

A DIGITAL STRATEGY FOR LAND DEVELOPMENT

HOW YARRA VALLEY WATER SAVED COSTS, OPTIMISED RESOURCES AND ENHANCED ONLINE CUSTOMER EXPERIENCE THROUGH THEIR EASYACCESS PORTAL

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ABSTRACT

This paper details the easyACCESS program of work to automate the Land/Property Development process for Yarra Valley Water (YVW).

In particular, it focuses on the integration of a business rules engine to map processes and streamline decision making. This has proved that automating, where appropriate, does significantly contribute to improved business results; including savings of \$2.5m annually, and resource optimisation, despite a 22% increase in Land Development Applications and enhanced customer outcomes.

These applications can now be completed in less than five minutes. The team operating easyACCESS now has an outstanding culture with an OCI (Organisational Cultural Index) improvement of 41% in the positive measures.

In 2015 Yarra Valley Water was presented with a worldwide Decision Management Award for Decision Management Innovation.

INTRODUCTION

Yarra Valley Water (YVW) is Melbourne's largest water and sewerage retail business. It provides water supply and sewerage services to over 1.8 million people and over 50,000 businesses in the northern and eastern suburbs (Figure 1).

YVW delivers an essential service to customers undertaking land development, city infill, building changes and plumbing connections. Customers range from the general public through to professional consulting firms and the activity is commonly known as the land development and plumbing industries; generating 27,000 applications, managing 80,000 phone calls, 40,000 emails and \$65m in revenue per annum.

In 2013 YVW implemented the easyACCESS system, with an industry first FICO (Fair Isaacs Corporation) business rules engine to assist in the decision making process for Land Development.

Typically for the water industry, this is a multi-step process with several contacts necessary, however, in 80% of YVW cases, easyACCESS automatically delivers within a single contact; conditions of connection along with the products, services and costs required. The new technology has dramatically reduced turnaround times and the responses are consistent.

The 2015 launch of easyACCESS to large developers, high volume builders and plumbers to process Development Applications via an online self-service portal is proving a major success. Of all applications, 30% are now processed online by customers.

PROCESS

Prior to the Introduction of EasyACCESS

YVW will need to service an additional 120,000 homes in the Northern Growth Area alone by the Year 2040, as predicted by the Metropolitan Planning Authority (Figures 1 and 2). Feedback from the Development Industry indicated that a faster, easier system was required for submitting land development applications.

At this time, YVW's labour-intensive process was predominately paper based and the turnaround time to receive a response was weeks to months. Manual workarounds were common place and staff roles were limited in scope, restricting the ability to increase customer service outcomes through innovation.

Data reliability issues and frustration towards the system was impacting the culture of the team operating the system. System knowledge was embedded in and applied predominately by employees, which impacted the quality and consistency of responses to customers.

To broaden the exposure of YVW and make it easier for customers to submit applications, in 1995 a partnership with Plumbing Store Agents commenced.

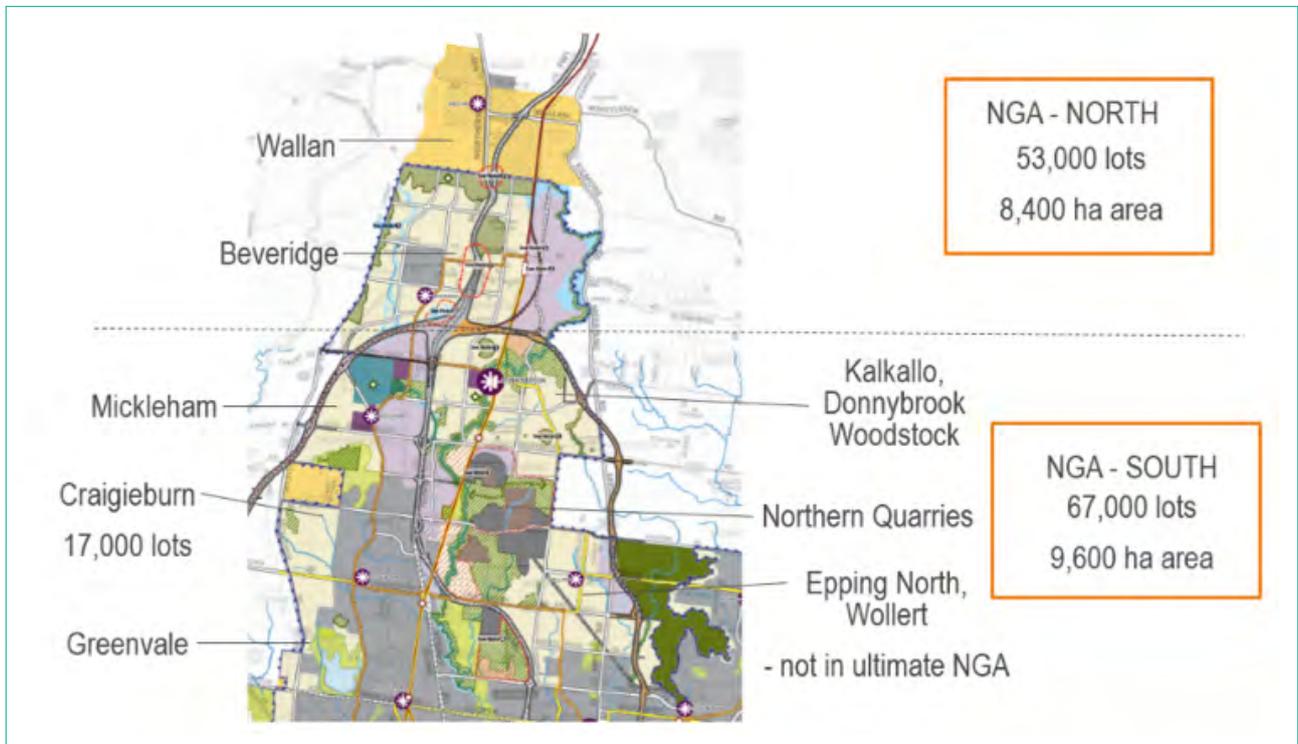


Figure 1. YVW Service Area highlighting the Northern Growth Area (NGA)

The services available to Plumbing Store Agents were processing Single Lot applications, payment of Single/Multi-Unit Applications, and booking requests for connections.

While this was convenient for customers submitting a few application types, not all services were offered and there was no referral system of rules in place to seek YVW's approval.

YVW embarked on a technical journey to prepare systems for the introduction of online self-service applications. The implementation of key systems (Figure 3) improved the standard of YVW data dramatically. In 2006 a decision was made to separate customer information from property (address) information in existing systems with the following concept in mind.

The customer moves in and out of a dwelling while the property remains static. This concept enabled YVW to successfully implement a single source of truth for customer and property data. YVW sources address information from Land Victoria

periodically and stores this data in a system introduced in 2008, known as the Property Information Management System. A new billing system shortly followed in 2010 to store

customer and billing data, and an upgraded, sophisticated Geographical Information System (GIS) was also introduced. A land development information portal for customers and



Figure 2. Map of YVW Northern Growth Area (NGA)

Table 1. shows the capability of easyACCESS to make decisions.

Category	Min Pathogen LRV Recommended			Typical Treatment Train
	Bacteria	Viruses	Protozoa	
1	4.0	0	0	Chlorination (possibly following clarification)
2	5.0	3.0	2.5	Direct filtration ¹ Chlorination
3	5.0	4.0	3.5	Conventional treatment ² Chlorination
4	6.0	6.0	5.5	Conventional treatment ² . UV disinfection Chlorination
Potable reuse	Refer to the stormwater and sewage potable reuse guidance given in the Phase 2 Australian Guidelines for Water Recycling series for water sources that have in excess of the stormwater and/or treatment sewage inflows tolerable for a Category 4 water source.			

staff placed all relevant information within easy reach. This allowed information, previously stored in internal manuals, industry standards and within the heads of key personnel, to be accessible to a larger external audience.

The EasyACCESS Suite

At its core the easyACCESS suite is a land/property development IT System capable of assessing applications and servicing a wide variety of customers (Figure 6). Developers, consultants and contractors use an infrastructure design and construction portal to manage and track all land development projects where water and sewer assets need to be built.

Developers, builders and plumbers use easyACCESS for all land development/property application types. Solicitors and conveyancers use the PropertyFlow system for rates settlement statements and the general public has access to information products such as sewer/water asset plans and internal property sewerage plans. In addition to the above, YVW staff use easyACCESS to complete town planning and certification applications referred to YVW from SPEAR (Surveying and Planning through Electronic Applications and Referrals), a main system used by municipalities throughout Victoria.

This paper is predominantly focusing on the easyACCESS portal for land development application types

submitted by developers, builders and plumbers. The concept for their needs is an online self-service portal with a rapid response and minimal YVW intervention wherever possible.

A number of decision making tools were investigated. FICO had already proven its success in the international banking and insurance sectors. YVW has been informed this is a worldwide industry first for water utilities. The easyACCESS portal for land development applications utilises a business rules engine that reduces decisions for users based on property, spatial, billing and asset data.

By mapping out the decision-making process YVW could determine where the business rules engine could make decisions on behalf of users. For example, in a single property land development application for water and sewer connections where 27 decisions are required, easyACCESS makes 81% of those decisions on behalf of the user who only has to answer five questions (Table 1).

The engine, combined with a user interface, has reduced the average time to complete this application to less than five minutes. This example is based on a typical scenario, however, where a larger than standard connection size is needed, this will require more questions to be answered by the user.. Some of the decisions are made in isolation using only one piece of data, and

others can require multiple pieces of data that are reused multiple times throughout process flows. In addition to capitalising on the use of data to reduce the questions required for the assessment of an application, there are also major benefits administratively.

easyACCESS determines application fees and required plumbing products, compiles invoices, communicates with the YVW billing and GIS systems and records every transaction.

The system is based on a five-step process; the selection of the property to be developed, choice of application type, answering a series of questions, completion of applicant details, and payment of application fees (Figure 7). easyACCESS systemises a response to the user based upon answers to integral questions from the user.

This response includes approval numbers and conditions of connection to YVW infrastructure. Approximately 80% of these applications are fully automated with no human intervention required. If the application triggers a business rule, it will be referred to a specific business unit within YVW for the application to be assessed before the user receives the complete response. For example, a property requesting a connection size larger than the standard size will refer to a relevant YVW team to review and approve the reasoning for the larger connection.



Figure 3. Timeline of YVW System Introduction

Some applications are not likely to trigger any referrals, however business decisions and risk mitigation requires certain application types to always be referred for assessment by YVW staff.

Currently there are multiple user profiles with varied access levels configured in easyACCESS. An example is the YVW user profile for internal staff, which has access to all application types, questions and referrals. External users have access depending on their type of work. For example, builder company A will have access to all of its own work; plumbing company B will have access to all its own work; and a land developer C will have access to its own work which could overlap the relevant other work. All user profiles trigger referrals depending on the business rules configured in easyACCESS.

The digital strategy is not without risk. What if customers were to incorrectly answer questions to bypass certain requirements? It is one thing to agree on a business rule; however, without any staff intervention to check that responses are correct, this has introduced a whole new paradigm of automation and trust in data.

This was quite a shift for the business. YVW has determined that the risk and liability associated with a partially automated application

process outweighs the cost of managing and updating old technology. The business was able to agree on the degrees of risk associated with scenarios and make business rules to refer applications based on data and user input.

Over time, the degrees of risk are reassessed and business rules added or removed where needed.

Business Transformation

The Development Services Division within YVW is the business owner of the easyACCESS suite. The purpose of Development Services is to innovatively provide exemplary customer service to the land development and plumbing industries through fantastic people, advanced systems, quality data and with a vision of great community outcomes.

In 2014 the Division undertook a transformation to restructure its workload to better support easyACCESS and customer needs. As part of this restructure, the easyACCESS Support Team was formed to update business rules, lead system enhancements and support the easyACCESS Suite of systems and online customers.

Dedicated online support specialists now visit developers, builders and plumbers to demonstrate easyACCESS. Users are provided with account access, training support,

visits when required, monthly accounts and dedicated support for all Development Applications that are referred to Yarra Valley Water.

The easyACCESS Team has been responsible for a number of system enhancements. The majority of these ideas for enhancements are received from Development Services staff and provide tangible benefits to the business, including reducing the time taken to process applications and introducing new application types.

In addition to the online self-service portal, customers can also submit application forms directly to YVW. There are two teams processing applications at YVW, using the easyACCESS Suite on a daily basis. Until June 2016, customers also had the opportunity to submit applications via Plumbing Store Agents; however this channel has subsequently closed due to a decrease in customer demand through this channel.

OUTCOMES

Customer

easyACCESS has provided certainty for customers with a convenient, timely and consistent response. Land Development Applications processed by online customers without YVW intervention have increased to 80% in 2015 from 40% in 2013.

This means that for 80% of land

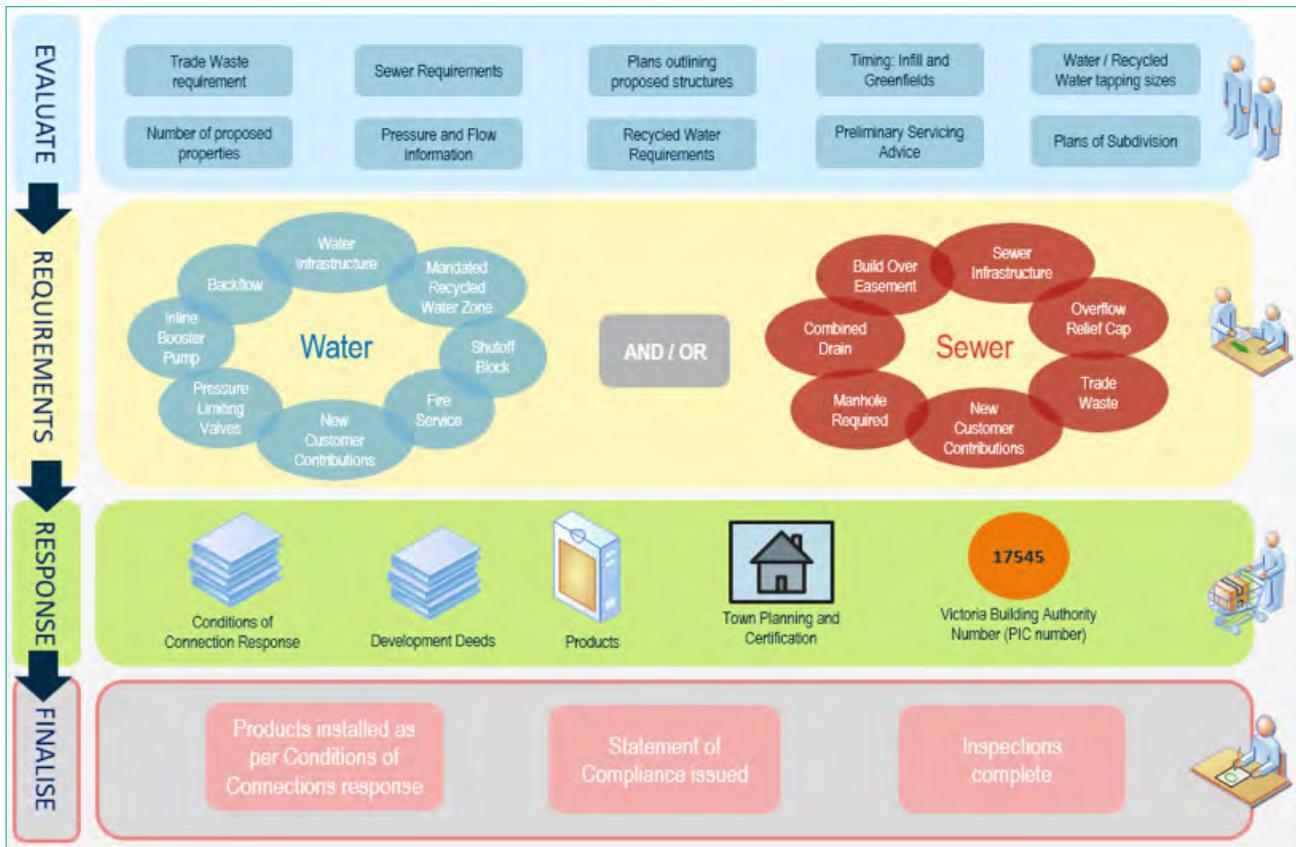


Figure 4. Land Development Application Process

Figure 4 shows a high level diagram of the Land Development Application process and required decisions.

development applications, users are receiving their response from YVW within minutes. There are numerous comments and testimonials received from customers such as ‘This is amazing, I can submit an application on my tablet onsite, and whilst the boys are digging the trench I’m applying for the PIC (Plumbing Industry Commission) approval’.

This feedback proves that the digital strategy is working to the benefit of the land development industry.

A feedback loop has been created between online support and developers, builders and plumbers who actively communicate their expectations for agile development of the system.

This has led to system enhancements, such as a new application type for estate connections (Table 1). A builder using

easyACCESS recognised that new estate connections are the same scenario for most of the time and suggested that if the data recognised as this scenario, an acknowledgement

question at the beginning of the application would shorten the time taken to complete the application.

This new application process flow has reduced the number of



Figure 5. Part of YVW's 2020 Strategy

Figure 5 shows four of the six core pillars from YVW's 2020 Strategy. The innovation of easyACCESS directly aligns with this strategy.

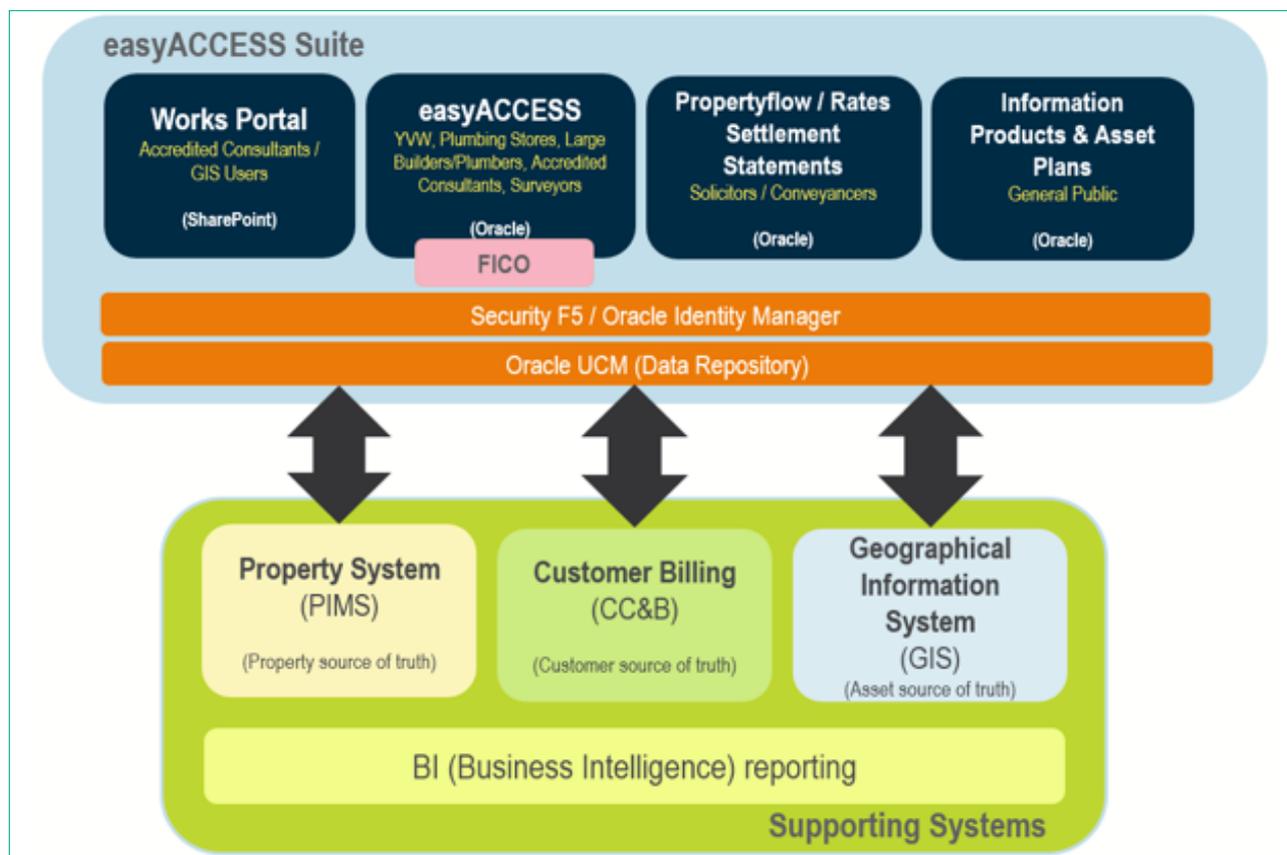


Figure 6. The easyACCESS Suite

Figure 6 is an overview of the easyACCESS Suite and supporting systems.

questions from eight to three for online customers by utilising more of the data that YVW already has without compromising outcomes. This was submitted as an enhancement by online support specialists on behalf of the builder and implemented shortly thereafter for the benefit of all users.

The proportion of online self-service has increased to 27% of land development applications as of June 2016 (Figures 8 and 9). This figure is continuing to increase as large volume builders and plumbers register for the easyACCESS online portal.

Business

YVW now has the ability to generate detailed reports and analyse industry trends, allowing an opportunity to revise and enhance easyACCESS, further increasing productivity. This has led to resource optimisation, despite a 22% increase in land

development applications over the last five years (Figure 10).

The implementation of easyACCESS has allowed a redesign of staff roles in a manner that frees up employees to generate enhanced customer service outcomes, which in turn has resulted in a greatly improved Organisational Cultural Index (OCI) result for the Division (Figure 11).

These cultural measurements are used internationally (Human Synergistics – Organisational Cultural Index). Prior to the implementation of this project, the Division’s results were among the lowest in YVW, reflecting frustration with the inconsistent and labour-intensive process. In comparison, the cultural measurements for 2015 were outstanding. The culture result for the staff using the easyACCESS system was world leading, scoring

41% in the positive measures. YVW is now regarded as being in the top few OCI scores; close to world’s best practice of. The goal is to increase the constructive organisational styles (blue in colour), and minimise the passive and aggressive areas (red and green segments).

The constructive organisational style in Development Services today can be attributed to YVW initiatives, including the implementation of the digital strategy and the easyACCESS Suite. The cultural journey of Development Services now allows employees to innovate and have control over their own workflows, while receiving peer recognition for enhancements. The increased employee efficiency and improved culture has resulted in high calibre, qualified professionals applying for roles within YVW.

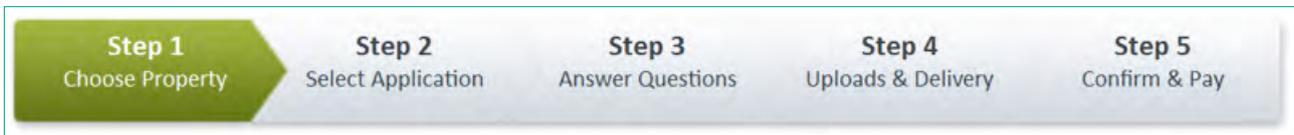


Figure 7. 5 Step Application Process

EasyACCESS has allowed for an increased scope and flexibility of works. With greater options for customers and improved customer service, it has resulted in increased revenue for Yarra Valley Water. The new products and services now provide savings of \$2.5m annually. In addition to this, information products provide an additional \$60k of revenue annually, with little or no intervention required from YVW staff.

This information is drawn from the various systems in the easyACCESS Suite and emailed instantly to customers. This increase in revenue has enabled us to reduce many of our prices for the development and plumbing industries for 2016/17.

Recently Yarra Valley Water has been presented with FICO’s 2015 Decision Management Award for Decision Management Innovation. This is a worldwide award judged in the United States of America. Michael Wu, chief scientist at Lithium

Technologies and one of the award judges, said, “Yarra Valley Water is using analytics and decision management technology in a very unconventional way to improve their complex application process. The judges were impressed by their creative solution.”

The rules engine is based on the Water Metering and Servicing guidelines (applied within Melbourne and used in other parts of Victoria) and Water Services Association of Australia. This provides great opportunities for other water utilities to use the complete rules package ‘as is’ with interest in applying the business rules engine.

CONCLUSION

The easyACCESS digital strategy has delivered an improved customer experience in parallel with improvements to staff satisfaction. This is currently being achieved with reduced resources despite increased Land Development Applications.

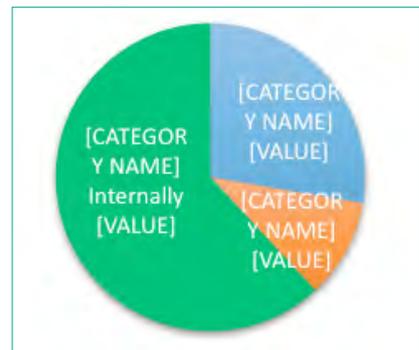


Figure 8. Application Channel Spread for June 2016

YVW continues to focus on growing the quality of the online customer experience for the benefit of developer, builder and plumbing customers.

YVW has provided numerous demonstrations at the request of other water utilities interested in adopting this strategy. The future applications of this technology are very exciting for the water industry.

Yarra Valley Water hopes to share this technology that has compatibility with several mediums.



Figure 9. 2015/2016 Monthly Application Volumes

Figure 9 shows the Application volumes in 2015/2016, with the uptake of applications processed by Online Customers increasing.

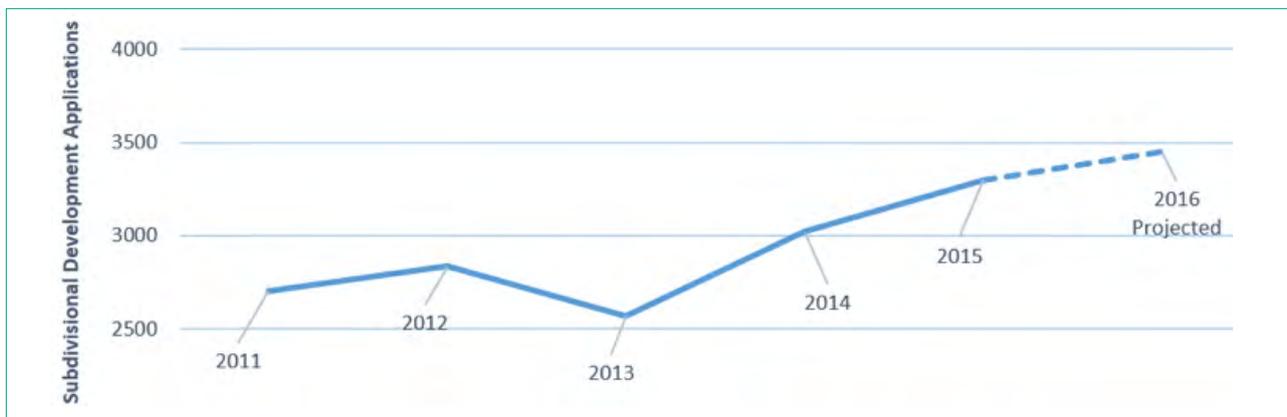


Figure 10. YVW Subdivisional Development Application Volume timeline 2011 - 2016

Figure 10 is indicative of the 22% increase of Subdivisional Land Development Application Volumes over the past 5 years. This does not include applications received from existing properties.

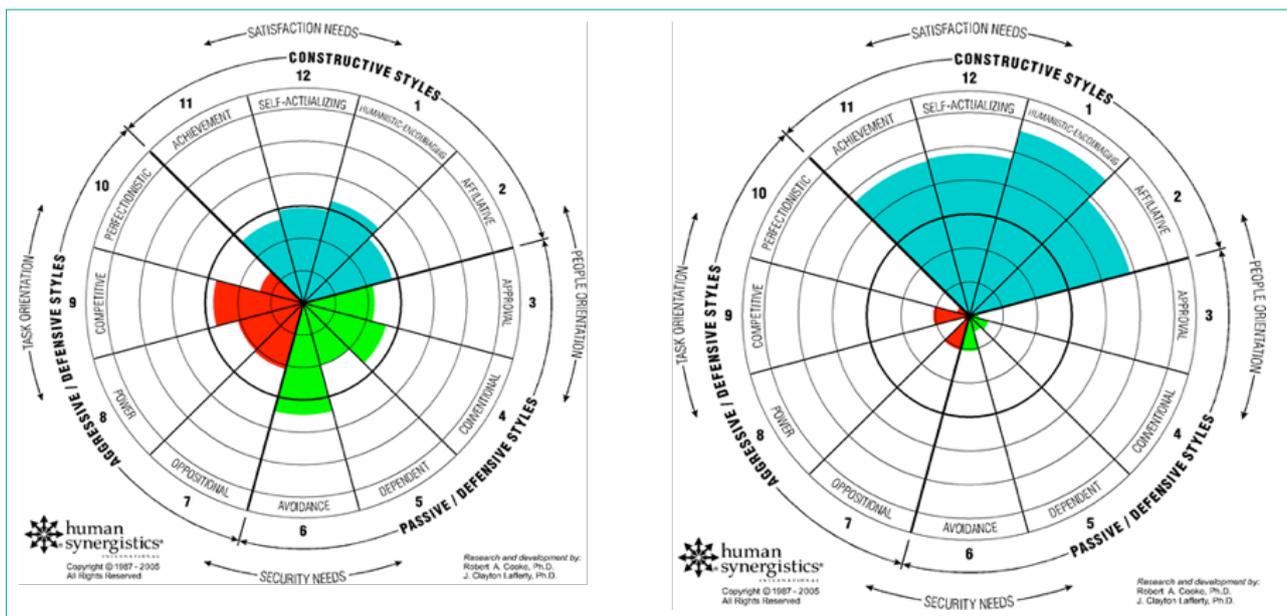


Figure 11. Organisational Cultural Index results for 2013 (left) vs 2015 (right) – the aim is to increase the blue, and decrease the green and red cultural styles.

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ACKNOWLEDGMENT

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THE AUTHORS



Amy Alchin has 8 years' experience in Business and People Management, with a proven strength in business operations,

training and developing an experience that exceeds expectations for customers. Amy has worked with Yarra Valley Water for the past 2 years, playing a lead role in the successful rollout of the easyACCESS Online Strategy for Large Developers, Builders and Plumbers. With over 200 companies using the system, she is responsible for the delivery and

implementation of the Online Strategy. Amy is passionate about nurturing and retaining customers to provide an outstanding service experience.

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