providers, governmental and research groups to more efficiently address environmental challenges
3. Leveraging IOT-based sensor technology to proactively maintain living green wall of plants within green bus shelter
4. Developing alerts that drive specific actions and target specific individuals rather than merely informing head office that a limit has been exceeded.

Benefits:

1. Proactive alert capability delivers clear call to action, enabling City of Ryde Council to save time and money that would otherwise need to be spent on replanting the Living Wall or on making repeated manual checks of water levels
2. The remote wireless management of water levels within the Living Wall brings cost efficiencies as all data is transported on the Things Network free of charge
3. Long-term potential to use connected asset management capability and breadth of existing network coverage for a range of other key council tasks including street lighting control, air quality monitors and smart waste bins
4. The network coverage is available for anyone in the community at no cost, providing a fantastic community asset that helps build public engagement.

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