Qld Water digital utility conference

The Queensland Water directorate proactively moves digital with AMR initiatives and group collaboration.

Off the back of a recent Digital Utilities and Automated Meter Reading Workshop conducted by Queensland Water, we summarise what the industry is doing in this part of the country. With limited seats and many turned away, Parasyn were amongst a select few to be invited to the Digital Utilities Workshop, where a number of councils and water organisation presented their water metering projects and strategies which included a "wort's and all description" of their journey so far.
Firstly, Water; a compliant and safe industry, is now been driven by customer centricity and smart asset management.
The Water Services Association Australia latest Asset Management Customer Value Project 2016 aim is to enable organisations to enhance business and customer value through;
• Assessment of asset and infrastructure maintenance and performance
• Improving net return from physical assets through management improvements
• Working towards sustainable, durable and resilient assets and businesses that have a customer focus
• Preparing organisations for ISO 55001 implementation and certification
The study delivered by AECOM/CH2M, concluded a disconnect between asset management theory and practice. This is outcome is not limited to the Water industry and is representative of enormous opportunities to now presenting themselves in a common drive to use new technologies to improve asset performance.
Commonly quoted benefits of automated meter readings include;
• Water loss detection – Including Non-Revenue Water, reducing system & production losses
• Reduced Field Operation & Maintenance costs – Reduced manual reads (safety increase, cost reduced in some areas), targeted maintenance and better customer service.
• Improved Usage Information – better decision support, real-time demand management impacts, billing accuracy.
• Reporting Improvements – Billing efficiencies, customer empowerment (or better engagement).
What is apparent and necessary for most utilities was;
• Wider engagement including all areas of the business, consumers and industry partners to achieve a good result from their AM pilot projects.
• A desire by all to move away from reactive customer service to proactive, supporting empowerment and positive behaviour change. (This is something which has been common place for many years in the power distribution industry. Technology is the enabler to allow the water industry to leap frog power system customer service standards).
• Aim for less uncertainty in price/service customer concerns with the knowledge that the AM project would reduce costs over the long term from removing losses.
Impediments to proceed with AM projects included;
• Developing a reasonable cost justified case to proceed
• Integration with other business systems
• Immature market adding to selection confusion and concern in being an early adopter
• A lack of understanding on how to use the data effectively
• Lack of benefit realisation due to disaggregation of industry

The Journey

Each Utility looked at the opportunity within the context of their organisation and their unique position. For some utilities, there was no viable and immediate opportunity to deliver an automated metering program as a key economic driver, "demand management", was not available. This is because in South East Queensland, the bulk water and network (SEQ Water) is not under the control of the distributors (council/local water operators) and therefore there is little economic benefit to the service provider to change consumption behaviour. This is the same for many other distributors around Australia where they don't own the production facilities.
However, for other S.E. QLD Water Utilities, there were other approaches. For example, Queensland Urban Utilities (QUU) focussed on their top 100 customers which were mostly in high density areas. This allowed for a more economic pilot, trialling several technologies and delivering usage data to customers that needed it more than others (e.g. live consumption data per hour, per shift, per run, day etc). Unity Water (UW) reviewed and analysed other utility metering programs around Australia to determine whether their drivers were valid to their unique situation. Collectively UW used reduction in non-revenue water, cost of meter reading, leak rebates and delayed infrastructure funding (demand management case) to drive their pilot. Early in their project they noted it was more about data (or perhaps all about the data) rather than meters or metering technology.
City of Gold Coast (CGC) decided on a holistic metering services contract including AMR, manual reading, asset management and maintenance. CGC have already taken the steps to implement a low power wide area network (LPWAN) based on LORA (Proprietary two-way system for device communications). The decision to use this technology for AMR was driven by smart city initiatives (Commonwealth Games 2018). Most other AMR solutions are using "Taggle" because the cost per read is significantly lower including long term maintenance.
Townville took a very human interactive approach to their AMR pilot as they believe that a successful outcome could be achieved by behaviour changes through community capacity building and knowledge transfer. As an outcome from Townville's pilot, they observed a 10% reduction in water usage from customers who used their portal (knowledge/empowerment) and detected leaks at 6% of the participants by using basic analytics (rate of change alerts). Townville also included a number of other environmental data gathering programs with their AMR trial. They developed specialised sensors with the local university which were used for non-metering applications but still using the same infrastructure (Taggle). They also added temperature sensors to house roofs to determine the cooling effect of paint colour. The community was also involved with many other side projects using the data to educate with the intent to change behaviour.
It was interesting to observer how each AMR pilot was developed based on local conditions, utilised local resources, using a common set of business drivers but delivering results that were not intended. Mackay Water was one of the first to embark on the AMR journey back in 2011 and the technology was brand new and unproven. Mackay Water were delighted to develop a solution that is now used by several other councils. Mackay are now redeveloping their application using more modern technologies than were available 6 years ago.

Summary

Verified (useful) data is important as it provide insights into operational performance unimagined prior to its development. We call this hidden information, gems. The cost of acquiring data is becoming significantly less due to new emerging technologies such as Taggle (and not just one technology will be deployed for data gathering simply because there are many problems to solve). The ability to build new applications in just a few weeks is becoming possible with IoT platforms (not applications). This will continue until every device is connected, delivering significant efficiencies in every organisation. The savings are inevitable. The greater savings are for those who act sooner (making it a priority in the organisation).
An important observation from the AMR/Digital Utility presentations was that there is a disconnect between current operational technology (SCADA, Telemetry, Control systems for retic/plants etc) and the AMR technologies as used in smart city applications. On enquiry, some said it was too hard to access their SCADA data, while others said it was simply a different application. The result was a "divide" between smart city initiatives (generally driven by business and IT) and existing automation (owners of OT).
To achieve end to end business synergy (take out costs and losses from a business and its processes) across the entire supply chain from sourcing and production to the customer experience, we need to remove the silo's within organisations and start embracing technology holistically. It is certain that traditional SCADA will be replaced by the next generation IoT technologies and this will liberate data for the whole of the companies benefit. The savings will be realised by those willing to go first.