SYDNEY WATER'S CUSTOMER HUB: TOWARDS AN ENHANCED CUSTOMER EXPERIENCE

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ABSTRACT
Sydney Water provides water and wastewater services to 4.8 million customers across Sydney, the Illawarra and the Blue Mountains, and responds to an average of 200,000 service fault calls each year. In line with the corporate Lifestream strategy, Sydney Water is driving towards a customer-centric (rather than asset-focused) management of service interruptions through its new Customer Hub.

This paper explores the customer centric design, Agile capability build and customer experience outcomes achieved to date. Innovative teams, process and technologies have enabled a focus on resolving the individual customer’s problem, proactive outage notifications, keeping customers informed, real-time situational monitoring and works planning to minimise community impacts.

INTRODUCTION
The industry accepts that interruptions to water supply and containment failures of the sewerage system are inevitable, largely through unforeseen asset failures or planned work. The asset centric philosophy has traditionally been ‘fix the asset, fix the customer problem’.

Sydney Water has highly mature monitoring and control capabilities for critical assets, however like most utilities is blind to local reticulation assets that cause customer issues. Historically, customers report service faults via a phone call and are the initiator of an internally focused, linear service faults process, summarised in Figure 1.

Despite this, Sydney Water was performing well and regulatory customer benchmarks were met. A half-yearly Customer Satisfaction (CSAT) survey of a random sample of customers reporting a service fault had been run for six years. The long-term CSAT results were stable, with customers typically scoring an overall satisfaction score of 8.3 out of ten, but with a 6.5 out of ten for ‘keeping me informed’ (December 2016). However, results were only released half-yearly and real-time service recovery could not take place.

The introduction of the Lifestream strategy meant Sydney Water started to look at the business through the eyes of the customer. An enterprise wide customer journey map was created. The day to day supply of water and waste water services came under ‘Use and Consume’. Whereas failures of service supply were entitled ‘Troubleshoot’ and was one of the first customer journeys to undergo independent customer research.

It soon became clear that an opportunity existed to improve the Troubleshoot customer experience. Previous data did not tell the whole story. During half yearly CSAT surveys, it was difficult for customers to relay how they felt at a point in time, some weeks or months after an issue was no longer fresh in their mind. Sydney Water was often blind to a customer’s real issue, e.g. ‘I can’t shower so I will be late for an interview’, or ‘My elderly relative is dehydrated’.

In short there was little appreciation of the customer’s journey with Sydney Water, when faced with a service fault, or real-time monitoring of the customer experience. Consequently, little could be done to alleviate the customer’s issue.

Figure 1: Simplified Service Faults Process (as-is)

This process was supported by work passing through three business units plus contractors, with the possibility of job delays and/or communication failures. Contact Centre, case management and scheduler teams were in three locations, and reporting to three different managers. Void of feedback channels and integrated IT systems, frustrated customers have sought updates on job progress, increasing call volumes to Customer Service Representatives who have minimal visibility of job progress. Separated business silos meant that not all KPIs aligned (e.g. trade-offs between Grade of Service in the Contact Centre, response times in the field and business efficiency).

Despite this, Sydney Water was performing well and regulatory customer benchmarks were met. A half-yearly Customer Satisfaction (CSAT) survey of a random sample of customers reporting a service fault had been run for six years. The long-term CSAT results were stable, with customers typically scoring an overall satisfaction score of 8.3 out of ten, but with a 6.5 out of ten for ‘keeping me informed’ (December 2016). However, results were only released half-yearly and real-time service recovery could not take place.
This is a ‘moment of truth’ for the customer. How Sydney Water responds in that moment will define that customer’s experience and inform the company’s reputation through their eyes. Their experience will influence how a customer talks about Sydney Water within the community. Being a state-owned corporation, it’s that community that votes in Sydney Water’s shareholder.

The Customer Hub has been established to solve two problems:
1. Proactively support customers through the ‘troubleshoot’ journey back to ‘use and consume’, whilst providing a highly valued customer experience.
2. Prevent customers from falling from ‘use and consume’ into ‘troubleshoot’ in a cost neutral way.

**METHODOLOGY**

**Asking Customers What They Want**

An independent customer research company was engaged for the ‘troubleshoot’ journey to understand the current experience for customers and to design a new customer journey based on best practice and customer requirements.

Externally, this research highlighted pain points. Customer feedback exemplifying these include:
- ‘I called to report a choke. It took them 3 days to fix it and never did it cross their mind that we didn’t have access to a toilet’
- ‘For the past year every time it rains I get sewage surcharges… had to repeat the process all over again to report the issue.’
- ‘I have seen 4 different Sydney Water people come out. I have no idea what they have done or if the issue has even been fixed’.
- ‘We experienced a water outage and received no notice... We were told there wasn’t a lot they could do because we were not ‘critical’…’

Internally some causes of these pain points included:
- ‘Job complete’ status may not reflect a resolved issue for the customer.
- Customer is not informed of progress
- Customer situation is not considered
- Incidents and jobs are viewed through a point in time, instead of being viewed holistically as part of a case history
- Poor diagnosis of issues and demarcation of assets contributes to multiple hand-offs
- Customers are not given sufficient notice or resources prior to turning off water
- No escalation points and no feedback channels

The outputs of this research were three customer ‘troubleshoot’ journeys, detailed in Figure 3 and summarised:

I. **I have an issue:** The customer has an issue that impacts them directly and they may or may not be required to help fix the problem, e.g. ‘I have no water’ or ‘I have an overflowing sewer in my back garden.’

II. **I have noticed an issue:** A customer may report an issue they have observed that doesn’t impact them directly, e.g. ‘I’ve seen a leak on the footpath on my way to work.’

III. **I’m notified of an issue:** Sydney Water will know that the customer has/may have an issue before the customer knows, e.g. planned work may disrupt supplies or telemetry has indicated an imminent asset failure and we want to inform the customer before they need to contact Sydney Water.

Journeys I. and II. have new customer centric features that represent a significant enhancement to the traditional reactive response to customer issues. Journey III. represents an entirely new journey for the organisation and the Customer Hub will continue to mature this capability. Sydney Water should know through maintenance planning or asset monitoring whether a customer will experience a service outage. Customer impact and effort should be minimised through planning and proactive notifications that a response is underway.

**Implementation via Business Capability**

As part of a wider enterprise operating model review to deliver Lifestream objectives, the Customer Hub was designed and constructed through a business capability lens. Starting with the new customer journeys, this involved innovative thinking and implementation approaches across people, process and technology layers.

To minimise customer risk, Sydney Water took a staged approach to implementation. In September 2017, a six-month trial in Western Sydney commenced operation, servicing a customer base of one million people. This was large enough to measure performance and warrant build with minimal disruption to the business, as it reflected an established operational area.

Before this, a long-term vision and high-level design was created utilising a mix of in-house managers, staff and external expertise.

For the Western Sydney trial, a minimum viable product (MVP) was scoped and built in six months by a dedicated in-house and cross enterprise team. The Sydney Water Executive gave the project ‘priority status’, clearing the way for resourcing and development. Critically, Agile methodologies for process and technology solutions were employed which saved time, allowed iterative problem solving and ongoing testing of solutions during the build phase, visible demonstration of progress and momentum, plus a seamless go-live. A traditional ‘Waterfall’ approach for people and change was
employed with intensive and broad stakeholder engagement. The following sections describe the outputs.

**PEOPLE**

The Customer Hub team is comprised of functional teams from three existing business units which cover the Service Faults process, namely:

- Customer Service Representatives from the Contact Centre
- Planners, Schedulers and Dispatchers from Civil Maintenance, interfacing with frontline staff including Network Technicians, Civil Crews, Contractors and Area Teams
- Customer Advocates from Networks

These teams were combined and co-located under a single point of leadership and strategic direction, in the form of a Customer Hub Manager.

In addition, a new team was created: Customer Duty Managers (CDMs). CDMs are managers providing 24/7 leadership not only to Hub staff, but to all Sydney Water operations. Utilising a risk based, forward thinking mindset, these managers provide leadership and visibility of customer impacts, supporting the resolution of more complex problems.

Co-location of teams is a key enabler for customer outcomes. Benefits of co-location include:

- Enhanced collaboration and hand-over to solve customer issues.
- Fast and accurate communication between previously siloed functions.
- Collective situational awareness with coordinated response.
- Single cultural identity.
- Integrated leadership and strategic direction.

**PROCESS**

Figure 1 demonstrates the simplified ‘as is’ service faults process, which was linear, supported by siloed structures and void of feedback loops. Figure 2 shows a simplified service faults process now incorporating feedback loops and supporting case management of high impact customer issues, service recovery and improvement. This has enabled a holistic view of customer needs, history and current problem.

To support the new customer journey, the new processes introduced:

- ‘Are you ok?’ empathetic scripting to identify the customer’s issue first, then investigate asset issue second.
- Choice of channels for customers to report issues or faults.
- Social media monitoring for customer issues.
- Setting realistic expectations based on actual field response times, not standard times.
- Assessment of customer impact for select jobs prior to dispatch, and mitigation of customer impacts.
- Predictive identification of service outages.
- Proactively keeping customers informed of changes to service recovery times, minimising customer effort and incoming call volumes.
- All teams in contact with the customer given customer contact details and greater context of customer’s problem.
- Outbound notification of job completion and real-time feedback.
- Service recovery of poor feedback and resolution of unresolved customer issues.
- Case management of highly impacted customers by Customer Advocates.
- 24/7 customer duty management.
- More online information regarding service recovery times on the Sydney Water website.
- Daily and weekly Continuous Improvement cycle based on customer feedback.
Innovative technology was developed to support new processes and front-line staff in delivering an uplifted customer experience.

**Geospatial Situational Awareness Tool**
Crucial to the success of Customer Hub was the development of a tool allowing data from multiple disparate systems to be displayed geospatially. The tool - Spatial Hub - was developed in-house by Sydney Water to provide members of the Customer Hub team, Area Teams and Network Technicians with a unified view of customer issues in real time, as well as to allow customer impact assessments to be performed for each service fault.

Spatial Hub incorporates sophisticated pipe tracing functionality that provides a customer impact assessment and prioritisation on each service fault. This allows work to be scheduled and performed in a way that minimises the number of and impact on affected customers. It also incorporates new dashboards to provide a visual summary of daily operations and maintenance along with tools for work order creation and analysis, heat mapping, and standard google map functions.

**Customer Notifications System**
A customer notification system was developed to proactively notify customers of work that may affect them and keep customers informed on the progress of any faults reported. To achieve this, Sydney Water utilised the off the shelf Whispir platform and created integration interfaces to allow data to flow to/from Spatial Hub, Maximo and the Sydney Water Customer Relationship Management (CRM) system.

The notification system was developed to provide:
1. Proactive notifications to customers via SMS and/or email to advise water outages
2. Updates via SMS/email on the progress of reported faults
3. Opportunities for customers to provide feedback

A challenge in implementing the notification system is the quantity of customer contact details held by Sydney Water (currently at 25%).

**Voice of Customer Feedback**
An interim voice of customer solution was developed by integrating the new customer notification system with the existing CRM. Customer feedback is sought at the following moments of truth:
1. Work order creation
2. Work order completion
3. Restoration of service following an outage

Net Promoter Score (NPS) is the measure of customer satisfaction used by Customer Hub. The standard NPS question has been modified slightly to allow for the fact that Sydney Water is a monopoly service provider. The question asked is:

*Based on your overall experience with this issue, how likely are you to speak positively about us?*

A NPS dashboard (Figure 4) is continuously on display for staff in the Customer Hub, along with verbatim comments received from customers. A daily review of feedback received is conducted, with processes fine-tuned as required.
A weekly review cycle is in place to provide lessons learnt from the customer feedback to frontline staff, as well as having an escalation channel available to customers.

Customer Advocacy
In addition to measuring customer satisfaction, NPS data is used to trigger real-time service recovery of any negative experiences reported by customers. A team of Customer Advocates perform service recovery by contacting customers and working towards a resolution. Insights gained are then used to improve processes of feedback to frontline staff.

Tools have also been developed to highlight typical pain points for customers (e.g. repeat faults, repeat contacts, private property impact). This allows the team to intervene and work towards a solution for the customer before an issue is escalated to a complaint. From the customer’s point of view, they are provided with a single point of contact who considers their needs and history.

Channels of Choice
Additional web channels have been provided as part of the development of Customer Hub that allow customers to report leaks, view current water outages and register to receive notifications online. This addresses the major customer pain point of not having any escalation points or feedback channels.

Internet of Things
Customer Hub is piloting the use of sensors connected to the Internet of Things (IoT) to better understand network performance and potentially identify asset problems before they become customer issues. The goal of the pilot is to prove low cost monitoring of low criticality but high customer impact assets. If successful, the IoT approach will be used to enable Customer Hub to reduce customer impact by addressing an asset problem before it becomes an issue for the customer. Use cases that are being addressed in the IoT pilot are:

- Detection of sewer blockages
- Detection of sewer overflows
- Sewer flow and level measurement
- Early identification of water pressure issues
- Waterway pollution detection

Customer Hub is testing a combination of communication networks for the pilot. 190 sensors have been installed in one wastewater catchment area.

RESULT AND DISCUSSION ANALYSIS

The Customer Hub capability build empowers front line customer facing staff with the tools, situational awareness, information, communication lines and management to make better decisions and realistic promises to customers. Since the implementation of the Customer Hub, all reactive and planned work job types have been covered across Western Sydney.

Early results over four months have been encouraging:

- Avoided loss of water supply to approximately 7,500 properties.
- An NPS of 53 from a 14% survey response rate.
- 80% customers ‘extremely satisfied’ or ‘satisfied’ they were kept informed.
- New channels have seen approximately 5,000 customers proactively notified via SMS/email advising them of interruptions to...
their water supply and kept informed of progress. Online web forms are seeing increasing traffic.

Avoided Service Failures
Spatial Hub has changed the way Sydney Water diagnoses faults, sets job priorities, assesses potential customer impacts and plans for water main isolations with service outages using situational awareness. Figure 5 shows the initial assessment of a shut-down area. Traditionally, with a lack of fast, easily accessible planning tools, this job would have affected 821 properties.

Figure 5: Initial assessment

Figure 6 shows how Spatial Hub can rezone an area, minimising affected customers to 65. Work order histories, sensitive customers and vital decision-making information - which was previously sourced from both digital channels and physical maps - is now integrated. In a four-month period, 7,500 assessed properties have been excluded from shut-down affected areas using Spatial Hub.

Figure 6: Final assessment

Net Promoter Score
NPS is a measurement of the difference between the number of promoters (9 or 10 out of 10) and the number of detractors (6 or below out of 10). A NPS above zero is desirable and a NPS above 50 is considered excellent. The four-month average NPS measured by Customer Hub as at January 2018 is 53. The current response rate for NPS surveys is 14%. An organisation employing NPS would generally anticipate a 7% response rate.

Figure 7 shows weekly NPS scores, which range from 65 to 39, as well as an increasing customer survey response rate. A dip in NPS score was seen through December 2017. Customer feedback uncovered a recurring theme of delays and timeliness in crews attending the job, despite no increase in work order creation rates or decrease in crews in the field. With hot weather, traffic, start of school holidays and the run up to Christmas this may have been a critical period for Sydney Water customers, where service expectations are heightened and outage consequences are larger. This trend will continue to be monitored to better understand what is important to customers and how Sydney Water can respond.

Figure 7: NPS

Customer Satisfaction: ‘Keep Me Informed’
Previously, CSAT was gauged half yearly through a random sample of Sydney Water customers who had experienced a service fault. This was a focus as customers routinely scored Sydney Water a low 6.5/10 (July-December 2016). Together with pre-notification of an outage, it was also a strong theme uncovered in customer research. Moment of truth feedback has been introduced to gain real-time insight into customer satisfaction at a point in time during the troubleshoot journey.

Figure 8 shows that over a four-month period, 80% of respondents have been ‘extremely satisfied’ or ‘satisfied’ with being kept informed.

Figure 8: ‘Keep me informed’ score

Compliments from customers on being notified were received as part of the voice of customer feedback process, including:
‘The notification process is excellent. Getting a text message and an email prior to the water being turned off, and then another one just as it came back on was really helpful. The link to the information about what to do next re: flushing the water is a great service.’

Service Recovery
Feedback data is an important guide to understanding the customer’s sentiment in real time. It’s important to stress that what you are seen to do by the customer with their feedback (in the moment) is where the value is added. Service Recovery is used to follow up customers who gave an NPS score of six or less. Within one hour of a low score a Customer Advocate will contact the customer to understand their issue and if necessary create and instigate a recovery plan. The aim is to turn detractors into promoters.

Below is an extract from some feedback, where the customer gave a score of 4/10 initially:
- ‘duty of care was lacking... Generally disappointed with the lack of restoration efforts...’

The same customer gave feedback one day later, after going through the service recovery process, with a score of 9/10:
- ‘The repair is now fixed and the immediate environment has been restored... I would be happy with the restoration if it were at my own home.’

An NPS target has not been set, and instead is a contributor in assessing overall customer experience. The process of service recovery and continually improving service based on all customer feedback (good and bad) is more important outcome than the numeric value of NPS.

New Communication Channels
For work that has approximately a month’s notice Sydney Water has always endeavoured to mail drop properties in advance of a known outage. This has not always been reliable and shorter time frames of a week or minutes, has not been possible.

In the first four months of operation, the Customer Hub has proactively notified approximately 5,000 customers of interruptions to their water supply and kept them informed of progress. A challenge for the Customer Hub is to increase its reach. The quantity of customer contact details held by Sydney Water is approximately 25%. Various methods are being trialled to improve this coverage including online registration, bill flyers, parallel roll-out of e-billing, and the potential to use third party data or third-party messaging services.

Figure 9 shows that web channels for reporting a leak or service fault are increasing. It’s too early to conclude whether there has been a sustained reduction in inbound phone calls, however early results show an average reduction of 4,000 calls per month. Webforms are available to all Sydney Water customers, but proactive notifications are currently only deployed to a subset of Western region customers who have provided their contact details. Creation of a new web channel has provided customers a choice in engagement, which has attracted digital natives who prefer to report faults online rather than via a phone call.

[Graph showing Inbound calls Vs Webform submissions]

Figure 9: Webform use, proactive notifications and inbound phone calls
FURTHER DEVELOPMENTS

Extend Customer Hub Sydney-wide
The Customer Hub trial was designed to serve Western Sydney (one million customers). The next phase of the project will extend to North and South customers, covering all 4.8 million Sydney Water customers by late 2018.

Inclusion of all Monitoring and Control Teams
Sydney Water’s Systems Operations Control (SOC) will be included in the final Customer Hub design and co-located. This will provide a centralised 24/7 customer centric control facility capable of adopting new technology to improve customer outcomes.

Optimise Interface with Field Crews
Critical to successful customer outcomes is the model for works planning, scheduling and dispatch interface with maintenance field crews and contractors.

IT Development
Customer Hub is IT dependent. An ongoing Agile technology build will enhance capability to adapt to changing customer and business needs.

Internet of Things
As part of the Customer Hub program, Sydney Water is trialling the use of IoT and low-cost sensors to improve the visibility of asset performance and potentially predict service outages. IoT is an emerging technology with great potential. The Customer Hub team will work to apply IoT to avoid service faults and outages, ultimately improving customer outcomes.

CONCLUSION

The Customer Hub has been established to solve two problems:

1. Proactively support customers through the ‘troubleshoot’ journey back to ‘use and consume’, whilst providing a highly valued customer experience.
2. Prevent customers from falling from ‘use and consume’ into ‘troubleshoot’ in a cost neutral way.

The Western Sydney trial was established predominantly to tackle Problem 1. By asking the customer what they want, rather than relay Sydney Water’s own expertise and assumptions, an experience that resonates with customers has been created. Service outages can be unexpected and disruptive to customer’s lives. How a utility responds to every customer at this moment of truth will determine corporate reputation within the community.

Problem 2 is a much larger challenge, involving long-term cross-enterprise thinking and innovation. The Western Sydney trial has addressed a component of

ACKNOWLEDGMENT

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