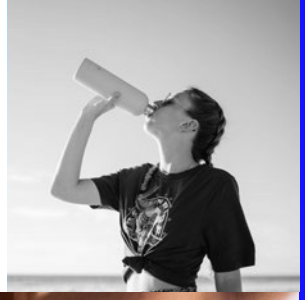

CASE STUDY:
Functional Testing

A Customer Powered Experience

Delivering better and more timely information to customers with the help of new and integrated IT solutions.

INDUSTRY:

Utilities

KEY OUTCOMES:

- $8-16 million saving in annual operating expenses.
- 3-5% uplift in customer satisfaction.
- Reduction of 4,000 phone calls per month.
- Successful IoT pilot consisting of 190 sensors.
- Integration with 10+ systems.

Problem

Like most utilities, this water utility has mature monitoring and control capabilities for its critical water and wastewater service assets. However, its service restoration process often had significant human resource costs, requiring multiple business units in multiple locations to deliver a single customer journey.

The fragmentation of responsibility introduced effort overhead and risk of errors. Even so, this process worked well for the water utility for many years, and regulatory customer benchmarks were met.

The utility registered a positive overall satisfaction score in its halfyearly customer satisfaction survey of a random sample of customers reporting a service fault. However, the score for “keeping me informed” category in that same survey was typically 20% lower.

This made the water utility realise that the traditional, asset-centric philosophy of “fix the asset, fix the customer problem” was not sustainable for the longer term. To improve customer service, they would have to pivot its approach to service restoration and maintenance from asset to customer focus.

A customer-centric project was created to proactively support them through a service issue with a high value customer experience. This new customer journey and uplifted experience would be achieved with the help of new and innovative technologies and processes.

DELIVERED:

- Functional Testing
- Performance Testing
- Websites Testing
- Test Management
- Staff Augmentation

Solution

A minimum viable product (MVP) was scoped for a trial. The customer project was then built in six months by a dedicated in-house and cross enterprise team.

Agile methodologies were used to enable iterative development and ongoing testing of the project. This approach would make the most of resources for the ambitious six-month development schedule.

The customer project is comprised of several new and interconnecting technologies. We were responsible for their end-to-end test planning, management, and delivery.

A **geospatial situational awareness tool** was developed to pull data from multiple systems and then display it geospatially. With the help of sophisticated pipe tracing functionality, the utility's staff have access to a unified, real-time view of customer issues, as well as the ability for customer impact assessments to be carried out for each issue.

We carried out functional testing on this tool to validate its dashboard and all accompanying functionality. Integration testing was also done to ensure that it was correctly and reliably accessing information from the 10+ systems it was integrated with.

Performance testing ensured there were no data bottlenecks at all the integration points. This ensured that the tool would run quickly for call centre staff while talking with a customer.

One challenging aspect of testing the internally-run system was its integration with external Cloud-based services from Google and Microsoft. This meant security measures such as firewalls and shared Internet traffic had to be considered during performance testing.

A new **customer notification system** was developed to proactively notify customers of work that may affect them. Its primary function is to send out advance notifications via SMS and/or email about water outages.

We carried out user experience (UX) testing on the message templates and notifications to ensure they worked correctly for staff who created the messages, and customers who viewed them. Integration testing was done between Whispir and Spatial Hub, Maximo, and the customer relationship management (CRM) system.

Since there was no effective way for this tool to cross-communicate with Whispir and the CRM, we specifically created an API that enabled this integration.

Customer satisfaction would be measured with a Net Promoter Score (NPS) and be used to trigger real-time service recovery of any negative customer experiences. We tested all the integration points between the new customer notification system and the CRM so they worked correctly and without bottlenecks.

New Internet-enabled channels for reporting leaks in public spaces were developed to provide customers with more choice of escalation and feedback points, as well as reduce the number of calls to the contact centre. Customers also have the option to view current water outages and register to receive alerts.

TECHNOLOGIES:

- Google Maps
- Whispir
- Maximo
- Microsoft Azure
- PowerBI

TOOLS:

- TIBCO Workspace
- TIBCO BusinessWorks ProcessMonitor

Functional and integration testing was done to ensure that the forms and alerts worked correctly, and that the information captured from these forms was correctly stored in the CRM. UX and compatibility testing was carried out to ensure that the new channels worked correctly across all popular web browsers and devices.

The creation of the customer-centric experience was an opportunity for the water utility to test pilot the **Internet of Things (IoT)** for low-cost monitoring of its non-critical yet important assets. 190 Internet connected sensors were installed in one wastewater catchment area to measure asset performance and identify any issues before they affect customers and/or create any environmental impact.

Functionality and performance testing of the IoT setup was done based on use cases provided to us. We ensured that the three types of sensors used in the pilot transmitted the correct data to Micosoft Azure and PowerBI before it was brought into the geospatial situational awareness tool for monitoring and creating alerts.

Outcome

The customer-centric initiative successfully met its go-live date for the trial. We contributed to the delivery of hundreds of test cases that enabled the trial to meet its target deadline.

In its first four months of operation, the geospatial situational awareness tool helped mitigate water loss to approximately 7,500 properties. The tool is so powerful that a job that previously would have affected more than 820 properties can be rezoned with the tool to bring this down to approximately 65.

Online channels for reporting a leak or service fault became the first point of contact for many customers. This led to an average reduction of 4,000 phone calls per month.

Thousands of customers were also informed via SMS/email about interruptions to the water supply and restoration progress. 80% of customers now said they were “satisfied” or “extremely satisfied” in how they were updated by the utility, a marked improvement of the earlier 6.5 out of 10 score.

As a result of these improvements, the water utility’s NPS score reached 53, which is considered “excellent” on the NPS ranking scale. 14% of customers responded to the NPS survey, with most organisations typically anticipating a 7% rate.

Following the successful trial, the water utility rolled out the new customer experience to its entire customer base later that same year. As part of this wider rollout, we contributed hundreds of additional test cases.

The above innovations did more for the water utility than simply improve the customer experience. They also helped the utility save between 3-5% or $8-16 million in its annual operating expenses, with a large part of these savings attributed to its high quality.

ABOUT PLANIT:

At Planit, we are experts in quality engineering and assurance. With strong utility domain experience, our specialist consultants can help you deliver a customer friendly online experience, and support the successful implementation and integration of your complex range of platforms.

Ask us how we can help you delight your customers and unlock more value from your systems!

Contact us →

Our contribution to the quality assurance work on the whole project ensured that it was delivered on time and under budget. It also became the first digital project at the water utility to achieve both milestones simultaneously.

The various features and innovations of Customer Hub not only won accolades from customers - it also went on to win several industry awards. One award was for most effectively harnessing digital solutions to achieve excellence in water or wastewater management, and another was for showcasing the best use and implementation of digital technologies, tools, and processes across the organisation.

The IoT trial was a success and led the water utility to greatly increase the number of sensors used for it. The utility is now in the process of estimating and creating a business case for implementing the technology more widely across its customer base, which we would potentially be testing once again but on a much larger scale.

The customer-centric design, Agile-led development, and innovative implementation of the customer-centric solutions enabled the water utility to achieve its goal of proactively notifying and resolving customer issues to minimise their impact on communities. More significantly, it enabled it to become customer-centric, rather than asset-focused, in the way it manages and delivers its services.