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eGovernment Transformation: Understanding Customer Value at
Marlborough District Council

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Case Study
(MMIM 590)

By

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Executive Summary

The drive continues around the world for eGovernment and the New Zealand public sector is no different. The public sector continue to develop and evolve their eGovernment solutions yet eGovernment maturity has not progressed significantly nor are eGovernment solutions evaluated, specifically not from a customer perspective.

eGovernment has been defined as the process of delivering information and services electronically using technology to customers of the public sector. The transitional stages of maturity going from a basic digital presence to more complex interactive environments describes eGovernment transformation. eServices are a subset of the many functions that eGovernment can deliver and provides the online interactive information and customer service component. There have been many benefits and challenges to eGovernment and these are mainly targeting the customer with: increasing access to information; increasing access to public officials; new opportunities for customer collaboration. Internal benefits are enhancing efficiency; and reduced costs. Yet academic research in evaluating eServices is limited and mainly applied from an internal perspective not from the perspective of the customers who are using these eServices and where the majority of benefits are focused. The customer value is defined as what these services are worth to customers.

The setting for the case study is a local government organisation, the Marlborough District Council (MDC), which undertakes district and regional council functions. Marlborough District Council plays a pivotal role in the community, providing essential services including core infrastructure, regulatory functions, public information, community facilities and services, environmental management and information management, with a diverse range of information to be made publically available electronically. Marlborough District Council is developing its eGovernment transformation and must understand the value of its eServices to its customers and how these eServices can be successfully evaluated for prioritisation and funding. It is difficult without understanding the value of these eServices to get organisational priority and budgets even though these are promoted throughout the world.

The case study evaluated two specific eServices, Property Files Online and Smart Maps. Prior to the case study little was known of the success of these services other than usage growth and anecdotal feedback. The methodology consisted of interviews with internal and

external customers using various professions and perspectives. Google analytical data was collected from these specific eServices and collated with the interview data to provide an objective perspective. The framework chosen for evaluating these eServices is the IS success model. The IS success model has been successfully applied academically to evaluate the success of IT systems and has been previously adapted for measuring eCommerce and static websites. The proposed model for evaluating these eServices was from academic literature to derive an appropriate model with key attributes assigned to assist with evaluation. The IS success model constructs were: Trust in MDC; trust in technology; trust in eServices; information quality; system quality; service quality; usage/continued use; user satisfaction; and net benefit customer value.

The data collected was applied to the constructs of the model and evaluated against the attributes and overall findings summarised. The findings were: The value in evaluating eServices; customer dependency on MDC; the value in engaging with customers; and the benefits to a knowledge society. The evaluation of these eServices validated the IS success model with a variation of the model produced based on the analysis. The new IS success constructs removed the trust in technology and included: Information quality; system quality; service quality; trust in eServices; usage/continued use; user satisfaction; net benefit – customer value and knowledge society; trust in MDC.

The recommendations identified to address the findings for MDC to consider: Creating a digital strategy with supporting eServices roadmap; setting up a program to evaluate eServices – using the adapted IS SUCCESS model; set up an eServices risk management framework; establish an eService customer engagement programme; and to build a Community Smart Map.

Case Description

Marlborough District Council (MDC) is embarking on eGovernment transformation and the senior executive team would like to understand the value of Property Files Online and Smart Maps eServices to their customers and how these eServices can be successfully evaluated. A senior executive team member, John Sharp, believes it is difficult to prioritise eServices projects and funding without understanding the value of these eServices to MDC's customers and ascertaining their future eServices needs. Value is described as "what it is worth"¹ and the question for John is what is the eServices Property Files Online and Smart Maps worth to the customer? John believes that understanding customer value should be the focus for MDC as these eServices are intended to meet customers' needs and this is unknown to MDC.

John's concern is that these eServices cost money, time and resources within MDC to develop and implement. If value is not being gained by customers then project prioritisation, funding and support will wane within the executive team. There are many eGovernment benefits², including increased operational efficiency and strengthened democracy and John's main focus is on enhanced openness and transparency and the ability to provide better and more versatile services for customers. John believes the focus on lowering service delivery costs is still important but adding public value is now a primary focus³. A more holistic and customer centric approach is desired⁴.

Global Drivers

New Zealand has been found to be relatively mature in the United Nations eGovernment Survey, which identifies areas of strengths and challenges in eGovernment. The survey findings indicate that New Zealand is ranked 9th in the world and 2nd in the Oceania region for eGovernment and ranked only 15th for online delivery.⁵ In addition New Zealanders have become highly reliant on the internet in their daily lives. 73% feel that the internet is important

¹ Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly*, 31(1), 119-128.

² Skiftenes Flak, L., Dertz, W., Jansen, A., Krogstie, J., Spjelkavik, I., & Ølnes, S. (2009). What is the value of eGovernment-and how can we actually realize it?. *Transforming Government: People, Process and Policy*, 3(3), 220-226.

United Nations. (2014) eGovernment Survey. Retrieved from

http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf

⁴Kearns, I. (2004). *Public value and e-government*. London: Institute for Public Policy Research.

United Nations. (2014) eGovernment Survey. Retrieved from

http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf

or very important in their everyday life and only 13% felt that it was not important. 46 % of New Zealanders felt that information on the internet is reliable in general and only 6%, felt that it is mostly unreliable. For specific services relating to local government over half of internet users 59% say they have used Government or Council services that are delivered online and 47% have logged in to secure areas on Government or Council websites and 51% of internet users have gone online to pay for services in the past year ⁶. John believes there is a growing expectation for MDC to deliver services online for customers due to the uptake of internet usage growing in New Zealand.

John has concerns for MDC with regard to the estimates that 35% of eGovernment projects are total failures with 50% partial failures and 15% successful⁷; which creates an additional barrier for future eGovernment projects and is the success of MDC's eServices. The type of eServices and functionality measured vary and is not measured from a value to the customer perspective. John feels throughout local government and central government there appears very little or no measures for evaluating the customer value of eServices or to measure the transitions from an agency-oriented to customer-centric model⁸. Website usage and growth is what most organisations are using to measure eServices. The type of services and functionality offered vary and are not measured from the customer value perspective.

The Local Government Web Audit found just over 50% uptake for transactions shown in table 1, and for geographically integrated information a far higher uptake of 88% shown in table 2⁹.

eService Transactions % of Council uptake		
2015	2014	2013
56%	54%	35%

Table 1- eServices transaction Uptake for local governments ⁹

⁶ Gibson, A., Miller, M., Smith, P., Bell, A., & Crothers, C. (The Internet in New Zealand 2013.

⁷ Heeks, R. (2003). *Most egovernment-for-development projects fail: how can risks be reduced?* (p. 5). Manchester: Institute for Development Policy and Management, University of Manchester.

⁸ Esteves, J., & Joseph, R. C. (2008). A comprehensive framework for the assessment of eGovernment projects. *Government information quarterly*, 25(1), 118-132.

⁹ Parkin, P. (2015). *Local Government Web Audit Overview Report*. Retrieved December 9 201 from <http://www.algim.org.nz/globalassets/web-audits/2015/algim-web-audit-summary-report-2015.pdf>.

Interactive/Integrated maps % of Council uptake		
2015	2014	2013
88%	82%	81%

Table 2 – Map Uptake for Geographical portals for local governments⁹

Organisational Setting

Marlborough District Council (MDC) is a unitary local authority meaning that it combines both regional and territorial functions for the Marlborough region. MDC plays a crucial role in the community, providing essential services including core infrastructure, regulatory functions, public information, community facilities and services, environmental management and also information management (IM) and information technology (IT). MDC has a diverse and large range of information to be managed and an obligation under the Public Records Act 2005 to make this information publically available. John felt as a unitary authority there was a need to continue to open up regional information to assist customers with decision-making, and provide information for reuse. This will ultimately increase the knowledge about the Marlborough region for customers. Michael, an engineer, felt that for his profession the eService was impacting his knowledge “In engineering I see the impact already. There is a portal that is active and growing, consultant reports are loaded into the technical library Smart Map and as engineers we can tap into these” (Michael).

Changing the culture at MDC to make information available to meet customer needs requires a different way of engaging with customers and prioritisation of ICT projects. David, an internal manager that deals with customers daily, felt strongly about the need to get closer to customers with these services and include them in the build process.

The Information Management Strategic Plan (IMSP) vision for Marlborough District Council is “to inform, engage and transform with online services”. The goals are:

- Deliver accessible, reliable and relevant information to support business and stakeholder needs.
- Improve engagement and business alignment with key internal and community stakeholders to deliver better value.

- Define and implement a proactive customer focused service delivery model.
- Deliver and maintain fit for purpose applications which are focussed on timely, secure and accurate information to meet business needs and support future opportunities.
- Deliver a robust, accessible, and saleable secure IT environment for Council business needs¹⁰.

MDC's IMSP aligns with the New Zealand ICT Strategy¹¹ and eGovernment transformation. The New Zealand's Government ICT strategy and action plan has strong guiding principles which are:

- Centrally led, collaboratively delivered.
- Customer centricity. Customer insights must inform service design and delivery. Customers should be shielded from the internal complexities of government.
- Trust and confidence
- Simplify by design. Remove complexity, fragmentation and duplication, and re-engineer business processes end-to-end.
- Share by default.
- Openness and transparency. Non-personal information is a public asset that must be open by default for economic and social benefit.

John identified that a new digital strategy is being proposed by the senior executive team in 2016 to replace the IMSP and understanding customer value could provide valuable insights into this process.

The Government ICT supports the New Zealand Government Our Better Public Services challenges including two that focus on public sector ICT:

- New Zealand businesses have a one-stop shop for all government support and advice they need to run and grow their business (Result 9); and

¹⁰ Marlborough District Council. (2012). *Information management strategic plan 2012 – 2015*. Blenheim, New Zealand

¹¹ Department of Internal Affairs. (2013). *Government ICT Strategy and Action Plan to 2017*. Retrieved from <http://ict.govt.nz/strategy/>

- New Zealanders can complete their transactions easily with government in a digital environment (Result 10).
(Department of Internal Affairs, 2013, p. 2)

MDC has a fiscal responsibility as a public organisation to ratepayers and the prioritisation of investments is based on value and services to customers. The increased pressure on the public sector to service customers electronically has been driven by the increase in internet usage and growth in e-commerce from the private sector¹². Google analytics data on usage of these eServices provided basic information but John wanted to understand more about the value of these services to customers.

John understands that there is continual drive and development around the world for eGovernment transformation. The concern for John is whether these eServices projects are successful and of value to customers. MDC has never undertaken any evaluation of the value of these eServices to customers. Individual projects are measured from a time, scope and cost perspective. MDC staff hear anecdotal comments by customers but John felt the need for more qualitative information. George, a senior manager, uses the service a lot out of hours when dealing with issues with customers and found the ability to talk customers through using the information online was valuable. He felt this was a great service and easy to use, but felt there wasn't a lot else to compare it with and thought that it was pretty innovative stuff. In George's discussions with customers he has found that customers are starting to use the information that is provided in ways we don't even anticipate and they are leveraging benefits from this. Customers are building into their business models in ways MDC didn't anticipate happening, for example plumbers are downloading and printing drainage plans in the morning before going onsite.

John would like to extend the IT budget to make more eServices available for the customer and this requires project prioritisation against other organisational projects. Currently the eServices project is only 15-20% of the overall IT budget. There are many online projects that staff would like to provide for customers, but there is a need to find out what is important from the customer's perspective to assist with this prioritisation. Understanding the value of eServices

¹² Tat-Kei Ho, A. (2002). Reinventing local governments and the e-government initiative. *Public administration review*, 62(4), 434-444.

to customers supports the accountability and justification of ratepayer expenditure and the prioritisation of eServices provisioned against other council financial demands. Assessing eGovernment projects can be integral to the ongoing support and funding.¹³

John believes it is not only the amount information but the ability to transform the information into knowledge that is of importance for consideration for MDC. Communicating and sharing explicit knowledge can make an organisation more productive but this can only be achieved if the right information is delivered to the right place at the right time¹⁴. Brent, an external lawyer who works remotely, felt that using the same information created a level playing field for staff and customers. Colin, an internal manager, fully supported providing this information publically and for the Marlborough region.

There is minimal academic research specifically evaluating the value to customers of eServices functionality from a customer perspective. The Ministry of Business, Innovation and Employment (2013) found businesses' frustrations in dealing with government were identified as:

- I have to repeat the same information to different agencies
- It takes too much effort to deal with government
- Information is hard to find and isn't targeted to meet my needs
- Services are designed to suit the needs of agencies, not businesses (p. 3)¹⁵

The Department of Internal Affairs (2014a) vision has three sections: digital by choice for customers; service is digital by design; and system is digital by default as shown in figure 1 "Customers will be at the centre of service design and delivery, government will be connected and collaborative, and there will be a culture of digital innovation" (p. 18).

¹³ Esteves, J., & Joseph, R. C. (2008). A comprehensive framework for the assessment of eGovernment projects. *Government information quarterly*, 25(1), 118-132.

¹⁴ Dearstyne, B. W. (2001). e-Business, e-Government, and Information Proficiency. *INFORMATION MANAGEMENT JOURNAL-PRAIRIE VILLAGE-*, 35(4), 16-25.

¹⁵ Ministry of Business, Innovation and Employment. (2013). Better Public Service Result 9 – Improving Business' Interactions with Government. Retrieved from <http://www.mbie.govt.nz/info-services/business/better-for-business/documents-image-library/bps-result-9-improving-business-interactions-with-government.pdf>

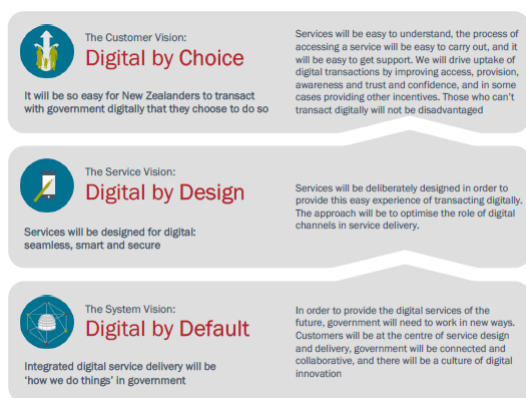


Figure 1 - New Zealanders can complete their transactions with government easily in a digital environment ¹⁶

With the increase in eServices customers are evolving and changing and little is understood about customer expectations. Customer research was undertaken to understand the customer experience using government services and identified the need for eServices to be seamless, integrated services, from the most simple to the more complex¹⁷.

The eServices: Property Files Online and Smart Maps

The eServices investigated deliver large amounts of information from multiple data sources from several databases, including documents, and a geographical representation of the information via a portal. John acknowledges that eGovernment portals can provide improved access to information and collaboration¹⁸. MDC was the first council in New Zealand to provide property and resource consent files online for customers. The earliest scanned records are drainage plans from 1910 and building permits from 1923. All paper files have been digitised for property and resource consents and are delivered to customers electronically providing a wealth of information that can be reused to provide value, analysis for decision-making and knowledge sharing. Brent, as a lawyer from out of town who often uses the service to access resource consents, felt that the service was somewhat hidden and not obvious to

¹⁶ Department of Internal Affairs. (2014a). Result 10 Blueprint A strategy for digital public services. Retrieved from <https://www.ict.govt.nz/assets/Programmes-and-iniatives/Digital-Transformation/Result-10-Blueprint-FINAL.pdf>

¹⁷ Department of Internal Affairs. (2014b). Result 10 Customer Research understanding customer experience, behaviours and attitudes to government services. Retrieved from <https://www.ict.govt.nz/assets/Programmes-and-iniatives/Digital-Transformation/Result-10-Customer-Research-2014.pdf>

¹⁸ Hoe-Lian Goh, D., Yeow-Kuan Chua, A., Luyt, B., & Sian Lee, C. (2008). Knowledge access, creation and transfer in e-government portals. *Online information review*, 32(3), 348-369.

customers when looking for information on what the service provided. Brent said he “felt that the service is the light held under a bushel”. He felt that the service is a valuable resource and is not obvious “from your website you go into MDC you have to really go into services but it say property information but if you are after resource consents you wouldn’t look in property”.

The Property Files Online eService was implemented in October 2011 in parallel with the digitisation project. Craig is an external consultant who uses these services regularly. Craig made reference to the publicity at the time that there were some people who thought digitising was a waste of money and people had conflicting opinions about the value of spending that money. Craig said “I would think people especially professionals now would agree that good on the Council for doing it and you are well in the forefront”. Property Files Online allows customer to search a property address, property number, building consent or resource consent number and access the relevant documents as shown in figure 2.

Search Marlborough District Council Property Files

Your search returned 27 results.
Please enter an address to search for. For examples on how to use this search. Click the help link. [Show Help](#)

Search by Address, Building Consent, Property or Resource Consent Number

Search by Address
[Show Advanced Search](#)

Search Results


▼ 7 Fuchsia Place Blenheim - Current PN527852	Digitised 07 Nov 2008 Show on Map
▶ Compliance (Property ID PN527852) PN527852#01	07 Nov 2008
▶ Environmental (Property ID PN527852) PN527852#03	07 Nov 2008
▶ Utilities (Property ID PN527852) PN527852#04	07 Nov 2008
▼ Building (Property ID PN527852) PN527852#06	07 Nov 2008
▼ Dwelling with Attached Garage - Code Compliance Issued BC040936	07 Nov 2008
 Field Sheet Inspections 0826264	19 Jul 2004

Figure 2 - Excerpt of a property file and the information contained (MDC website)

In the past customers would have to visit MDC to view these paper files or request a photocopy at a cost to the customer. David, an internal manager that regularly deals with external customers, is of the view that customers were ready for these files to be delivered online because of the inefficiencies with the paper process.

The Property Files Online service allows scalability - David explained that real estate agents are quoting the MDC property number (PN) in their advertising to assist searching in the property files online demonstrating them pass on the value of these service to their customers. John believes this service offers future opportunities for more electronic information to be made publically available for customers. Over time this could include well log information, technical reports for scientific analysis and many more opportunities. Michael, in the engineering profession and an external customer, was very excited about the possibilities these services could provide for MDC and hoped that these services set the foundation for MDC to provide even better systems for customers; customers are now part of this and they are going to start asking for changes. The yearly growth usage of Property Files Online is shown in figure 3.

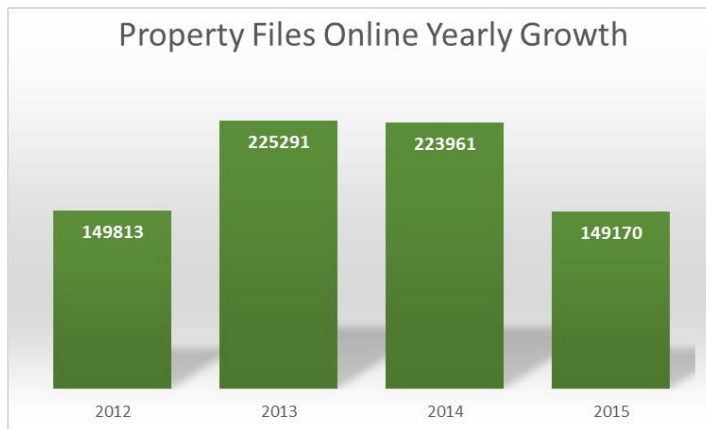


Figure 3 – Property Files Online yearly growth (till July 2015)

Smart Maps, established in July 2014, was an evolution from the Property Files Online after discussion with a customer who identified that when looking for property information they needed to visit multiples places on the MDC website. MDC stores property information spatially allowing dissemination of information through a geospatial portal - Smart Maps - in a user friendly way. Smart Maps are a suite of user friendly information repositories for certain user journeys that provide fast access to information. Figure 4 shows a Smart Map search for property specific information.

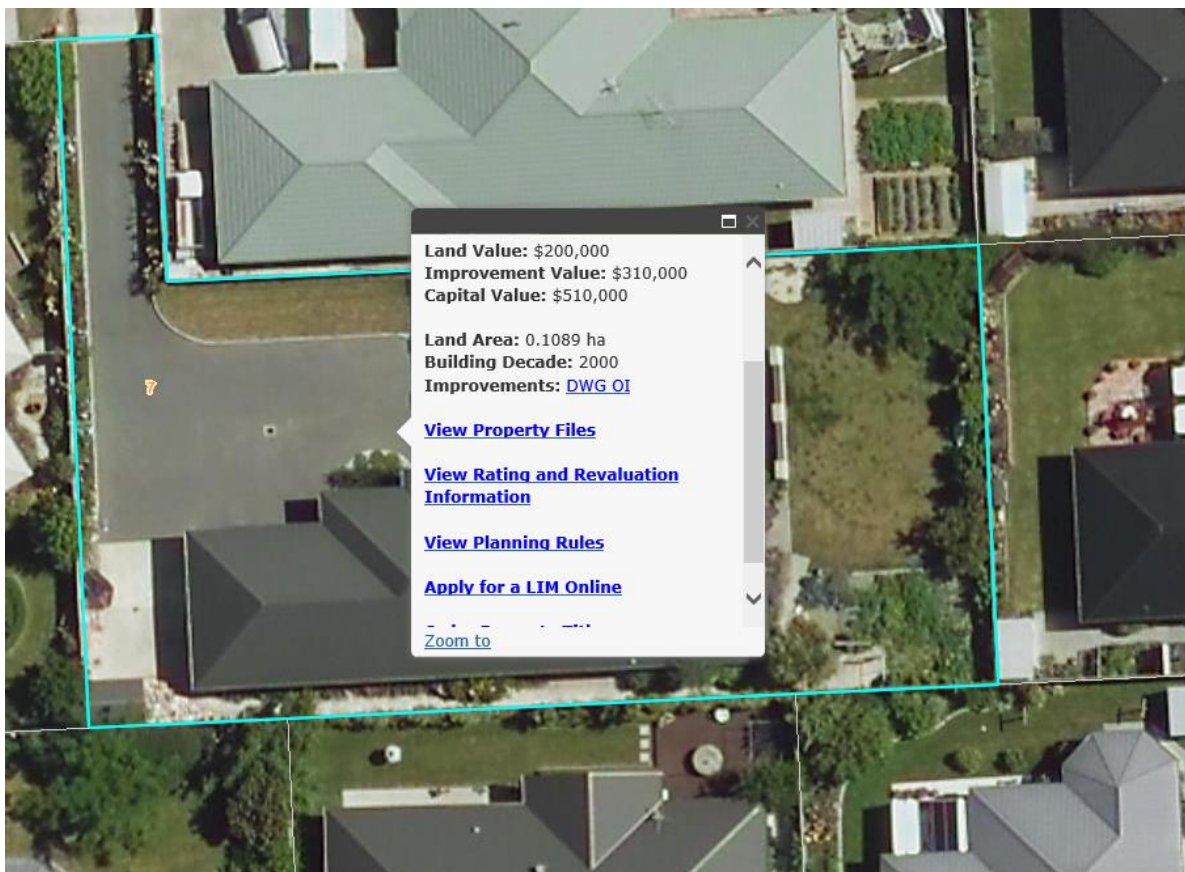


Figure 4 – Geographical view of property file information

A multitude of information and services are published through Smart Maps - see appendix 1 ranging from property file information to cycle tracks, bus routes, resource consents, marine farms, technical reports to name a few. The service offers 41 maps providing targeted information integrated to other data sources. David, as a manager who works with a lot of customers, felt that when using the Smart Map environment and going straight to the information by clicking on a link provides a huge impact in economics. “A few comments from within Marlborough but massive from our customers outside Marlborough when I tell people to use Smart Maps they rave that it’s fantastic, getting a good reputation and Marlborough is setting a trend and we are being recognised for it.”

These geospatial portals provide a gateway to information, both content and services¹⁹ and provide spatial visualisation²⁰. These are implemented to add value for customers when searching and accessing published information. Colin, an internal senior manager, believed the economic impact is huge for customers, Smart Maps allows people to visualise the information they are looking for. Brent (lawyer) working remotely felt the value in the contextual information with Smart Maps with site context was “very important for major features and in terms of relationships to other consented activities when you are looking at matters relating to aquaculture.” Brent felt that the information provided less of a local advantage as he felt that he used the information more than the local profession “so you have a weird situation of someone from inland city has more information on the Marlborough Sounds through the technology than the locals. The technology makes distance less relevant. I would have thought to some extent that it makes the local players less likely to rely on a proximity advantage.”

Michael, an engineer who has travelled the world, was very excited about the benefits he felt that Smart Maps offered in reducing bureaucracy and that there were no disadvantages just total advantages. Michael thought the intellectual property was a real asset to MDC.

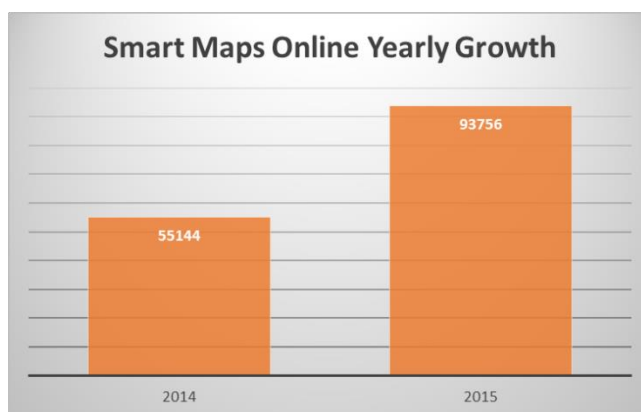


Figure 4 – Smart Maps yearly growth (till July 2015)

What should John do next to understand the customer value of the Property Files Online and Smart Maps eServices? What does John need to do to extend these eServices further for

¹⁹ Maguire, D. J., & Longley, P. A. (2005). The emergence of geoportals and their role in spatial data infrastructures. *Computers, environment and urban systems*, 29(1), 3-14.

²⁰ Tait, M. G. (2005). Implementing geoportals: applications of distributed GIS. *Computers, Environment and Urban Systems*, 29(1), 33-47.

MDC's customers? John feels that these services should be driven from the customer and for the customer. How should John go about the evaluation of the value to customers of eServices? John needs more information to present to the executive team and councillors for them to understand the value of these eServices. This will allow MDC to make more informed decisions on if the council should increase funding and prioritisation of the eServices and to further enhance its customer delivery, engagement and eGovernment transformation maturity.

Introduction to Analysis

eGovernment

There are several definitions in academic literature of eGovernment evolving over the years. Lieber (2000) defined eGovernment as “implementing cost-effective models for citizens, industry, federal employees, and other stakeholders to conduct business transactions online”. This definition is more transactional focused and limits the scope of eGovernment. Irani and Elliman's (2008) definition is more about the process of delivering information and services to stakeholders electronically similar to Karunasena, Deng, and Singh's (2011) definition which includes a technology focus - “the delivery of government information and services through information and communication technologies (ICT)” (p. 81). Fang's (2002) definition appears all encompassing “eGovernment as a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes” (p. 1).

The categorisation of eGovernment is based on relationships and stakeholders and highlights the level of complexity for government with multiple stakeholders and different perspectives for measuring value. Carter and Belanger (2005) categorised these in detail as did Affisco and Soliman (2006) who used more generic types of service relationships whereas Fang (2002) included not for profit relationships also. The relationship perspective in this case study is government to business and government to customer, both referred to as a customer in this study.

There are many benefits identified with eGovernment and this provides context as to why MDC continues to transform services to an eGovernment model. These benefits need to be congruent with the value to customers. eGovernment increases accessibility to information, enhancing efficiency, and facilitating greater access to government officials and new opportunities for involvement and collaboration are possible (Rababah et al., 2013). Esteves and Joseph (2008) note eGovernment programs are often intended to improve access to service delivery and quality of information, enhance the experience of interacting with government, reduce wait times, and assist consumers and business (p. 128). Irani and Elliman, (2008) expanded this further and believe they do not only improve services to customers but can renew and change the role of government.

Transforming government not only benefits the government agency itself but also customers and businesses by ensuring customers' needs are being met. Reduced costs with increased efficiencies can also positively affect the relationship between citizens and government by improving interactions (Irani & Elliman, 2008). Koh et al., (2005) uses the term K-commerce, which is the collaboration and sharing of knowledge with external stakeholders. Using technology to enable transformation from traditionally inflexible and bureaucratic institutions into customer-oriented organisations where stakeholders and staff work as partners, increasing accessibility to information, enhancing efficiency, and facilitating greater access to staff, they acknowledge that new opportunities for involvement and collaboration are possible from this.

Karunasena et al., (2011) found similar significant benefits. Irani, Love, and Jones 2008 found that eGovernment can contribute to transparency of activities and increase accessibility to services, which contributes to a knowledge society. Fang (2002) figure 4 shows the role eGovernment can play in creating a knowledge society.

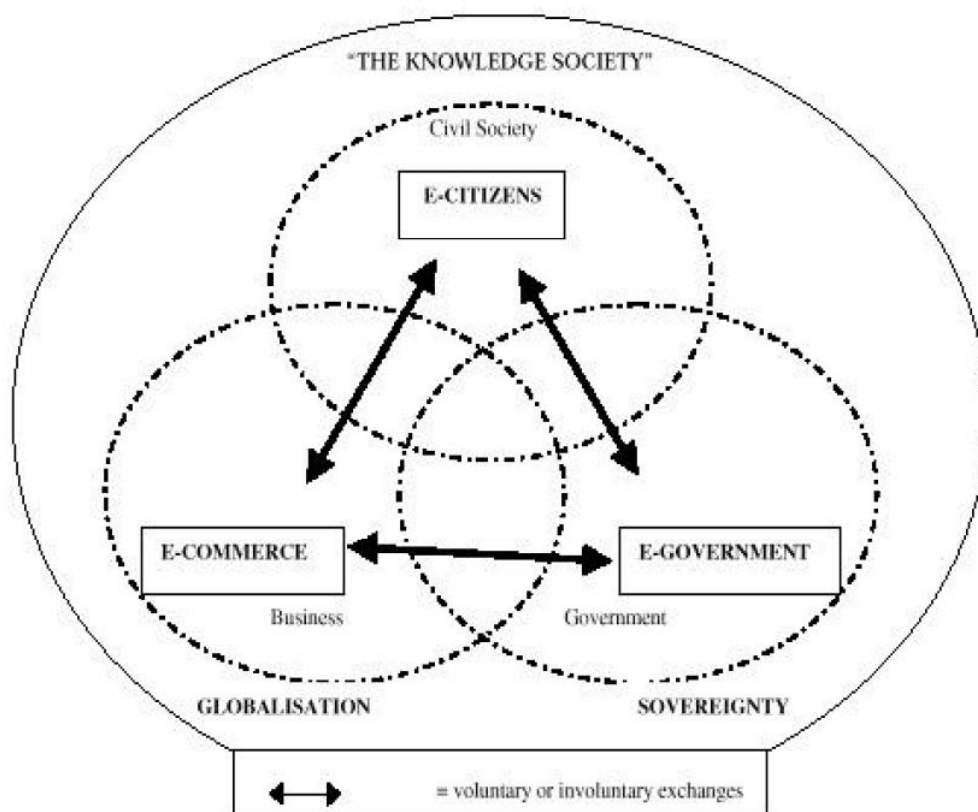


Figure 4 – Knowledge Society (Fang, 2002)

As with any ICT project there are challenges. Affisco and Soliman (2006) describe the challenges with eGovernment being the need to change business process, need for ongoing funding and intergovernmental workings, performance and accountability of governments. Shackleton, Fisher and Dawson (2006) suggest that local government has “increased accountability, increased consumer choice and financial constraint, and a decrease in direct service provisions as the result of outsourcing and competitive tendering, local governments are under pressure to provide efficient, effective eGovernment information and services” (p. 88). Tat-Kei Ho (2002) found potential issues of insufficient staff, lack of funding and the problem of digital divide (p. 440). Shackleton, Fisher and Dawson (2003) believe that web-based information and service delivery can both engage and disenfranchise the community. This is commonly known as the digital divide.

The public sector are bureaucratic organisations steeped in tradition and may be unable to embrace change quickly and lack an environment for innovation (Irani & Elliman, 2008). The reason for some of these challenges for the public sector is because of the size and complexity of governments and structures and the vast amounts of information being managed over a long

period of time (Koh, Ryan, & Prybutok, 2005; Rababah et al., 2013). Cranefield, Robertson, and Oliver (2014) identified barriers to value creation from open data as resistant individuals; cost of opening up data; loss of old incomes/business models; data ownership legacy issues; invisibility of benefits; reduced stakeholder feedback; and uncertainty about data stream continuity (p. 8).

eGovernment Transformation

eGovernment transformation is described by Palanisamy (2004) as process reengineering in order to rethink the value propositions of the government and delivering services to citizens cost effectively and efficiently. Tan and Pan (2003) believe eGovernment transformation is a necessary step in changing relationships between the organisation and its customers.

There are various different forms of eGovernment transformation frameworks, each describing transitional stages. Layne and Lee (2001) identified the different stages of e-government development and propose a ‘stages of growth’ model to achieve a fully functional eGovernment. Rababah et al., 2013 believe that agencies go through an evolutionary path progressing from a digital presence to more complex environments. Klievink and Janssen’s (2009) framework is a five stage model that focuses on multi agency and joined up government.

Koh, Ryan and Prybutok’s (2005) eGovernment transformation and knowledge management model specifically examines the knowledge usage construct and the level of value to constituents, and of these eServices as informational; interactional; transactional; integrated; and collaborative. The United Nations report highlighted the four stages of online service development as: connected; transactional; enhanced; and emerging (United Nations, 2014). Understanding the various eGovernment transformation maturity models can provide context to the level of complexity and integration of eServices.

eServices

Quirk (2000) identified the local government categories as shown in figure 5 being: eService, eCommerce; eDemocracy; eDecision Making; eManagement. The focus in this case study is on the eServices component of eGovernment for evaluation; this being the interface with customers. eService has been defined as “an interactive, content-centred, and internet-based

customer service that is driven by the customer and integrated with related organisational support processes and technologies with the goal of strengthening the customer-provider relationship” (De Ruyter et al., 2001; Ancarani, 2005).

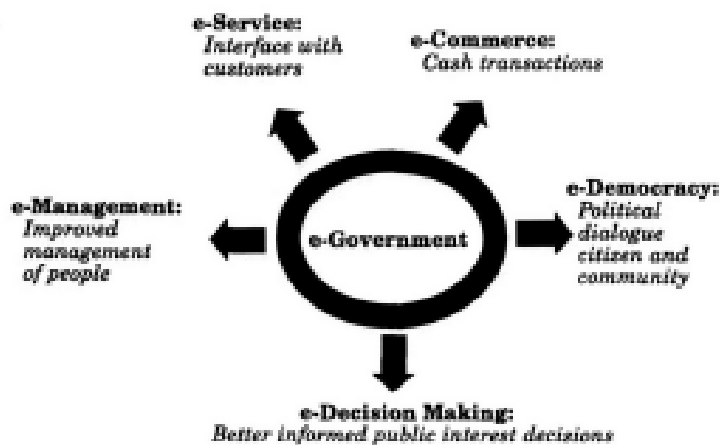


Figure 5 – Local Government eGovernment Categories (Quirk, 2000)

Shackleton, Fisher and Dawson (2006) believe eService delivery is still in its infancy although there appears to be some growth in the use of GIS focusing on the provision of information geospatially. There are few case studies evaluating eServices; the academic literature mostly measures websites with static content and eCommerce.

eServices need to be developed for the end user by understanding the concerns and needs of users instead of driving these from an internal perspective (Tat-Kei Ho, 2002). Affisco and Soliman (2006) believe critical success for eGovernment relies on design and effective functionality in the service delivery of the system. Carter and Bélanger (2005) believe that feedback will enable governments to redesign sites to present information and services in a way that is easy for citizens to utilise (p. 21).

Teo, Srivastava, and Jiang (2008) believe eGovernment websites are divided into two stages - “initial usage” and “continued usage” and often after “initial usage” many users revert to traditional ways for finding information and services. The challenge for eGovernment services for customers is continual usage of these services. De Ruyter, Wetzels and Kleijnen (2001) found that convenience for customers is why customers starting using an e-Service. Eng (2008) identified that service breakdown and customer dissatisfaction in online interactions can be detrimental to the success and survival of business. Carter and Bélanger (2005) believe that

customers expect accurate, timely and dependable services. Ho and Ko (2008) identified that customer acceptance of self-services is based on seven factors: convenience, time saved, self-control, money saved, self-image, risk, and self-fulfilment.

Physical location is no longer a determining factor in providing services to customers with online services. Wangpipatwong, Chutimaskul and Papasratorn (2009) highlight that citizens can access government information and services anywhere and anytime. Schaupp, Bélanger, and Fan (2009) believe that websites have to ensure that users are satisfied, maybe through regular satisfaction surveys. This is important because satisfied users return, but also because of the power of word of mouth (Carter and Bélanger, 2005, p. 49).

The academic literature focuses on the value of eServices from within an organisation, specifically the cost savings and efficiency gains. Skiftenes Flak et al., (2009) highlight that there is limitation in documented value from eGovernment efforts; it is difficult for public sector managers and decision maker to justify why eGovernment funding should get priority and this directly impacts negatively on the speed at which eGovernment is developed. Traditional methods of investment decision-making do not easily support eGovernment initiatives, which often lack a financial return or a financial return is achieved over a period of time. Karunasena et al., (2011) believe with increasing pressure on accountability for government investments the evaluation of these services and the performance of eGovernment is becoming urgent. The priority is to provide improved services to those that interact with local Government (Irani & Elliman, 2008).

Irani, Love, and Jones's (2008) paper acknowledged that the evaluation of eGovernment is underdeveloped and there is a need to understand the potential of these services to be able to fully achieve a transformational government. Wang and Liao (2008) identified the need for eGovernment authorities to include measures for information quality, system quality service quality, system use, user satisfaction, and perceived net benefit in their evaluation techniques of eGovernment system success (p. 729). The complexity of the public sector and the political nature of the decision-making driving eGovernment can make evaluation subjective (Irani, Love, Elliman, Jones, & Themistocleous, 2005). The difficulty is the lack of evaluation methods because of the political culture, irrational decision-making processes and irrelevance of economic metrics in the public sector. Traditional methods of appraisal are failing to meet

the concerns of senior managers when evaluating their e-government services (Irani, Love, Elliman, Jones, & Themistocleous, 2005).

Value

Very little research is available from practitioner sources and New Zealand Government ICT on the value to customers of eServices.

Kearns (2004) discusses that providing information is seen as an e-government success story although there are limitations in understanding the levels of uptake, making it unclear how valuable customers find these eServices. Karunasena et al., (2011) describe the creation of public value as the delivery of public services; achieving outcomes; developing trust and operating an effective organisation.

Kearns (2004) suggested the evaluation of public value of eGovernment should consist of the following key attributes: The provision eServices are widely used; increased levels of user satisfaction with services; increased information and choice available to service users; greater focus on the services that the public believes are the most important; increased focus on new and innovative services for those most in need; reduced costs of service provision; improved delivery of outcomes; and a contribution to improved levels of trust between citizens and public institutions. Categories of value creation emerged from a study of open source data by Cranefield, Robertson, and Oliver (2014) are ease of discovery; improved data quality; generating contextually relevant knowledge; economic benefits; social benefits; cost reduction and efficiencies; predictive value; transparency; and the ability to explore and play (p. 6).

Customers perceived online service quality is one of the crucial determinants of the success of online businesses (Yang, Jun, & Peterson, 2004). Lee and Kozar (2006) found online customers felt that system and information quality was the greatest significant factor and Yang, Jun, and Peterson (2004) identified six quality aspects that were consistent throughout their surveys. These were: reliability; responsiveness; competence; ease of use; security; and product portfolio. Parasuraman (2002) identifies four key dimensions to eService quality: efficiency; fulfilment; reliability; and privacy. Tan, Benbasat, and Cenfetelli (2013) found that service content and delivery are found to be significant contributors to achieving service quality.

Value Frameworks

There are several value frameworks can be used to evaluate the customer value of eServices. Most of the value frameworks assessed the services from an internal and external perspective. The Delone and Mclean's (2002) IS success model was chosen as the value framework and has been used to measure IS success in various academic literature. This model uses quality constructs of: information: system; service, usage/continued; and user satisfaction to determine net benefits. This model can be applied to different stakeholder perspectives and could be applied to investigate the customer value of eServices.

The Delone and Mclean (2002) IS success model was updated in 2003 from theoretical research. This updated model was applied by Delone and Mclean (2004) to measure eCommerce success. Wang and Liao (2008) validated the use of this model and identified that eGovernment systems with good information quality, system quality, and service quality, impact system usage and customer satisfaction and, in turn, net benefits. Wangpipatwong, Chutimaskul and Papisratorn (2010) adapted the model to measure the quality of websites. Halawi, McCarthy and Aronson (2007) applied the IS success model with a knowledge management focus. The IS success model was extended by Teo, Srivastava, & Jiang (2008) to incorporate online trust factors, and adds to the usage component to include continued usage, shown in figure 5. Trust is important to include in this model as the goal in the public sector is to increase public trust and organisational transparency.

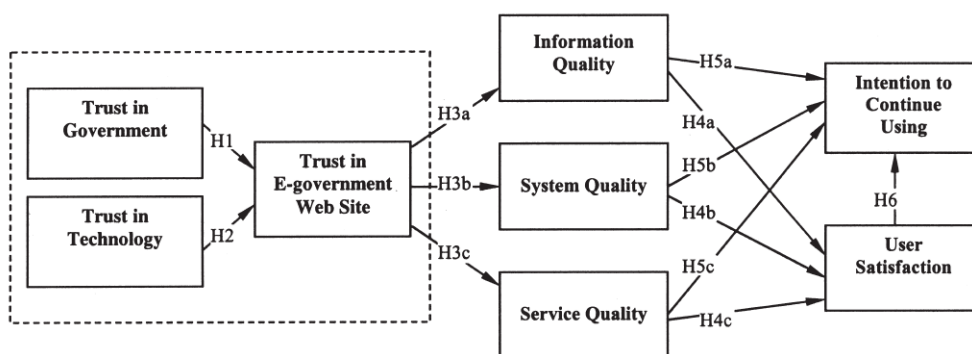


Figure 5 – IS success model with online trust factors included (Teo, Srivastava, & Jiang, 2008)

Eng (2008) believes the IS success model is constrained and the model suffers from a number of conceptual and empirical difficulties with a poor ability to apply the model for assessing system satisfaction. Schaupp, Bélanger and Fan (2009) supported the Delone and Mclean model in measuring website success and believe its effectiveness is dependent on how it has been applied.

Analysis

The methodology used to investigate customer value of eServices was quantitative interviews combined with analysis of Google analytical data. The data was analysed using the Delone and Mclean model.

Data Collection

There were two type of data used for analysis. The primary data source was qualitative interview data and the secondary data source was Google analytic data on these eServices. The method used for gathering the interview data was semi-structured exploratory interviews with participants being five internal customers and five external customers. The researcher is employed as the CIO at MDC and it was outlined clearly that the case study was undertaken from a research perspective and confidentiality was assured as this was essential to ensure open and honest responses.

The participants were chosen after discussion with activity managers from within MDC. The participants were approached to voluntarily participate in exploratory interviews targeting a cross-section of professions, business and personal usage, and internal and external customers, to provide a range of perspectives. Ten customers from a variety of professions were interviewed. One person for each different profession for external customers being: lawyer; real estate agent; regulatory consultant; business consultant, and engineer. The internal customers were two staff and three managers for dealing with issues and gaining knowledge. The interviews on average were 33 minutes. Pseudonyms have been assigned to the interviewees to maintain their anonymity shown in table 3. Signed human ethics are attached appendix 2.

Pseudonym	Title	Customer
Jill	Staff	Internal
Jane	Staff	Internal
David	Manager	Internal
Colin	Manager	Internal
George	Manager	Internal
Alan	Environmental Consultant	External
Craig	Consultant	External
Mary	Real Estate Agent	External
Michael	Engineer	External
Brent	Lawyer	External

Table 3 – Pseudonym for Interviewees

In order to elicit a rich understanding about customer value the interview questions ranged from the type and amount of usage of eServices and purpose for using these services; quality of the services, systems and information; the value of these services to interviewees as customers; the knowledge gained for customers of these eServices for the Marlborough region; and impacts and the future improvements of these eServices. The interview questions were informed by the Delone and Mclean (2003) IS success model framework. The IS Success model framework was used because the literature links quality aspects to eService success/usage and customer satisfaction. The IS success model framework has been successfully applied qualitatively to websites and eCommerce and can be applied systematically to eServices. The interview questions are attached in appendix 3. The interviews were transcribed into a spreadsheet with one column per question.

The interview data was copied into each construct: trust; information quality; system quality and service quality, usage/continued use; user satisfaction; net benefit/customer value. The attributes for each construct were compared to the data collected and summarised for any discrepancies and consistencies. The data was then analysed looking firstly to substantiate if in fact the constructs, attributes and flow on relationships of the IS success model are consistent with previous literature, and secondly common themes, differences and findings were identified.

The Google analytical data was used to triangulate and complement the interview data from an objective perspective. The Google analytical data contributed to the usage/continued use construct. Google analytical data was provided from reports on Property Files Online and

Smart Maps and entered into a spreadsheet for further analysis. The various data gathered:

- Yearly page views – to show usage growth
- % returning and new users over the period the service was released
- % of usage locations outside of Blenheim
- % of usage internationally
- Top 10 cities and countries for usage
- Top 10 Smart Maps since the service was released

Framework Applied

The Delone and Mclean model is presented in figure 6 and the categories in the model were assigned attributes based on academic literature, which was used for data analysis. Each construct continually flows forward throughout the model as shown in figure 9. Attributes for each construct were established by collating information from various academic literature. For each construct attributes have been assigned from academic literature. The trust attributes are shown in appendix 4, the information, system and service quality attributes shown in appendix 5. The usage/continued use and customer satisfaction attributes are shown in appendix 6 and the net benefits and customer value attributes are shown in appendix 7. These attributes for each construct were summarised and collated to be used for analysis of MDC data collected and MDC's Google analytical data. The summary of the attributes applied is shown in table 5.

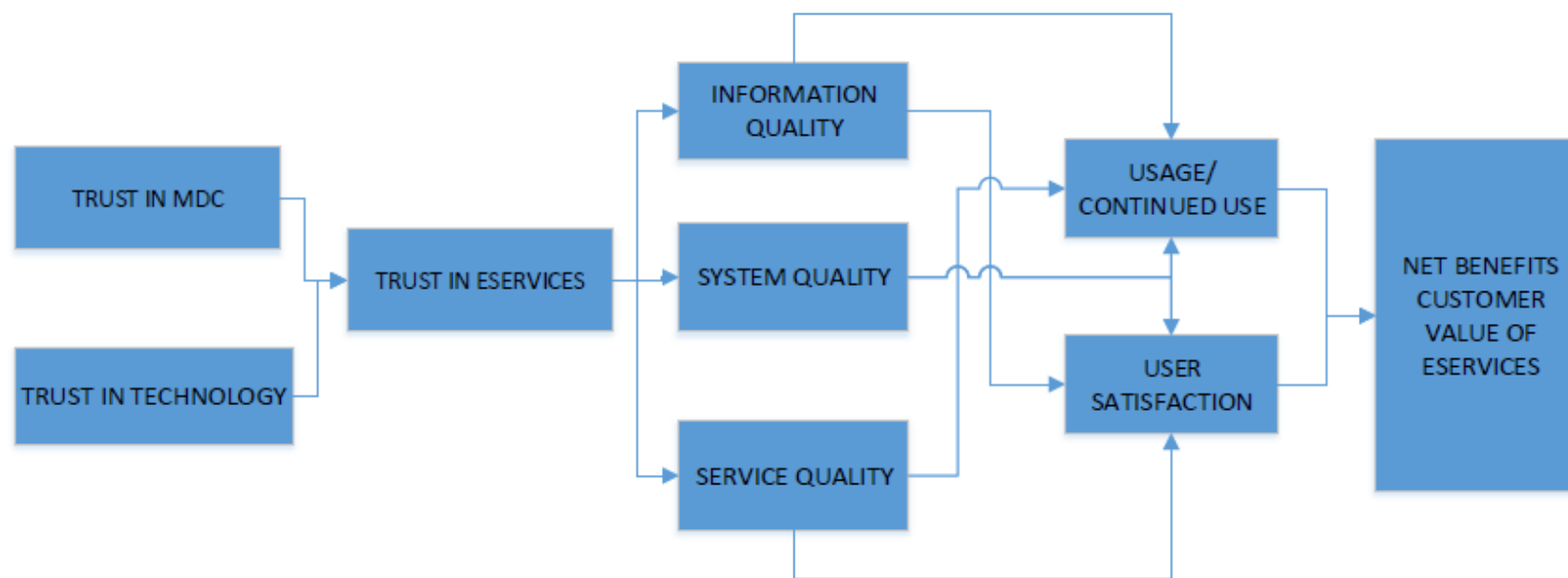


Figure 6 – IS success model used for evaluating customer value of eServices (Delone and Mclean, 2004; Teo, Srivastava, & Jiang, 2008)

Information Quality	System Quality	Service Quality	Usage/Continued Use	User Satisfaction	Net Benefit/Customer Value	Trust in MDC	Trust in Technology	Trust in eServices	Literature
Accurate Personalised Relevant Easy to Understand Complete Secure Currency Timeliness Sufficient	Ease of Use Availability Reliability Adaptability Response Time Convenience Flexibility Integrated Ease of learning Usefulness Expectations Reality Functionality Dependability User Friendly	Tangibles Reliability Empathy Responsiveness Assurance Support Security Personalised Attention Timeliness Poor Performance	Types of Use Online Usage Amount of Use Returned Users	Entire customer experience	Economic Benefits - Cost reduction and efficiencies Predictive value Success Job Easier Saves time Ease of discovery Improved data quality Generating contextually relevant knowledge Social Benefits Transparency Ability to explore and play New information and services Value added interactive services Real Time Shared communities Reliable Responsive Ease of use Security eService Portfolio Competence	Trust in MDC	Trust in Technology	Trust in eServices	Proposed attributes

Table 4 – Proposed attributes list for IS success model constructs for analysis

Analysis

Trust

Perhaps surprisingly trust in MDC and trust in technology appear to play no role in the trust of eServices. The interview data suggested that as a political organisation trust in MDC was neither positively nor negatively impacting on the trust of eService. George, an internal manager, felt that due to the political nature a judgement could not be made on trust. George's comment was "I don't think providing access to information reflects on making a judgement on trust and transparency still a political organisation" (George).

Some interviewees felt that the information was transparent and may influence the trust in MDC over time. Jill felt that "similarly trust in technology was not identified as a theme from the interview data. This could be because the interviewees all use the system. Trust in eServices did not appear to flow through to the quality of information, systems and services. It appeared from the data that the trust in eServices was because of the information quality, system and services. The interviewees felt that trust outside of Marlborough was higher than for customers in Marlborough. The openness and transparency of information resulted from information, system and service quality and the interview data indicated no distrust of the eServices. There was a high level of trust in the information available and information is seen as a trusted source and reputable.

"Improved transparency and perception, implicit as you are entitled to view the information don't need to ask for information" (Jill)

"I trust the information" (Colin)

Information Quality

The MDC data collected for the information quality construct were consistent with the attributes for completeness, relevance, easy to understand, accurate, sufficient and currency. MDC data identified additional attributes being: easy to find; unfamiliar with amount of maps and information available; ability to reuse; trusted; single source of truth accessed by customers and staff; accessible format, and contextual information were all additional attributes that the interviewees identified. The information security was only mentioned by one interviewee and

they felt that digital information was seen as more secure than in paper. David felt that eServices were “more secure than paper records kept being removed off paper files by customers” (David). Privacy was not mentioned or identified as an issue.

One negative issue on information quality was identified with regard to the amount of information; that at times there was a lot of information that to sift through. Different interviewees were looking at different information from different perspectives, however, the quality was consistently seen as good or high regardless of the source of information. For lawyers contextual and visual information was seen as extremely valuable information for marine farms or properties and metadata was seen to be useful. Brent commented that “metadata pretty good and it’s pretty important, not sure there is a search function within the document that would be quite good as sometimes you go through quite a list” (Brent).

The MDC data collected did not identify the personalised information attribute. Overall the quality of information was either seen as good or high. The information quality positively contributes to usage/continued usage and customer satisfaction.

“These eServices were fundamental building blocks in economic development in liberating information and knowledge” (George)

System Quality

The MDC data collected identified the following attributes to be well presented: ease of use; availability; reliability; adaptability; response time; convenience; ease of learning; usefulness; reality; functionality; dependability; and user friendly.

Performance was discussed as limited by the current design and that speed issues were experienced a few months back but these were quickly resolved. At times some slowness was experienced but not often. A typical comment was “very little downtime, available 24 x 7 and intuitive” (Jill). In the system quality construct the internal customers felt that usability could be extended but external customers were happy with the system.

Future eServices improvements and development identified from the data collected provides valuable insight for MDC to provide additional functionality and improvements to extend

eServices to improve the value to the customer.

The MDC data collected did not appear to identify the following attributes: expectations; flexibility and integration. Flexibility and expectations were difficult to interpret from the data collected and integration could not be identified from the data collected; this may be due to customers not knowing what is possible.

“I am not computer savvy but this is so simple I can see more and more people using it”

(Craig)

“There is no functionality deficiencies in the way they operate from a user point of view. The speed is reliable I have not had any problems” (Brent)

Service Quality

These eServices are self-service and require very little support from MDC staff. The service quality attributes that were identified through the MDC data collected was: support, responsiveness, reliable, assurance and performance. These attributes all came through from data collected in the interviews. Eight out of 10 respondents felt, however, that if the services were not available it would impact significantly and that they were dependent on these eServices.

Additional service quality attributes that were identified were: Unknown extent of service/functionality that had a negative impact to customer’s value; and a positive awareness – through passing on knowledge of eServices; the ability to reduce bureaucracy and self-service. The Smart Maps was seen to be a great service to visualise maps but the interviewees felt that many people were not aware of the service and functionalities.

An issue raised by an interviewee was that the language used in these services was still seen to be Council language and this had a negative impact on value. A real estate agent felt that “If you didn't know what Smart Maps was and you were new to council you wouldn't know easily there were a suite of interactive maps” (Mary). The interviewees all felt the service was not well known and it was not obvious when visiting the website, which negatively impacts value. Each interviewee had passed on their knowledge of these eServices and talked customers

through finding and using these eServices. This is part of a larger network to enable a knowledge society.

The attributes that were not identified from the MDC data collected were tangibles, empathy, security, personalised attention and timeliness. This could be due to the eServices being a self-service system and that support and services from MDC are not required. These eServices have not been personalised. MDC usage/continued use and customer satisfaction appear from the interview data to be impacted by service quality.

“Conscious people are structuring their business around what MDC are providing and this will only increase and we have to ensure our systems work 24 x 7” (George)

“Yes reduces bureaucracy and has the ability to revolutionise bureaucracy” (Colin)

Usage/Continued Usage

Personal customer usage was adhoc, whereas business usage was extensive usage, daily and even hourly. Internal customers often used the systems talking customers through information after hours. This was driven by a need for customers to gain information and knowledge to deal with issues.

Google analytics provides objective information on usage and supports the data collected with qualitative information. An average time on page usage of 1.30 minutes for Property Files Online further supports the idea that people can find the information they are looking for easily. Smart Maps’ average time on page was 2.22 minutes, which could be due to the amount of information, and interviewees browsing the maps.

The interview data usage was predominantly for property and resource consent information and various Smart Maps and supports the interview data that people are not aware of all the other information and services on offer. The type of professionals interviewed specifically use the property and resource consent information. Table 5 objectively reinforces the MDC data collected identifying the top 10 Smart Maps with Property (Resource Consents) being by far the greatest usage.

Smart Maps Top Webmap Views		
1	Property	53,791
2	Refuse/Recycling	14,023
3	Parks and Reserves	13,071
4	Facilities and Attractions	10,480
5	Cemeteries	9,629
6	Walking and Cycling	7,170
7	Moorings	4,651
8	Public Toilets	4,505
9	Blenheim Bus Service	4,460
10	Marine Farms	4,137

Table 5 – Smart Maps top 10

The Google analytical data indicates that these eServices have grown as shown in the case description. Returning customers seem to be the majority of usage and this could be because new customers are not aware of these eServices as identified in interviews shown in figure 7 and 8. The interviewees were all from the returning users' category. Smart Maps had a higher percentage of new users but the service has only been available in the last year.

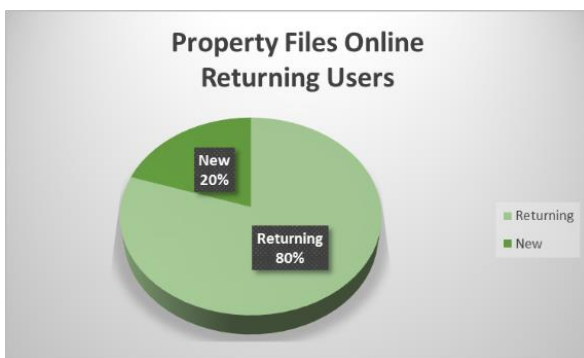


Figure 7 – Property Files Online Returning Users

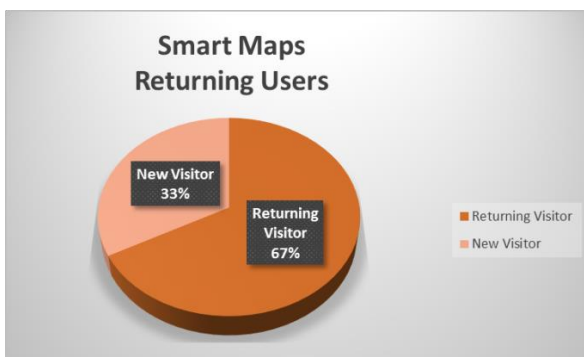
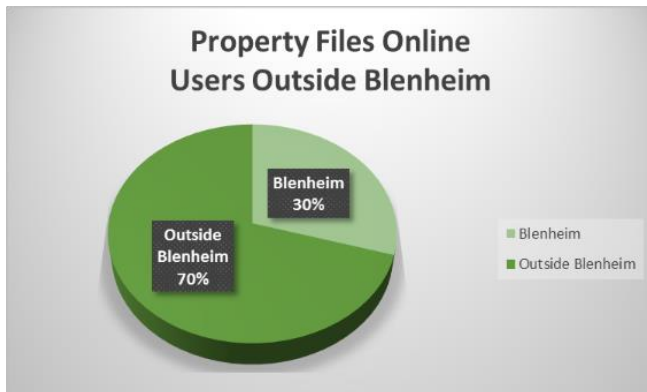


Figure 8 – Smart Maps Returning Users

Access to Property Files Online and Smart Maps is predominantly outside the Blenheim region for both services with very little difference between the services as shown in figures 9 and 10.



Figures 9 – Property Files Online Usage outside Blenheim

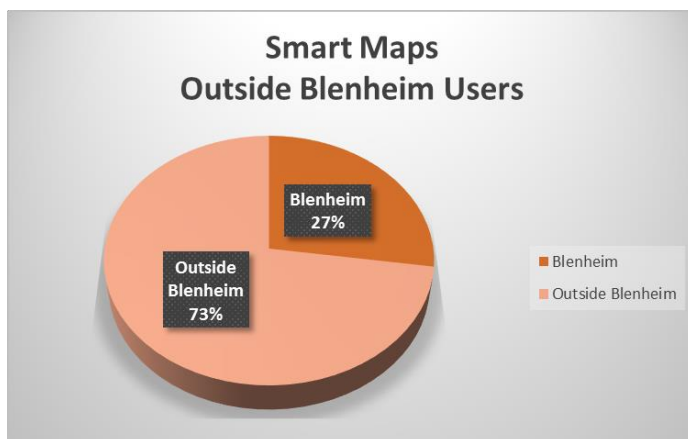


Figure 10 - Smart Maps Usage outside Blenheim

In New Zealand the usage locations using these eServices are identified and very similar for both services shown in table 7 and 8.

Property Files Online Top 10 New Zealand Visits		Smart Maps Top 10 New Zealand Visits	
1	Blenheim	1	Blenheim
2	Auckland	2	Auckland
3	Wellington	3	Wellington
4	Christchurch	4	Christchurch
5	Nelson	5	Nelson
6	Tauranga	6	Lower Hutt
7	Palmerston North	7	Tauranga
8	Hamilton	8	Rangiora
9	Lower Hutt	9	Palmerston North
10	Dunedin	10	Dunedin

Table 7 & 8 Top 10 New Zealand locations

Usage outside of New Zealand is still relatively low but it is useful to understand that there is some international usage as shown in figures 11 and 12.

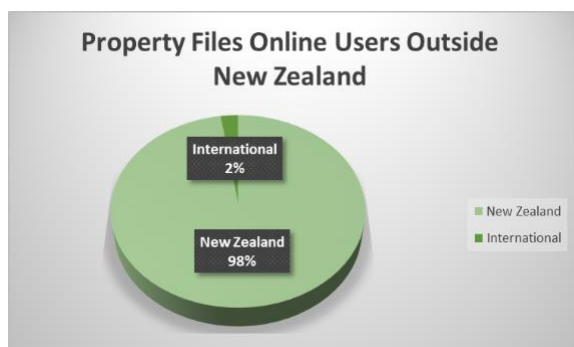


Figure 11 - Property Files Online Usage outside New Zealand

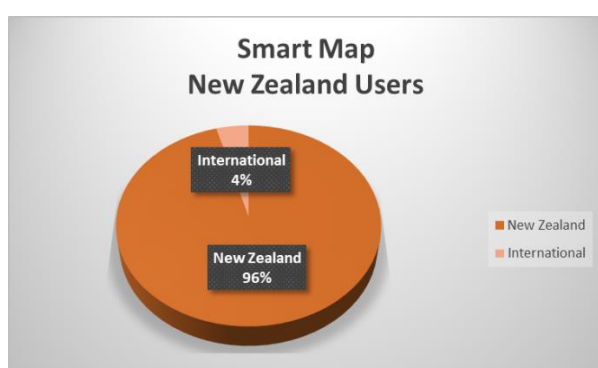


Figure 12 – Smart Maps Usage outside of New Zealand

The countries that are accessing these services are similar for the top four. These services offer different types of information, which could be why the countries vary.

Property Files Online Top 10 Country Visits		Smart Maps Top 10 Country Visits	
1	New Zealand	1	New Zealand
2	Australia	2	Australia
3	United Kingdom	3	United States
4	United States	4	United Kingdom
5	Canada	5	Germany
6	Malaysia	6	Canada
7	Germany	7	Japan
8	Singapore	8	India
9	Mexico	9	China
10	United Arab Emirates	10	Fiji

Table 9 & 10 Top 10 Country Visits

“I use these eServices for many different purposes it varies, Property Files Online to access resource consents for public enquiries and Floodwatch - when raining and Smart Maps for visualisation for policy matters marines farms” (Colin)

Customer Satisfaction

MDC customers appear from the data collected to be very satisfied with these services. The findings suggest that the quality of information; systems and services is good to high and praise that this service is in fact available for customers. All the interview data collected on customer satisfaction was positive; the only negative opinion was that not everyone knows about the service or the amount of functionality and information available. The Google analytical data highlighted the new MDC customers' locations around New Zealand and the world; locations that would not have been serviced with council information in the past.

“Within my job I have travelled a lot and working internationally so I was often searching on a global basis searching for information on properties and going to a lot of conferences on smart cities and future cities. From all my knowledge and experience this portal at Marlborough is world leading, it is a wonderful thing. The point of difference is the ease of use and you can get access to information very easily” (Michael)

Net Benefit/Customer Value

The interview data suggests that overall these services are highly valued by external customers, even more so than internal customers. Customers have been found to be very dependent on these eServices' availability and performance and built their business models around these. The impact to their business of service unavailability would impact their business significantly.

The attributes that were clearly demonstrated from MDC data collected were: economic benefits; success; job easier; saves time; ease of discovery; improved data quality; generating contextually relevant knowledge; social benefits; transparency; new information and services; value added interactive services; real time; security; and competence. These attributes were all well presented in the interview data. The areas identified in the data collected that were not in the original attribute model were: reduce bureaucracy; single source of information; building knowledge; reuse; business opportunities; invisible benefits; customers' dependency on service; and innovation.

The ability to explore and play attribute was once identified from the data collected from a personal usage interviewee. Jane identified that these services “increase your knowledge base as you can look at any Smart Map with information about region 24 x 7 you can look and learn stuff like walking tracks and finding information that interests you” (Jane).

The MDC data collected identified several social benefits - these were: out of region employment opportunities; ability for customers to keep up technically; staff awareness; and development opportunities from both customers and staff as identified in the future improvement data collected. For example one interviewee identified a social benefit as: “Employment opportunities for people to work from outside of Marlborough and source staff to work for MDC from afar especially when looking for consultants with limited expertise” (Colin).

The attributes that were not found from the MDC data collected was shared communities; eService portfolio. This could be due to the type of eService evaluated as opposed to a portfolio of eServices. Additional information identified from the data collected was the value of distributing information to customers. Marlborough customers having the ability to access information about Marlborough from around the world was also identified. A Marlborough knowledge society appears to be of high value to customers from the interview data. This shift in knowledge to customers can change the way in which professions engage with customers. The only disadvantage around knowledge identified was that customers may interpret or perceive this information incorrectly, however, all interviewees felt this was low risk.

There will be invisible benefits identified by Cranfield, Robertson and Oliver (2014) “the potential benefits were seen as being opaque and hard to measure” (p. 8). “A new business model may exist in that you can reference other data on the Marlborough region from different sources” (Colin).

“Intellectual property a real asset to MDC and could be explored and that umpteen councils within New Zealand and outside could be guided through creating something similar. The possibility of this solution having a commercial opportunity for MDC and that this service was way ahead of others, I have tried to get information from the UK, Saudi Arabia, and USA for work and you just can't do it” (Michael).

Overarching Customer Value

The findings have been summarised from the analysis into four themes.

1. MDC Value in Evaluating eServices

Evaluating eGovernment and the value to the customer has provided valuable information for MDC to continue to improve and achieve a higher level of eGovernment maturity. The MDC data collected could be applied to the IS success model and attributes to provide insights that MDC would otherwise not have had. For MDC the model allows a systematic process to undertake analysis for each construct to determine how effective these eServices have been and identify area of improvements and strengths. For MDC the value is in understanding what is done well and can be reused and future improvements for customers. Overall the findings indicated no distrust of eServices; and the high value placed on these eServices by customers.

Based on the analysis process it is proposed that the IS success model be adapted slightly to assist MDC in its application of the framework. These changes are based on eServices providing information as a service, especially contextual mapping information, and MDC being a political organisation. MDC is a local government with a political environment and the trust in eServices should come after information quality, system, and services quality as transparency and trust of the information, system and services can impact the trust in MDC's eServices. Trust in technology appeared not to feature in the analysis or influence this model and it may have been attributed under system and service quality; this would require talking to customers who don't use the system or may be distrustful of technology. In the new model this has been removed as it needs further investigation. Trust in MDC could evolve from the value of these services and knowledge dissemination may evolve the trust in MDC. Service and system quality attributes required clearer demarcation as shown in appendix 4. The proposed attributes were not clearly defined during the analysis stage.

Knowledge society or sharing of knowledge has been included in the net/benefit as knowledge depends on the previous constructs for knowledge society to occur. The new model would require further validation.

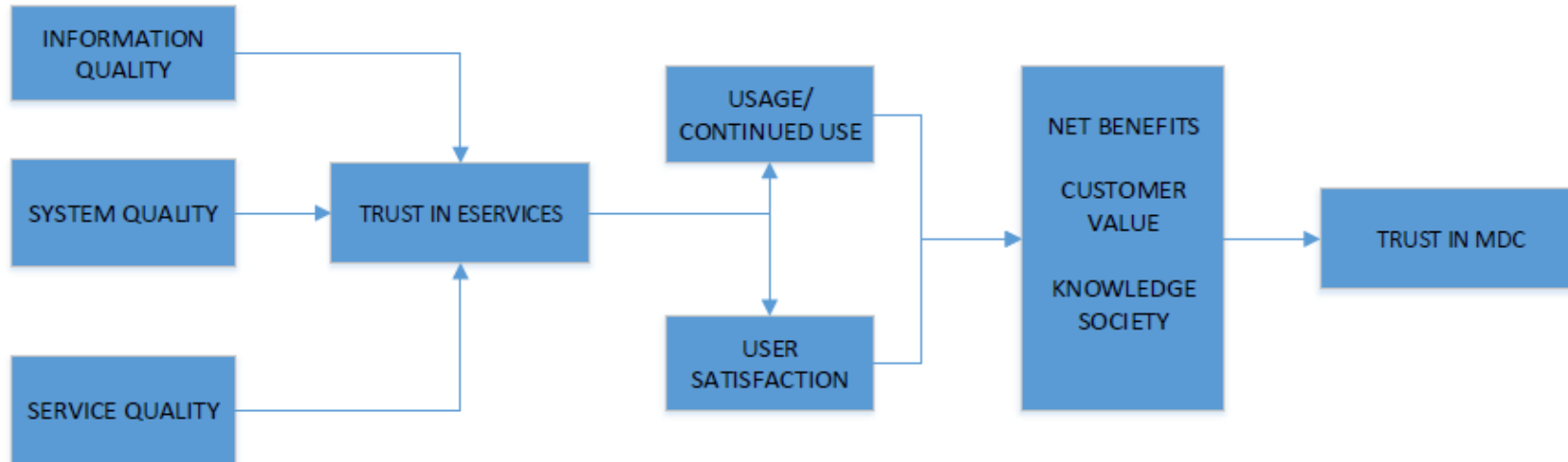


Figure 11 – Revised IS success model for application at MDC

2. Customer Dependency on MDC

Throughout the interview process it became clear that customer expectations for eServices are evolving and with this is a dependency on these eServices being available 24 x 7 to cater for international customers, which, are now 2-4% of MDC customers using this service. The findings indicate that personal adhoc usage and internal customers tended to use these eService outside of office hours. Customers felt these eServices were self-service and required little customer support, and they reduced bureaucracy.

The customers had many suggestions for improvements and integration with outside agencies that would enhance the services they want. Out of the interview process came several valuable ideas for improvements and information that customers would like to see. The eServices are the first in New Zealand, however, customers now want more based on MDC's delivery to date. MDC must ensure the support for eServices is 24 x 7 and performance meets customer demands. Businesses are depending on MDC providing these services; reputational damage would be significant if services were discontinued. No service levels have been defined for the eServices or how MDC intends to manage these in the future.

The Property Files Online system has only had minimal upgrades and no functionality improvements since deployment. Smart Maps has created additional maps but has had minimal functionality enhancements. Customers have great functionality ideas for improvements; these need to be channelled into MDC's product roadmaps.

3. The Value in Engaging with Customers

The customers interviewed provided useful and practical information on future direction and where they see the value of these eServices. The money invested for these eService meets the customer needs for those interviewed. Different interviewees from different professions are looking at different information and ultimately in the future would like a more personalised service.

Engaging and understanding customers provided valuable information ensuring that the money invested in eServices clearly meets customers' needs. External customers rated these services more valuable than internal customers and for different reasons. Customers outside

Marlborough are using these services more than local customers. Understanding the impacts of this for MDC needs further work. A consistent message about these eServices was both the lack of awareness from other customers that these services were available and that the amount of information and services available on Smart Maps was unknown. From the interviewees there appeared to be many different customer perspectives and different customer values from different professions. Personas may be useful for MDC to consider when developing these eServices. Closing the loop on how and what customers are using these eServices and information for, and how this impacts and changes their business models is a valuable source of information that MDC would benefit in tapping into. Understanding and working together with customers can provide far superior services for customers and ensure MDC continues to provide value to customers.

4. Benefits of a Knowledge Society

Local government are custodians of a huge amount of public information that can be published and made available for customers to enhance and support their decision-making and increase their knowledge of Marlborough. These eServices provide a single source of truth of information for customers and staff. Contextual and visual information is clearly very powerful in presenting information and useful in decision-making and presenting arguments for lawyers. Smart Maps was seen to be very influential in distributing knowledge from the customers interviewed. MDC has a large role in creating a knowledge society for the Marlborough region. By sharing all the information that MDC holds on Marlborough can only provide a better knowledge society for Marlborough. Adding other data from government agencies and information that relates to the Marlborough region will extend the eGovernment transformation into a greater maturity model and offer fantastic benefits for Marlborough and customers.

Conclusions

The problem that was investigated is MDC's eGovernment transformation and the customer value of two specific eServices - Property Files Online and Smart Map. MDC has only measured the value of these eServices in terms of usage. eServices cost money, time and resources to implement. John feels that if customer value is not known it is difficult to gain

support, and prioritise projects and funding to continue to drive the eGovernment transformation at MDC to meet customers' expectations.

Many benefits are identified for eServices, however, most have been evaluated from internally within organisations. There is a changing landscape in the public sector with the drivers to become more customer-centric and focus on the value to customers. The eServices investigated deliver vast amounts of public information and services to customers. The dissemination of this public information increases the customer's knowledge about the Marlborough region.

John felt strongly about the need to evaluate eServices, especially those providing information and integration to multiple data sources. This area is not well researched and there is merit in MDC understanding the customer's future needs. These types of services are not often evaluated in the public sector yet public sector organisations continue to push forward with eGovernment transformation without understanding the value of these eServices for customers. These services are built for customers but little is known about how the customers use and value these services.

The data was collected from interviews and Google analytics; these were analysed looking through the customer value lens using IS success model framework. Quality of eServices is linked to the value to customers and eService success. The IS success model and construct attributes were successfully applied to understand the customer value of eServices. Each construct was analysed against the data collected. Overall these eServices are highly valued by customers and the interviewees provided improvements and future developments to evolve eGovernment maturity at MDC.

The findings were summarised for the analysis of each construct in the model and summarised into themes being: the value in evaluating eServices; customer dependency on MDC; the value in engaging with customers; benefits of a knowledge society.

Recommendations

Recommendations based on the findings from applying the IS success model on the data collected. These findings should allow MDC to continue to mature its eGovernment transformation.

1. Creating a Digital Strategy with a Supporting eServices Roadmap

Develop a digital strategy for MDC focusing on driving and promoting MDC's eServices with customers. Strategically align MDC to focus on digital eServices throughout the organisation with executive team support. The findings have changed how MDC should write its digital strategy to include customer centricity as a pivotal part to the strategy.

Strategically plan and collaborate with other local government agencies, central government and regional companies and customers to provide information about the Marlborough region to increase knowledge for Marlborough customers. Align MDC drivers for eServices to becoming customer centric in all aspects.

Create an eServices roadmap and priorities by implementing the improvements and enhancements based on the customer feedback received. Extend the maturity of MDC's eGovernment transformation by linking to data sources in Government and other service providers. Review the IT project prioritisation to ensure that eServices is a priority for MDC; this will include appropriate budgets and funding and the importance of these eServices to customers.

A digital strategy and eServices roadmap recommendation acknowledges and the information feeds into the digital strategy for the following findings: value in evaluating eServices; customer dependency; value in engaging with customers; and benefits to a knowledge society.

2. Set up a Program to Evaluate eServices

Continue to develop and evolve the proposed IS success model framework in evaluating MDC eServices from a customer centric perspective. Report findings and recommendations to John and the Executive team. The IS success model framework categories and attributes can be used to evaluate and identify specific areas that require attention or have proven to be successful.

Evaluating the eServices and understanding the value of these eServices to customers ensures MDC are meeting customers' needs and adding value. As eServices and technology change so too will customers' expectations.

Setting up a programme to evaluate eServices addresses the findings: value in evaluating eServices; benefits to a knowledge society: customer dependency; and value in engaging with customers.

3. Set up eService Risk Management Framework

Set up a framework to evaluate the risks identified with eServices and ensure a robust infrastructure to ensure performance and reliability continues and these services can operate effectively in a 24 x7 environment to ensure supporting international customers. eServices systems require a development and upgrade cycle. Support for these services if the software has been outsourced needs to ensure service levels are met to mitigate risk of reputational damage. Ensure information and quality standards and data governance frameworks are maintained and prioritised to ensure MDC continues to surface quality information. This recommendation will address mainly the customer dependency finding on MDC to ensure a robust and performing system meets the customer needs.

4. Establish an eService Customer Engagement Programme

For MDC to transform there is a need to create closer relationships with customers and actively seek feedback and close the loop on what these eServices are being used for. Plan for the impact of evolving digital customers and how MDC responds to these changes. Create personas to help with building these services. Evolve to a deeper collaboration at a higher level so that MDC collaborates with customers on eService development.

Market these eServices and review ways of publishing and promoting this information in plain English. Use the customer information from interviews to find better ways to promote these eServices when visiting the MDC website. Review personalisation and customer orientation and create questions and answers for these services e.g. I want to buy a property. Look at the possibility of workshops for these eServices for customers. Create customer surveys and seek creative ways to get feedback to ensure continual improvement. This recommendation would address and promote the customer engagement findings.

5. Continue to Support and Build the Knowledge Society

The findings highlight the value in a knowledge society for MDC and MDC have already invested in the platform to deliver. The ability to use the Smart Map technology to create a community Smart Map portal for non MDC information or to link relevant government information to Smart Map functionality allows a far greater customer experience as identified in the findings. This recommendation can address the following findings: specifically the knowledge society; and value in engaging with customers.

Appendix 1 – Smart Map Services

The screenshot displays the 'Smart Maps' interface for Marlborough District Council. At the top, there is a search bar and a header with the council's logo. Below the header is a large aerial map of the district. On the left side, a 'Gallery Categories' sidebar lists various map types: All Categories, About Marlborough, Environment, Our Community, Recreation, Services, and Your Council. The main content area is a grid of 12 map service tiles, each with a representative image and a brief description:

- Bonoury Post Plants:** Shows the known distribution of certain post plants in Marlborough, including Chiltern Nettlegrass.
- Berhain Bus Service:** Map showing the route and bus stops of the Berhain bus service.
- Berhain CRD Parking:** Locations of on-street and off-street public parking in the Berhain CRD.
- Building Consents:** Shows building consents data for Marlborough.
- Camping:** Shows the locations of campsites and facilities in Marlborough.
- Cemeteries:** Location and plot details of council managed cemeteries in Marlborough.
- Census Data:** Shows data from the 2013 Census for the Marlborough region, down to meshblock level.
- Contours:** 20 metre topographic contours of the Marlborough District, with 1 metre contours available in specific areas.
- Dog Exercise Areas:** (Image shows a dog in a field)
- Drainage Extension:** (Image shows a drainage ditch)
- Explained Reserves:** (Image shows a park area)
- Facilities and Attractions:** (Image shows a building)

Appendix 2 - Human Ethics Paper work



SCHOOL OF INFORMATION MANAGEMENT
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Chief Executive
Marlborough District Council
Andrew Besley
PO Box 443
BLENHEIM

9 April 2015

Dear Andrew

Invitation for participation in case study project

I am currently enrolled in the Victoria University of Wellington course MMIM 590: Case Study Project which I am taking as part of my studies for the Master of Information Management degree.

This letter is to invite Marlborough District Council to participate in case study research. Marlborough District Council will be identified in the case study and may include possible publication in academic conferences and journals or dissemination at academic or professional conferences. The case study is designed to investigate the value of digital services at Marlborough District Council using exploratory questions on the eServices Smart Maps and Property Files Online. I hope to understand the value and needs of eServices from a customer's perspective.

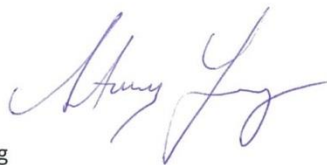
I would like approval to use statistical data from google analytics for Smart Maps and Property Files Online as part of my investigation. This data will be aggregated and anonymous over a year long period. The data used will identify locations, usage, repeat and new visitors and hours of use. This will be used to contextualise eService customers.

Please sign the bottom of this letter if you agree to Marlborough District Council participating. This indicates your agreement to use any information and opinions you provide for the purposes of the report, and that you are aware of the research conditions, including the purpose and use we will make of your comments.

Please feel free to contact me on (021) 342 863 or by email (add contact details and email of group co-ordinator) or the course coordinator, Dr Jocelyn Cranefield on (04) 463 6887 or by email jocelyn.cranefield@vuw.ac.nz, if you require further information about the course and the assignment, or the informed consent requirement.

Yours sincerely

Signed:



Stacey Young

Countersigned:



Andrew Besley
CHIEF EXECUTIVE

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Appendix 3 – Interview Questions

Interview Questions (Semi-structured interviews)

eGovernment Transformation: Understanding Customer Value

General

1. Tell me how you have used Smart Maps and Property Files Online in the last 6 months and how often.

Quality

I am interested in your thoughts on the quality and performance of the eServices of Smart Maps and Property Files Online.

2. How do you perceive the quality, information and performance of these eServices?
3. Based on your experience how easy was it for you to find the information you were looking for and to use these eServices?

Value

I am interested in understanding the value of eServices, Smart Maps and Property Files Online to customers, especially from a business perspective.

4. How have eServices added value to your business? (ie any cost savings, efficiencies etc)
5. eServices are intended to reduce bureaucratic processes. Do you feel they have succeeded, and, if so, how? Are these advantages or disadvantages to you as a customer?
6. How has your experience in using eServices changed your perception of the trustworthiness and transparency of Marlborough District Council?
7. Do you see eServices facilitating an increase in the knowledge about the region that is available for customers to access if so, what benefits in this do you see?
8. Do you see customers' knowledge of the region increasing through information provided via eServices and what impact do you see to various businesses? eg Real Estate, Planning and Lawyers etc
9. What impact to your business would there be if these eServices were not available?

Future

I am interested in understanding what you would see as improvements and priorities for additional eServices from a customer's perspective.

10. Can you offer any improvements to eServices that would increase the value and quality of eServices to you as a customer, and what would you see as a priority for future development?
11. Is there any other information or other eServices you would like access to from other government agencies, or business information you would like to see linked from Smart Maps?

Thank you for your time

Appendix 4 – Trust Attributes from Academic Literature

Trust in MDC	Trust in Technology	Trust in eServices	Literature
Trust in MDC	Trust in Technology	Trust in eServices	Teo, Srivastava, & Jiang, 2008

Appendix 5 – Quality Attributes from Academic Literature

Information Quality	System Quality	Service Quality	Literature
Personalised Relevant Easy to Understand Complete Secure	Usability Availability Reliability Adaptability Response Time	Support	Delone & Mclean, 2004
Accuracy Precision Currency Reliability Completeness Conciseness Relevance	Convenience Flexibility Integration Response Time Realisation User expectation Reliability Ease of Use Ease of Learning Usefulness	n/a	Halawi, McCarthy, & Aronson, 2007
Accuracy Timeliness Relevance Understandability Completeness	Functionality Dependability Ease of Use Usefulness	Tangibles Reliability Empathy Responsiveness Assurance	Wangpipatwong, Chutimaskul, & Papisatorn, 2010
Precise information Sufficient information Up to date	User friendly Easy to use	Support Safe Personalised attention	Wang & Liao, 2008
Accurate Timely	Performance percept	Timeliness Poor performance	Teo, Srivastava, & Jiang, 2008

Appendix 6 - Usage/Continued Use and Customer Satisfaction Attributes from Academic Literature

Usage/Continued Use	User Satisfaction	Literature
Nature of Use Amount of Use	Entire customer experience	Delone & Mclean, 2004
Use Frequency of Use	Satisfaction	Halawi, McCarthy, & Aronson, 2007
Types of Use Online Usage Amount of Use Returned Users	Continued use	Wangpipatwong, Chutimaskul, & Papisratorn, 2010
Dependant on the system High Use	Satisfied Expectations met	Wang & Liao, 2008
Usage/continued use	Satisfaction	Teo, Srivastava, & Jiang, 2008

Appendix 7 – Net Benefits and Customer Value Attributes from Academic Literature

Net Benefit/Customer Value	Literature
Positive/ Negatives impacts on eService Economic Benefits Relevant knowledge	Delone & Mclean, 2004
Success	Halawi, McCarthy, & Aronson, 2007
Job easier Saves Time	Wang & Liao, 2008
Ease of discovery Improved data quality Generating contextually relevant knowledge Economic Benefits Social Benefits Cost reduction and efficiencies Predictive value Transparency Ability to explore and play	Cranefield, Robertson, & Oliver, 2014
Efficiency - Cost, speed, range, simplicity, scale, symmetric information Novelty - new information and services Lock-in - positive network Complementeries - products and information and services	Amitt and Zott
System and information quality	Lee and Kozer (2006)
Value added interactives services Real time Shared communities	De Ruyter, Wetzels, & Kleijnen, 2001
Reliability Responsiveness Competence Ease of Use Security Product Portfolio	Yang, Jun, & Peterson, 2004

Appendix 8 – IS Success Model Attributes

Information Quality Attributes	System Quality Attributes	Service Quality Attributes	Usage/Continued Use	Customer Satisfaction	Trust in eServices	Customer Value Attributes/Knowledge Society	Trust in MDC
Relevant	Ease of Use	Reduce Beucreacracy	Types of Use	Entire customer experience	Trust in eServices	Economic Benefits - Cost reduction and efficiencies	Trut in MDC
Easy to Understand	Availability	Self Service	Online Usage			Predictive value	
Complete	Reliability	Assurance	Amount of Use			Success	
Secure	Adaptibility	Support	Returned Users			Job Easier	
Currency	Response Time	Ease of learning				Saves time	
Sufficiency	Convenience	Unknown extent of service/functionality				Ease of discovery	
Accurate	Usefulness	Awareness - Passing on knowledge of Service				Improved data quality	
Easy to find	Reality	Customer Dependant on eServices				Generating contextually relevant knowledge	
Awareness of Information Available	Functionality					Social Benefits	
Ability to reuse	Dependability					Transparency	
Trusted	User Friendly					Ability to explore and play	
Single source viewing	Poor Performance					New information and services	
Accessible formats						Value added interactive services	
Contextual Information						Real Time	
						Shared communities	
						Reliable	
						Responsive	
						Ease of use	
						Security	
						eService Portfolio	
						Competence	
						Reduce Bureaucracy	
						Single source of information	
						Build Knowledge	
						Reuse	
						Business Opportunities	
						Invisible Benefits	
						Customer dependancy on service	
						Innovation	

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