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ASSESSMENT 3: FINAL DISSERTATION

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INFORMATION & COMMUNICATION TECHNOLOGY CHANGE AND ADOPTION IN LOCAL GOVERNMENT: A NEW SOUTH WALES EXPLORATORY STUDY

***Including: 'why', 'comparative status', 'considerations'*.**

Dedication and Thank You

The cumulation of this paper has been a result of the support, friendship and guidance of many people.

Firstly and foremost to my wife, Belinda, whose unending support was key to completing not only this paper but the course.

To Dr Bligh Grant, my supervisor for this task, and Ronald Woods, Subject Coordinator, who both challenged and mentored me throughout my Masters of Local Government program.

To the many (and too numerous to mention) lecturers and guest speakers who all participated in my learnings.

To my fellow students who provided unique perspectives and enhanced for the better my experience.

To all participating staff in my interviews – you were essential.

Finally, to my Aunty Pam, who is now at peace, this final paper is dedicated to you.

Thank you one and all.

Contents

Executive Summary

The information and communication technology processes and systems (ICT) of local government are essential to perform the services, both statutory and discretionary, expected and desired by the communities in which they operate.

This paper explores the history of ICT as it has evolved in local government across the world including a review of the Australian experience. From the observations documented a consideration of evolution of the three levels of ICT utilisation is reviewed. The three levels being e-government, t-government and e-democracy.[1]

A group of purposively sampled and disparate NSW Council's ICT staff (ranging from executive level to manager and support staff) were interviewed to understand where this state was positioned with regard to the three levels of ICT utilisation, including importantly its position from a global perspective. Guidance was also sort from those council's Integrated Planning and Reporting (IP&R)[2] regime documents as well as any operational plans available from its website or direct request for internal documents.

These observations yielded the question as to whether local government can or should seize the opportunity to transcend an efficiency only focus and achieve a platform of operation which supports and enhances a community's democratic process. The question is a large one which brought into frame a further question as to the role of local government in Australia relative to the other levels of State and Federal from a 'democracy' view. Although these questions are not part of this paper the cogitation of these questions yielded the proposition that there is a balance that needs to be sought out and determined by the local government authority across the ICT Continuum of the mooted council centric 'e-government' through to the mooted community centric 'e-democracy' not just how its fares when compared to the world.

[1] Refer Appendix A: Definitions for explanation of these three terms.

[2] The IP&R regime was introduced by the NSW government to assist local councils plan their activities so as to meet their community needs. (Refer: NSW Premier & Cabinet, Division of Local Government. (2013 p. 8)).

1. Introduction

1.1 Background and rationale for paper

The information and communication technology processes and systems (ICT) of any organisation are an essential mechanism for the delivery of services and goods. Chew and Gottschalk (2009 p. 74) identify that any ICT strategy (which encapsulates the processes and systems of ICT) must recognise both organisational opportunities and problems as they relate to ICT, allow for appropriate resourcing, and develop processes which foster success. This is applicable to local government in a basic sense however within local government there is an opportunity to transcend an efficiency only focus and achieve a platform of operation which supports and enhances a community's democratic process. It is important to also consider the position of NSW councils with regard to other local governments throughout the world. From their experience it can be considered what further may be achieved through ICT depending on where NSW councils are placed relatively.

The movement between the opportunities suggested above is explicated in this paper as the 'ICT Continuum' and is charted in *Figure 1* below.

Figure 1: The ICT Continuum

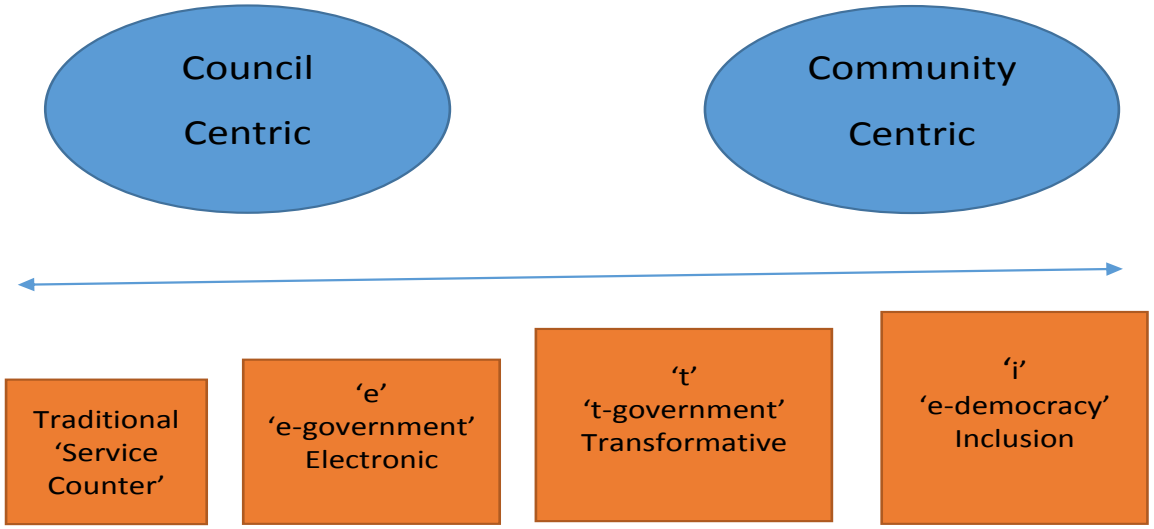

Figure 1: The ICT Continuum above shows at the very basic level of service provided historically by councils was a 'traditional service counter' model. This was particularly the case prior to the evolution of the computer and associated ICT advancements. For the purposes of this paper the functions of council in the 'field' (that is: physical activity such as parks maintenance, construction of roads, child care services, etc.) are assumed to be embedded in the service models and the way in which they are 'enhanced' by ICT are explicitly explained in this paper at the local council level.

The Continuum progresses to the **'e'** level, the 'electronic' level, which entails a council embracing 'e-government' principles, as defined by Chugh and Grandhi (2013 p. 234) as '[t]he use of the internet and [information and communication technology] to electronically empower governments to provide information and services to a diverse range of stakeholders'.

Further enhancement of a council's utilisation of ICT is then achieved through the **'t'** level of the ICT Continuum, the 'transformative' level. This involves the council embracing and implementing 't-government' which is defined by Weerakkody and Dhillon (2008 p. 5) as 'the second phase of e-government, which focuses upon cost savings and service improvement through back-office process and [information technology] change. [It]… require[s] three key transformations [being]… [ICT] services… that are designed around the citizen and not the provider,… [a] move towards a shared [government] services culture,… [and a]… broadening… of government's professionalism in terms of planning delivery, management and governance of IT-enabled change'.

The next and final level on the ICT Continuum is defined as the **'i'** level, considered to be 'inclusive'. This level is where 'e-democracy' can be achieved. Nchise (2012 p. 165) defines 'e-democracy' as 'the utilisation of information and communications technologies… for enhancing a countries democratic processes and empowering its citizens'.

It is contended in the ICT Continuum shown above that the movement between the levels outlined exhibit a movement from a 'Council centric' use of ICT to one which is 'Community

centric'. That is, the delivery of council services moves from one of simple 'delivery' to one where the actions of council actually facilitate community involvement in the democratic processes of which the community is beholden to.

1.2 Objectives

This paper aims to critically assess the adoption and utilisation of ICT in NSW councils and derive learnings from two questions:

1. What is the imperative which underpins the decision or consideration of a change to a council's information technology software base?

2. Where do NSW council's sit in comparison to the world regarding a consideration and possible movement to e-government, t-government and e-democracy?

Through the consideration of these questions it is expected to be able to give context to ICT utilisation and the reasons why local government in NSW should consider ICT as a useful vehicle to balance council centric tasks and services with community centric opportunities and benefits. Knowledge of what is occurring throughout the world at a local government level is also useful in so far as those experiences within those countries. The objective is not to necessarily attempt to draw a conclusion that e-democracy, the 'end' of the ICT Continuum, is a 'goal' of local government, but rather provide a framework which will assist consideration of a further question of NSW councils' ability to facilitate e-democracy given their place in Australian government as compared to both Federal and State levels of government.

Once the research is completed and the paper finalised it will be disseminated to all participating councils. It is envisaged the paper will be used as a discussion and reference point when considering ICT change in the broadest sense of the ICT Continuum, with a backdrop of other countries experiences and progression against same.

2. Methodology

The methodology undertaken in this paper includes three key areas namely: literature review, in-depth semi-structured interviews, and analysis of the research garnered from the first two areas actioned. The methodology is explained in more detail as follows.

2.1 Methods of data gathering

First, consideration was given to academic research through a literature review of ICT use and adoption in local government from a historical perspective, a global sampling, and finally a synthesis of why change or adoption of ICT is prevalent (refer *Section 2.1.2 Literature Review* below).

Second, an 'exploratory case study' approach was performed on a targeted range of NSW councils to document collectively the experiences and plans for ICT utilisation in the context of the ICT Continuum (refer *Section 2.1.3 Interviews* below). These case studies were undertaken predominately through direct in-depth semi-structured 'one on one' interviews via telephone with key personnel in each council noting other relevant council specific documentation was considered as appropriate. Questions to be used in these interviews are documented in *Appendix A: Interview Questions*.

These research undertaking were then analysed and the ability of local government in Australia, specifically in NSW, was assessed to assist drawing conclusions and formulating recommendations on the ICT Continuum and the place of local government on it.

2.1.2 Literature review

This literature review of ICT use and adoption in local government included reviewing a wide range of academic literature on the matter with a selection being made to identify any analysis done specifically on this matter. This included consideration of three areas of topic specific research including:

- *Local government use of ICT - a historic context and current position*: to provide a basis for understanding the research topic
- *A non-homogeneous selection of different local government's use of ICT across the world*: to provide a broad picture of how different local government authorities attempt to utilise ICT in its operations
- *Change, choice, implementation and other ICT system considerations in local government*: this review brings together the intentions of the previous areas of research and provides insight into change, choice, implementation and performance of ICT considerations with reference to varying topics pertinent to local government.

Each topic is examined separately below in *Section 3: Literature Review*.

That section of this paper is a narrative review as identified by Wood (2015 p. 1), namely it will 'critically appraise and summarise the literature relevant' to this topic.

2.2.2 Interviews

Semi-structured In-depth interviews, as defined by Morris (2015 p. 3), are 'similar to a conversation… [where] there are two individuals discussing a topic of mutual interest and… it involves a researcher asking questions and following up on responses of the interviewee… to extract as much information as possible from [them].' Morris (2015 p. 5) further states that the strength of in-depth interviews as a research method is that '[it] is an extremely versatile method and can be used to study an almost limitless range of topics and research question'.

Opdenakker (2006 p. 3) comments that telephone interviews are 'synchronous communication of time… [being 'real time' and can]… [extend] access to participants' - these benefits were considered when undertaking interviews for this paper. Opdenakker (2006 p. 3) however also adds that 'one of the disadvantages of asynchronous communication of place by telephone… [being not physically present] is the… interviewer does not see the interviewee, so body language… can not be used as a source of extra

information. But social cues as voice and intonation are still available.' In consideration of these observations by Opdenakker (2006) it was still considered appropriate to undertake interviews by telephone to gain as much geographical cover as possible (based upon responses to invitations to interview). In particular the lack of 'body language' was not considered detrimental to an interview on a councils ICT usage and plans.

Presentation of the questions is supported by Kallio et al. (2016 p. 2) who state 'Presenting the actual interview questions in the study report enables the study results to be assessed in relation to earlier knowledge and makes it possible for other researchers to test and develop the guide further.' It is noted this observation was contained in a medical journal (see Kallio et al. (2016)) however its clarity resonates as to the importance of being transparent in providing the context of the interview undertaken no matter what its subject matter.

For these reasons the interviews undertaken where semi-structured in-depth interviews by telephone with the questions asked built upon the preceding question and allowed the interviewee to respond as expansively as they wished or, as appropriate, encouraged to elaborate on their response, and the questions themselves attached at *Appendix B: Interviews*.

From the responding councils either the General Manager, Director (or equivalent) responsible for ICT, or the ICT Manager (or responsible officer) was requested to be interviewed. This enabled the broadest range of strategic and operational responses from the targeted range of councils. The choice of the sample is discussed at *Section 2.2.3 Sample Selection* below. Consent from all participants was sought and received. Refer *Appendix C: Consent Form* for a copy of the consent form sent to all participants.

Responses to the interview questions (refer *Appendix B: Interview Questions*) were synthesized on an individual council basis then consolidated observations and themes were presented at the end of *Section 4: Interviews*.

The responses to the questions posed were also considered through the lens of internal council documentation which pertain to its ICT system or services if available, such as ICT strategies.

The proposed utility of such documentation is supported by the joint survey prepared by PwC and Local Government Professional Australia NSW (2016 p. 68) which states '[t]o remain at the forefront of growing digital trends, councils must implement effective IT strategies and systems'.

As noted above each interview was conducted by telephone and notes from each interview were taken by the researcher. As previously noted each participant will receive a copy of the final dissertation paper for their reference.

2.2.3 Council sample for Interviews

Morris (2015 p. 62) supports the use of in-depth interviews of individuals from a small non-random sample where he states 'In the use of in-depth interviews… there is no expectation that the sample be random… [and] [t]here are qualitative studies where sampling is not an issue. This occurs in small-scale studies where all the potential interviewees can be included.' This is the premise contended by the researcher in that all NSW councils were 'potential interviewees' albeit it was not within the ambit of the researcher to undertake extensive and numerous interviews. Notwithstanding this limitation, based upon the targeted stratification undertaken, as explained below, the 8 councils are asserted as representative of NSW councils. The stratification of those targeted are more fully explained below.

It is contended that the above statements guide the selection of a sample of NSW councils based upon the following principles and categorisations:

- They are currently either: stand-alone (not mooted for amalgamation at this time), slated for amalgamation (but only have not been amalgamated due to legal challenges) or have been recently amalgamated (being none of the councils identified for amalgamation legally challenged the NSW governments' amalgamation

direction). Refer to *Current status of some interviewees* at page 16 of this paper for the latest status of the selected interviewees.

- Under the Australian Government: Department of Infrastructure and Regional Development (2015 p 202) there are two main categories of classification for local government of Urban and Rural. (Refer *Appendix D: Australian Classification of Local Governments: Structure of the classification system*). These are broken into sub-categories (with the number of NSW councils in brackets following the type as at July 2013)[3] as follows:

  Urban:

  - Capital City (1)
  - Metropolitan Developed (31)
  - Regional Towns/City (38)
  - Fringe (11)

  Rural:

  - Significant Growth (Nil)
  - Agricultural (69)
  - Remote (4)

It is noted each of the sub categories above are broken down into 4 more categories based on population being small, medium, large, and very large. This sub-categorisation was not utilised in the selection of the sample councils.

[3] It is stressed this information is prior to the recent NSW amalgamations, notwithstanding this is the latest report from the Department of Infrastructure and Regional Development.

There exists an alternate basis of stratifying NSW local councils by reference to the NSW Government: Office of Local Government's (2016) 'Your Council Report' which provides the following qualifications for reliance:

> *"Although they show the differences between councils across a selection of specific activities, they do not explain why these differences have arisen. The figures are indicators only and conclusions should not be drawn without qualitative assessments being made."*

Given this qualification emphasis and reliance was placed upon the Australian Government through the Department of Infrastructure and Regional Development classification and not the the NSW Government: Office of Local Government's (2016) 'Your Council Report'.

Further, the Australian Government through the Department of Infrastructure and Regional Development allocates funds based upon its own classifications, and as articulated on its website 'provid[es] essential services and develop[s] effective planning initiatives… [which] contribut[e] to the prosperity of the economy and the wellbeing of all Australians by assisting local governments to manage their own futures'. (Refer: Australian Government: Department of Infrastructure and Regional Development (2016)). Although these assertions may appear grandiose it is asserted the Australian Government's classification cannot be summarily dismissed and can be relied upon in consideration of a range of councils.

Using the above criteria a selection of councils were selected through invitation to participate in this study so as to give a range of councils, both from a 'amalgamation' status as well as a structured classification status. The following *Table 1: Council Amalgamation Status and Australian Classification* identifies which councils agreed to participate and were interviewed (in order of interview).

Table 1: Council Amalgamation Status and Australian Classification

Council	Amalgamation Status as at 25 September 2016	Australian Classification as at July 2013
Fairfield City	Stand alone	Urban: Metropolitan Developed
Shoalhaven City	Stand alone	Urban: Regional Towns/City
Burwood	Stand alone	Urban: Metropolitan Developed
Blayney Shire	Legal case: mooted to amalgamate with Cabonne and Orange City	Rural : Agricultural (Blayney and Cabonne – Rural Agricultural, Orange – Urban: Regional Towns/City)
Shellharbour City	Legal case: mooted to amalgamate with Wollongong City	Urban: Regional Towns/City (both Councils)
Kiama Municipal	Stand alone	Urban: Regional Towns/City
Eurobodalla Shire	Stand alone	Urban: Regional Towns/City
Northern Beaches (nee Warringah)	Amalgamated council with Warringah, Manly and Pittwater	Urban: Metropolitan Developed (all three Councils)

Source: Australian Government: Department of Infrastructure and Regional Development. (2015 p. 160-164).

It is asserted that the above selection of councils represent a broad range of councils within the current environment of amalgamations as well as a blend of metropolitan, regional and rural councils. The above selected councils show councils within the metropolitan areas of Sydney, regional areas of NSW, as well as an outlying rural council. This broad mix supports the contention that this paper will be of use to many NSW councils across the state irrespective of their location or amalgamation status.

Current status of some interviewees

Blayney Shire Council: Blayney Shire Council was identified for amalgamation by the NSW government however the forced merger has not been finalised as Cabonne Council, one of two councils identified for merger with Blayney Shire Council, has proceeded with legal action in opposition to amalgamation. Saulwick (2016) reports the outcome of this case is not yet known.

Burwood Council: Hunjan (2016) indicates it is unclear whether the NSW government will pursue the amalgamation mooted as NSW Local Government Minister Paul Toole is quoted as saying 'This is a matter that'll go back to the local delegate and it will actually be for their determination for review and further examination.' This statement does not appear to rule out pursuit of an amalgamation. Albeit, Burwood is proceeding as a 'standalone' council in the interim.

Shellharbour City Council: The outcome of the legal objection (which failed in the first instance on behalf of Shellharbour) to this amalgamation was not known at the time of the interview. Shellharbour City Council has announced it has appealed this decision (Refer Shellharbour City Council (2016)).

At the time of writing none of the above circumstances/court proceedings have been unequivocally determined.

3. Literature Review

This section of the paper will provide a literature-based exploration of the use of ICT by local government historically and currently. This will involve a review of research undertaken to understand local government's experience with ICT across the world, including Australia. This review will necessarily consider the perceived and actual barriers to implementing ICT projects and strategic plans. This platform of understanding will provide a guide to the consideration of the development of the ICT in a broader sense than simply process efficiencies including the ICT Continuum which includes e-government, t-government and e-democracy (refer *Appendix A: Definitions*). This reflection on the future uses of ICT will include identification of potential risks inherent in any evolution of service provision to stakeholders within such growth.

This consideration of the role of local governments use of ICT to meet the needs of local communities, perceived barriers to implementation, and the value (and costs) and benefits (and risks) of ICT to local governments will allow synthesis of the experiences of local governments across the world with specific attention to the current 'state of play' within Australia and potential expansion of ICT.

The role of local government within this context will also be explored so as to understand the ability of council's to participate in the levels of the ICT Continuum, especially the **'i'** level which includes 'e-democracy'.

3.1 Local government use of ICT - a historic context and current position

In this section local governments' use of ICT will be examined through consideration of previous research into when ICT became a mainstay consideration of the sector, and what is the current utility in a broad sense of ICT usefulness. The analysis will build chronologically as the chosen researcher's views were either published or as they reflected upon a specific time period.

Yildiz (2007 p. 647-649) provides a succinct overview of the clear change (and opportunity) of the use of ICT in government noting 'until the introduction of the Internet and widespread use of personal computers, the main objectives of technology use in

government was enhancing the managerial effectiveness of public administrators while increasing government productivity' and places the advent of this in the 1980s.

This view, when overlayed with Biere and Sjo's (1981 p. 967) suggestion of 'lacking an objective performance measures, various participants in local government – elected offices, bureaucrats, and citizens – each may have a different concept of a local government's purpose' and further '[this] lack of a single performance measure… requires a more complex management information system', suggests that, at the start of the ICT expansion in the 1980s, there was a recognition of the challenges facing local government in harnessing the benefits of ICT.

This suggestion is brought into stark relief by King (1982 p. 26) who proposed the view that '[although] [s]kepticism about… enthusiastic forecasts of information technology [use] in local governments… not hav[ing] major impacts… it is plain to see that local governments… are becoming inexorably committed to a future that includes… information technologies'. King (1982 p. 34) identified ICT was a key part of local government future operationally and 'is here to stay and will continue to grow in local governments'. It is noted King (1982 p.34) makes his comments specific to the '1980s', however it is evident from other research his statements are enduring.

The journey of local government's utilisation of ICT was assessed by Kakabadse and Kouzmin (1996) with a review of innovation strategies for the adoption on ICT using an Australian case study. Although the case study related specifically to a Commonwealth department it was explicitly noted by Kakabadse and Kouzmin (1996 p. 327) that 'similar technology [was] successfully trialled by the [then] Department of Immigration, Local Government and Ethnic Affairs… outlets'. That is, it is asserted that the evolution of the use of ICT in local government was not simply a decision by local government but other levels of government also demanded local government utilise their ICT processes.

Tate et al. (2007 p. 513) reflected upon the 'promise' of ICT as an 'essential enabler for achieving efficiency and improved communication and interaction in the public sector' citing Beynon-Davies and Martin (2004) and Ott and Dicke (2001). Even so, Tate et al. (2007 p.

514) accepts 'there are… instances when these promises have been fulfilled, there is a growing body of research that suggests the practice of ICT in the public sector does not always match the promise.' This research of 2007 indicates that there is still reason to assess the utility of ICT in local government.

Recent research on the 'promise' of ICT is found in Jin et al.'s (2014) paper 'An Information Framework for Creating a Smart City Through Internet of Things'. Jin et al. (2014 p. 112) cites Belissent (2010 p. 3) asserting that a 'Smart city' is 'one that uses information and communications technologies… to make the city services and monitoring more aware, interactive, and efficient'. Jin et al. (2014 p. 112) identifies that 'few municipalities have platforms or systems for live monitoring and inferring of urban process parameters' and yet 'there is… an increased demand on municipalities to… collect [such] data and analyze them for action… in real time'.

It is clear the demand for ICT utilisation and innovation in local government has not diminished over time and foreseeably will only grow. This phenomenon is evident across the world and this is explored in the following section.

3.2 ICT use in local government across the world

In this section ICT use in local government across the world will be explored. A non-homogeneous selection of research of different local governments from across the world has been undertaken with the exception of a specific selection of Australia. This section will build upon the chronology of ICT use discussed in the preceding section but will be specific in relation to individual countries. Some articles on specific countries are not necessarily where that country is positioned today but rather selected to expose issues or considerations that will be useful when considering the current position of Australia in the context of a global position. The research considered has been selected with respect to ICT usage so as to provide insight into its development globally over time.

3.2.1 United States

Evans and Yen (2006 p. 207-208) state 'Information technology allows governments to service citizens in a more timely, effective, and cost-efficient method… [with]…citizens throughout the world… expect[ing] twenty-four hours a day, seven days a week availability… from their government' and they see 'government Web sites… [as the] logical [solution].' Although their paper does not specifically address development of ICT use within local government Evans and Yen (2006 p. 217) identify agencies can 'be greatly assisted by the linking of local, state and federal government'. Given Evans and Yen (2006 p. 212) also note '[t]he U.S. Information technology Budget will exceed $48 billion dollars in the year 2002' it is clear the trajectory of ICT use will continue exponentially as the 2016 budget is US$86.4 billion (US Government (2016 p. 281)). Evans and Yen (2006 p. 228) conclude '[t]he ability to increase… social influence… by using [ICT] gives… the opportunity to… [better]… society, nationally and globally'. This conclusion encapsulates the the importance of ICT to not only local government but also all levels of government.

A key other observation of the Evans and Yen (2006) paper is that it is 'internet-centric', that is, the discussion of e-governance is almost exclusively web based. This leads to the further conclusion that in the future it is necessary when considering ICT in local government to look beyond internal efficiencies to the external customer experience.

3.2.2 Brazil

The experience in Brazil was considered by Rodrigues Filho and Rodrigues dos Santos Junior (2009 p. 863) where they conclude the 'ICTs in municipal government in Brazil are designed … [to]… resemble… traditional political structures, maintaining… usual [practices] and avoid[s] new forms of interaction and participation' notwithstanding their observation that 'the greatest opportunities of e-government are at the local level, because local governments have more contact with citizens'.

Rodrigues Filho and Rodrigues dos Santos Junior (2009 p. 874) also identify barriers to the successful use of e-government being:

- poor leadership,
- financial restraints,
- digital divides (those with access and those without),
- poor coordination (lack of strategy),
- lack of trust,
- workplace/organisational inflexibility, and
- poor technical design.

These barriers are important for local government when considering implementing new or amending its ICT platform. Any one of these barriers if not addressed could have significant impacts upon the success of any plan to enhance an ICT platform. Further it can also be concluded the desire to not only improve ICT, but also the underlying processes, appears to be just as important as addressing these barriers.

3.2.3 Zambia

Zambia is identified by Bwalya et al. (2010 p.17) as being a country which is 'a victim of the all-pervasive scourge of corruption that has permeated… the socio-economic hierarchy – from the executive to the general citizen levels' and that e-government implementation can assist addressing this observation. Bwalya et al. (2010 p.16) also identify other benefits such as improved public service delivery, cost reduction in service provision, and improving the responsiveness of government to its citizens and businesses; and they identify disadvantages such as 'digital divide' and 'lack of engagement due to… low levels of trust by citizens' in the ICT systems.

To support their view of the potential to reduce corruption Bwalya et al. (2010 p. 17-18) sort out research undertaken to identify other countries experiences where the introduction of better ICT processes has resulted in the reduction of corruption. These countries included Pakistan, India, Chile, the Philippines, Ghana, Tanzania, Fiji, and South Korea.

Despite the challenges identified in achieving the success highlighted above, Bwalya et al. (2012 p. 28) state that '[a]lthough there is no clear strategy… for e-government development in Zambia, the government and the stakeholders are committed... [to] e-government advancement.' This sense of commitment is worthy to note in the context of all local governments attempting to improve their ICT platforms and processes.

3.2.4 Italy

A comparative study of the use of local e-government and citizen participation in the City of Casey in Australia and the Italian City of Bologna was performed by Freeman (2013). The Australian analysis is discussed later in this paper; the Italian observations are discussed here.

Freeman (2013 p. 245) advises that the local government of Bologna introduced an Internet project entitled 'Iperbole' which 'emphasises the importance of public involvement in government decisions' and is described as 'a free wireless civic network and community portal… to provide equal… access… [to]… the Internet, and enable direct relationships between citizen's and the local [government's] administration'. Freeman (2013 p. 245-247) identifies that although there were difficulties in continuing Iperbole (such as funding concerns) the project continues and is described as 'a successful initiative fostering and supporting online citizen participation'.

Although this analysis of Italian local government use of ICT is confined to one project it is an important one. Not only did the use of an ICT platform create positive relationships between Bologna's community and its local government, it was identified by Freeman (2013 p. 247) that the Iperbole initiative actually achieved a level of e-democracy, beyond both e-government and t-government.

Nchise (2012 p. 165) notes e-democracy as being defined as 'the utilisation on information and communications technologies… for enhancing a countries democratic processes and

empowering its citizens.[4] This is an important observation in so far as the possibilities of ICT are very great.

3.2.5 United Kingdom

Walker (2006 p. 311) states 'Innovation has been promoted by governments around the world as a key tool to improve public services' and the UK Labour Government's policies at the time were aligned to this principle. Walker (2006 p. 214) identifies two forms of innovation, one being organisational and the other technological; the technological innovations are described as 'information technology [including] hardware (physical equipment) and software (organizational systems)'.

This discussion is supported seven years later by the research undertaken by Kamal et al. (2013a p. 61) whereby they note '[local government authorities]… have implemented different ICT systems… to automate their business processes, improve their ICT infrastructure operations, and supplement their competitiveness and support citizen services' and '[h]aving realised transaction based electronic services… are now aiming to deliver a more integrated service delivery structure for e-Government.'

It can be seen from the work undertaken by Kamal (2013a) that the UK is well along the path in utilising ICT for internal efficiencies as well as external service provision. Keefe and Crowther (2015 p. 146) challenge this positive slanted conclusion through their study of ICT usage and development in the UK with their conclusion that although the governments ICT strategy (across all levels of government) evolved from 'a set of enabling and management approaches in support of policy business objectives to the point where the technology has become the strategic aim in its own right', it is now suffering from a lack of 'tolerance of problems as lessons learned… where… IT… include[ing] e-government, is expected to work the first time.' This divergent view highlights that even those countries governments considered well developed in the utilisation of ICT can be disrupted by political considerations.

[4] Refer *Appendix A: Definitions* for all three definitions of e-government, t-government and e-democracy.

3.2.6 Spain

Ruano de la Fuente (2014 p. 600) identified that in Spain in the 1980's local government were attempting to modernise public service practices with 'the search for efficiency, effectiveness and productivity' and were buoyed by the 'confluence of polices based on New Public Management (NPM)[5]' which 'favoured the emergence of e-government'. However Ruano de la Fuente (2014 p. 601) stated that the 'implementation of e-government' resulted in varying 'visions and strategies' across Spanish local governments based upon their 'own sets of economic, political or institutional factors and requirements'. Ruano de la Fuente (2014 p. 618) provides a forceful conclusion of '[a]t a discursive level local politicians seem… interested in the use of ICT… and outwardly accept innovations; but in practice they turn away from… change that… transform[s] their traditional way of functioning.'

Research performed by Gonzalez et al. (2013 p. 2031) provided a similar conclusion with 'the public sector has traditionally not encouraged innovation' and '[p]ublic leaders… meet criticism when new models fail'.

It is interesting to note these conclusions are consistent with that which is being experienced in the UK.

3.2.7 Greece

Gayialis et al. (2016 p. 482) state that 'the strategic approaches of public sector organizations [in Greece] are [being] re-evaluated in order to achieve modern effective operations and provide better service to their customers (citizens and businesses)' and identify 'Business Process Management' (BPM) software as the 'computer based support [program]… for performance management and process improvement.' Gayialis et al. (2016 p. 482) suggest the BPM provides the following benefits: 'increased business efficiency,

[5] Van Helden and Jansen (2003 p. 70) define NPM as 'the introduction and application of businesslike tools and styles in governmental management'.

rapid deployment of compliance and process changes, improved employee productivity, and increased business engagement' and will be 'initially deployed in Local government' and be part of a 'web-based integrated system'.

The advent of BPM is a clear indication of the advancing utilisation of ICT capacity in Greece and Gayialis et al. (2016 p. 487) conclude that '[e]xtending [the BPM] system's usage and usefulness to other organizations will enforce the system and will enhance its functionality' albeit, at the time of writing, the BPM is still 'under development'. Nevertheless this intended use of ICT is an interesting and positive development for Greece's local government.

3.2.8 Australia

Australia appears to follow the journey of other local governments with Shackleton et al. (2006 p. 88) with the observation that 'there has been significant… government emphasis on initiatives to promote internet use for local government service provision'. At the time of the research it was concluded by Shackleton et al. (2006 p. 98) that 'local governments have been spasmodic in their approach... [with]… web improvements [seen] as projects rather than ongoing process[es].'' It is recalled in 2006 the United States, governments were very focused on universally improving this aspect of the citizens experience.[6]

Gauld et al. (2009 p. 69) found this lack of progress continued when Australia was compared to New Zealand for 'e-government responsiveness', namely a key finding was 'Australian agencies consistently did not perform as well as… New Zealand' which in turn had Gauld et al. (2009 p. 73) question Australia's then standing internationally for basic responsiveness to citizens with them describing Australia's performance as 'lagging behind'. The proposition of poor performance did not improve according to the work of Anderson et al. (2011 p. 442) with findings that Australia had a response rate of 67.5% whilst New Zealand performed at an 89.3% response rate. It is stressed this is only one measure of performance however given the time between the respective research undertaken it is clear, at the time, Australia

[6] Refer earlier discussion page 20 of this paper on the United States position in 2006.

could not have been said to be performing at the best of its abilities. Fan's (2011 p. 932) findings with regard to e-government services supports this conclusion in that 'local governments in the [Greater Western Sydney region] in Australia have not developed sophisticated… services' and '[m]ost of the local councils still have a long way to go to achieve a higher level of e-government development.'

Returning to the study undertaken by Freeman (2013) in comparing an Italian local government to an Australian local government area it is seen again Australia cannot be said to have embraced the possibilities available through ICT. Freeman (2013 p. 245) cites that 'there is little hope that the City of Casey will facilitate greater online engagement' whilst as previously discussed the City of Bologna achieved much.[7]

Australian regional municipal local councils are also seen to be slow when adapting to the advent of 'cloud computing'. Ali et al. (2015 p. 34) notes the importance of cloud computing and its potential to benefit the local government sector however concludes 'it appears local government councils lack policy for the adoption of cloud computing services.'

Although much of the literature on Australia indicates there remains significant unexplored opportunities in the ICT area, there has been recent reports in the media which suggest there may be some movement in this space. LeMay (2016) has reported that Ipswich City Council has engaged a consultancy firm to assist it become a 'Smart City' which includes a digital strategy. Although this highlights again that funding is one component which needs to be considered in an ICT strategy, this report nevertheless provides positive news.

[7] Refer earlier discussion page 22-23 of this paper on the Italian experience.

3.2.9 ICT and e-government research observation

Notwithstanding the extensive research undertaken across the world it is important to note the observations of Heeks and Bailur (2007). Heeks and Bailur (2007 p. 259-263) identified some issues with any exploration of e-government research papers. They note there are 'positive features' of 'good practice' such as 'recognition of human and other contextual factors that influence… e-government'; 'narrow features' such as 'over optimism, even hype, and a consequent lack of balance in considering the impact of e-governance'; and 'poor practice' such as 'little recognition of underlying perspectives, with weak, confused or even contradictory positions about e-government or about underlying philosophy being espoused.' It is also noted that these observations permeated throughout the exploration of the countries discussed. Their views are acknowledged as a flag to deliberate the whole of the discussion and investigation being undertaken in the ICT, and in particular e-government, space, not simply either the promise or short-comings.

3.3 Change, choice, implementation and other ICT system considerations

Having reviewed literature from a historical and geographical perspective, an understanding of performance and measurement of ICT systems in local government will provide insight into the recent thinking and some recent progressions in ICT systems utility in today's local government.

3.3.1 Accentuating change for transformation

Weerakkody and Dhillon (2008 p. 1) summarise the goal of the local government in the UK as 'striving towards a vision for government-wide transformation and... to deliver better services to citizens via a one-stop-shop… for all services… e-enabling back office processes and information systems to facilitate… citizen centric… services; these efforts are referred to as… T-government.'[8]

[8] Refer *Appendix A: Definitions* for a more detailed definitions of e-government and t-government.

It was observed by Weerakkody and Dhillon (2008 p. 11) that 'the trajectory of local e-government… [of] incremental change… is likely to continue into the foreseeable future.' This observation of 'incremental' performance is explored in the following sections noting that the work undertaken by Weerakkody and Dhillon (2008 p. 12-16) drew from research spanning the years 1988 to 2008, with an emphasis on the later years. Literature will be reviewed in a chronological order, building the profile on what is seen as important for local government when considering ICT system change or adoption.

3.3.2 Stakeholders' role In ICT selection

Kamal et al. (2013b p. 200) highlight the importance of the involvement of internal 'stakeholders' in the change or adoption of an ICT system or process, in particular 'technology integration solutions'. Kamal et al. (2013b p. 202) identifies three stakeholders categories, namely, decision makers, management, and ICT staff. They specifically preclude other commonly identified stakeholders such as 'customers, employees, suppliers, [and the like]' to focus on what they have determined as the key stakeholders involved in the 'adoption process' of integration solutions. Kamal et al. (2013b p. 209) conclude that 'projects that require a high level of [ICT] integration… will be better informed in terms of identifying the relevant stakeholders [as defined by the authors] at different phases of technology integration'.

This research is an important counterpoint to the proposition put forward in many of the papers discussed in the global analysis of ICT adoption (in particular the emergence and pursuit of e-government – see *ICT use in local government across the world* at p. 19-27 above) in so far as the focus is on a very broad definition of stakeholder, in particular, the citizens.

3.3.3 ICT choice and use in decision-making tools

French local governments were the subject of research undertaken by Peignot et al. (2013 p. 92) to 'lay the grounds for a framework for [analysing the maturity of] Decision Support Systems (DSS)' so as to test if local governments were not paying enough attention to the 'factors specific to public administration, such as more convoluted decision making processes, or the growing complicity of issues they [face].'

Peignot et al. (2013 p. 95) describe DSS's as 'a class of computerized information systems that supports decision-making activities', that is information systems that can integrate data and models so as to improve the decision making process. The challenge within designing such a system is identified by Peignot et al. (2013 p. 95) in that their complexity can range from a 'simple spreadsheet' to 'complex systems… [with]… their own databases and mathematical modelling software'.

It is suggested that the breadth of factors that any local government needs to contemplate when planning ICT implementation is wide. This is encapsulated by Peignot et al. (2013 p. 97-98) who emphasise 'successful' implementations of DSS involved 'a strong emphasis on their structuring role… in improv[ing] transparency throughout the organization… [and]... clari[ty of]… objectives' while poorly implemented systems were done so 'on the wrong premises,… complex,… [and]… filled with data and reports that are… unusable… because goals were unclear, impacts underestimated, and users not involved.' It can be further concluded that the choice of ICT needs to be based on clear goals and include stakeholders.

3.3.4 Implementation of performance reporting – impact on ICT requirements

It is proposed that it is pertinent to consider literature related to performance outside of that which only directly relates to ICT systems. Brusca and Montesinos (2016 p. 511) observed 'performance reporting is sometimes a compulsory item on the agenda of local government reforms [as it is]… in Australia… and the United States', both of which were considered above. Brusca and Montesinos (2016 p. 511) compared numerous countries by analysing 'institutional web-pages with information performance reporting frameworks,…

standards and regulations in this field, and… performance reporting literature in the different countries.' This selection of comparison tools is aligned with ICT usage.

The Internet as a form of communication of this reporting is noted by Brusca and Montesinos (2016 p. 516) as having 'increased the possibilities of [such] information to stakeholders… [as it can and is] published online' albeit less 'in the way of substantive and exhaustive detail.' Brusca and Montesinos (2016 p. 519) further highlight that 'in Australia… performance reporting systems are part of an attempt to adopt performance budgets.' Again, ICT is identified a necessary tool for communication with citizens of local government.

From the above discussion it is affirmed that there are other elements to recognise outside simple process efficiency, namely legislative requirements and communication goals (which aligns with the discussion on e-governance previously identified) when considering ICT requirements.

3.3.5 Reflection on choice and performance of ICT

It is contended that any decision on ICT adoption or change cannot be solely related to any one process or goal. The broad range of divergent topics discussed above, that all relate to ICT considerations, are deemed to support this view.

3.4 Observation on Literature review – guidance to Interview rationale

Through the exploration of the importance of ICT to local government historically and currently, the analysis of global experiences of respective local authorities, and the consideration of a divergent range of factors which, on balance, should reasonably be considered in any decision regarding ICT platforms, it is suggested a clear picture of the opportunities, and some potential barriers or issues, have been presented regarding ICT.

By providing a synthesis of goals, concepts and practices pertaining to ICT use by local government across the world, a foundation of understanding and the broad fundamentals of the choices available to local governments has been presented.

This research has been used to structure the question on how local government in NSW is placed on the ICT Continuum and what those NSW councils should consider to be a balance of the three phases of the ICT Continuum. This work provided the framework of questions to be asked in the interview process as outlined in *Section 2.2.2 Interviews* above and the outcome of those interviews is detailed in the following section.

4. Interviews

The interviews undertaken were all conducted in September and October 2016. The interviews were conducted in the manner outlined at *Section 2.2.2 Interviews* above, namely, an in-depth interview. The sample of councils interviewed were selected in the manner detailed at *2.2.3 Council sample for Interviews*.

A brief background to each council will introduce the council in line with the sampling guideline. For all interviewed councils when discussing its 'Australian Classification of Local Governments' classification refer to *Appendix D: Australian Classification of Local Governments: Structure of the classification system* (Australian Government: Department of Infrastructure and Regional Development. (2015 p 202). The essence of each interview is documented with consideration as to the whole of content and the broader implications of the place of the council on the ICT Continuum, and that council's relative position to the global experience.

4.1 Fairfield City Council

Background:

Fairfield City Council was not identified for amalgamation by the NSW government and did not seek to voluntarily merge with any other council. It is identified as an Urban: Metropolitan Developed council under the Australian Classification of Local Governments system. This Local Government Area (LGA) had an estimated population of 204,442 people as at 30 June 2015.[9]

Interview:

The Group Manager Corporate Services (GMCS) who oversees the ICT division of Fairfield City Council was interviewed and they were accompanied for technical support if need by the councils IT Technician (who provides 'Help Desk' support internally to the council) and IT

[9] Refer Australian Bureau of Statistics (2016).

Operations Coordinator (who oversees the core applications of the councils ICT systems – they are 'back of house' support). This interview was the only one conducted by the researcher where the senior manager was accompanied by such staff. The staff contributed with technical information at various times however are not identified in the following discussion as the GMCS led each response.

It was advised that over 8 years ago a project, named 'Phoenix', was committed to by the senior management to institutionalise the councils ICT with a Council endorsed budget of some $3 million. The system had been labouring under one main software package with approximately 25 desktop computers for the whole of council. Interestingly other than the approval of the budget Council had little to do with the project.

The GMCS surmised the position facing council as 'it [the council] was somewhere in the 1960s' and to harness the rapid changes in ICT applications, emphasising the pallid state of the Human Resources systems, (both of which was described as 'thin') something needed to be done.

For this purpose Project Phoenix was envisaged and the move away from mainframe reliance and the Windows software product began. Its inception began with the decision to go 'Best of Breed'. Best of Breed is where, whenever feasible, to install and utilise the best software available rather than rely upon a, as much as possible, fully integrated system. The first round of changes included standalone products for finance and financial management, human resources, rating and customer relationship management, asset management and planning. The second round included upgrades to Microsoft Exchange for all communication, away from the then provider which had reduced its technical support and its ability to integrate to other council systems.

The interviewee listed an exhaustive list of products which all were, in the preliminary phases of the project, an improvement on what had existed before. The main benefits were seen to be digital progression and electronic reporting. The GMCS stated that 'We can now create, maintain and directly improve our services, including preparation for Council. We

now have the ability to look at trends and demographic information. This simply wasn't possible before.'

These improvements continued whilst at the same time expectations of the ICT continued to grow. It was noticed that there was more demand for interaction with councils web pages including request for information, such as GIPA[10] requests. There was, as noted by the GMCS, a request for increased 'visibility' of councils operations and t-government. They articulated this by identifying ICT of council was used for 'engagement with the community' through electronic surveys, 'targeted service delivery' though providing up-to the-moment information on council's webpage, the ability to 'track and follow up CRMs [,customer requests,] and to improve 'various analysis'.

The dedicated project team was directly funded for 2.5 years and consisted of 50% ICT staff and 50% business representatives who, at various times of the roll-out of software, consisted of those key stakeholders associated with the software. It was emphasised that the success of the project was due to the internal; staff's commitment to being 'full time' on the project with back-filling of positions on an as needs basis. In the words of the GMCS, 'they knew they had to be there'. They also identified the need to 'bring in expert IT Managers as key leaders' to ensure the required expertise was secured for the project.

The project was essentially implemented after 5.5 years but is ongoing. The complete range of experiences with success celebrated and legacy implementation somewhat of an issue. The problem of having disparate systems is the complexities of integration, the challenge to curtail the data sources to one single source of data. This has been attempted by a further 'major clearing process' where data has been 'centralised and re ordered' and as much as possible placed on only one or two software platforms (such as SQL or Oracle).

Although Project Phoenix was not seen by the community, that is, council staff did not report on its progress (the term used was 'zero awareness' within the community), benefits

[10] Being 'Government Information (Public Access) Disclosure' requests whereby any member of the public can request to see information that may not have otherwise been disclosed by a council.

from the project were very clear. They included far greater provision of information including accounts, planning documents, interactive website with mobile device compatibility, and now 'downloadable books from the library'. Fairfield City Council also, for the most recent Council elections, administered the election itself and provided 'live progress results from the final count updates'. At this point in the interview clarity was sought directly in relation to e-government, t-government, and e-democracy.

The GMCS reiterated the e-government progress as discussed above but included the following additional elements:

- expanded information channels used including many social media platforms including Facebook and Twitter
- web forms for many things such as replacement bins and strays dogs reporting,
- free Wi-Fi at many council facilities, and
- electronic messaging for those signed up as well as e-mail or texts for uses of council's child care services.

When questioned on t-government the GMCS thought some the e-government developments approached t-government and specifically noted that at council's leisure centres the equipment was interactive with the user monitoring such things as heart rate. This itself is not remarkable, however what does become 'transformative' is the gym staff utilise this information to better plan for the users of the facility by collating the information.

Also t-government in nature is the integration to the Department of Planning website so that local citizens can utilise that departments development planning software to guide their application with 'local' parameters built into the said software. Once completed the entered information can be electronically viewed by the local council to ensure the application meets the relevant standards.

On the matter of e-democracy, the online live stream of the local election meets the profile of enhancing the democratic process. Further the GMCS advised that Fairfield City Council has 'live minute taking on screen' which is fed to the website. Other than these achievements, there was little which was deemed to be e-democracy in action.

The GMCS stated that future improvement in the ICT space were to 'we need to get better utilisation out of what we have, let's get maximum use of our products, some are only being used to 40% of their capacity'. The final observation by the GMCS was a personal one, 'I liken the requests of council to be like mine of my electricity company. I have solar panels but only found out they weren't working when I got my electivity bill. Why wasn't I notified by electricity company that this had happened? Surely they could monitor that? Same for council, the expectation is that we should know everything.'

Reflection on interview:

Fairfield City council is performing e-government well with many indicators that t-government is at least emerging. The 'live' streaming is seen as 'e-democracy' however but for this there appears to not be a focus on this phase in the ICT Continuum. Fairfield City Council appear to be well placed on the ICT Continuum with regard to the international local governments given its e-government and t-government initiatives, notwithstanding its e-democracy appears to be not planned.

4.2 Shoalhaven City Council

Background:

Shoalhaven City Council was not identified for amalgamation by the NSW government and did not seek to voluntarily merge with any other council. It is identified as an Urban: Regional Towns/City council under the Australian Classification of Local Governments system. This LGA had an estimated population of 100,147 people as at 30 June 2015.[11]

[11] Refer Australian Bureau of Statistics (2016).

Interview:

The Director Corporate and Community Services (DCCS) of Shoalhaven City Council was interviewed and is responsible for the ICT division and its strategic direction.

Four years ago a decision was made to centralize the ICT of the council and one provider was appointed for this purpose. The 'usual' key areas desired to be fully integrated on one platform included finance, asset management, recruitment, time and attendance, and these were envisaged to be provided through a Cloud based solution. The DCCS stressed that the appointment of the provider was before their time and shared the following comment, 'I've been here 3 years and [they] failed to deliver, I terminated the contract and we are back to square one'.

The failure of the project was placed almost exclusively at the feet of the supplier. From the perspective of the DCCS the implementation on the council's side included a dedicated project team with appropriate resourcing and the application of Prince 2[12] project management principles. Further the interests of the council's ratepayers were protected by a 'strong contract' (through rigorous review of old contracts and the assessment of 'best of breed' products) with a clear payment schedule linked to 'go-live' criteria. The DCCS summed up this position with '[They] were held to total account for the product and our ratepayers' money was protected'. It was identified that the product could not do what was promised as it required on-site 'research and development' not just implementation of a 'shelf-ready' package, and this situation was exasperated by senior management changes at the supplier.

Citizen awareness was limited to Councillor briefings, Audit Committee briefings (which included 3 independent members from the public) as well as commentary in the corporate planning documents of council.

[12] PRINCE2 (Projects In Controlled Environments) is a structured project management method. (Refer AXELOS (2016b)).

The goals of any new system were clearly articulated by the DCCS as 'it must be a "Federated System" and all modules and components must be integrated. Cloud or server? That does not matter as long as the software integrates, and there must be ongoing support.' The DCCS stated a few times the essential component of integration.

The DCCS acknowledged, particularly after a hiatus of four years, that the old systems needed to be replaced or as a minimum upgraded, 'technology has changed', there were 'efficiencies to be gained' and the failure to migrate to one platform 'forced us to revisit processes'. To assist this a Data Manager was appointed to reduce 'old data' and attempt to improve the integrity of ICT systems by pursuing a 'one source of truth' mantra. Also benefits could be realized though the existing software by upgrading some systems to their current versions, such as with the finance system and the Business Intelligence software.

Beyond the legacy system partial upgrades new software was employed during this time such as at the Aquatic centre. Staff working at the centre can 'clock-on' by use of a finger scanner. This itself has reduced time sheet processing by 3 hours a week. This 'stand-alone best of breed' product will be rolled out to Parks staff as well as Road crews. This will eliminate '600 hard copy time sheets'.

The question then turned to specifically what the interviewee believed was being achieved by Shoalhaven City Council regarding e-government, t-government, and e-democracy.

The DCCS believed many of the improvements previously noted were e-government improvements however firmly believed a highlight of Shoalhaven City Council was its citizen engagement tools and the provision of information, both being transformative in their view. The key elements of this assertion are listed as follows:

- regular website update with planned rebuilding of the tourism website
- implementation of on–line delivery of rates notifications
- strong social media presence including Facebook, Twitter, and Instagram

- in addition to the main websites of Council and Tourism, many services and offices such as the art centre, library, and the aquatic centre all have their own websites, Facebook account, and so on. By way of example the 'Swim and Fitness' website has 'over 350,000 hits from Sydney', these 'hits' being monitored by council through Google analytics.
- all council sites have free Wi-Fi.
- plans to implement within 18 months a live knowledge management system which populates information across all council systems and have this information live on the web.

On the issue of e-democracy there was some discussion of assisting the democratic process through consultancy with many community groups however this was not specific to the ICT Continuum as described. The live streaming of information does fit the profile of e-democracy however.

Reflection on interview:

Similarly to Fairfield City Council, Shoalhaven City Council is performing e-government well with many indicators that showing t-government is definitely emerging and further enhancements planned. Again however there is uncertainty that there is as strong movement to 'e-democracy' as articulated in the ICT Continuum. Shoalhaven City Council, in the same vein as Fairfield City Council, appear to be well placed comparatively to the global local governments regarding the ICT Continuum, given its e-government and t-government initiatives, however, again, its e-democracy does not appear to be not planned.

4.3 Burwood Council

Background:

Burwood Council was identified for amalgamation by the NSW government however the forced merger has been set aside by the Land and Environment court and it is currently

unknown whether the NSW government will pursue this amalgamation.[13] Burwood Council is identified as an Urban: Metropolitan Developed council under the Australian Classification of Local Governments system. This LGA had an estimated population of 36,139 people as at 30 June 2015.[14]

Interview:

The ICT Manager at Burwood Council was identified as the most appropriate staff member to discuss the position of the council currently. It was noted that the possibility of amalgamation played into this choice of interviewee by the council as although an ICT strategy was desired it was placed on hold and a practical overview of Burwood Council's ICT operations would be achievable.

The ICT Manager advised that 6 years ago the decision was made to split financials out of rates. A one platform provider was used for Finance, Human Resources, and Payroll, whilst Council's asset management software needs were meet by another group, and rates (property) were to be provide by yet another software provider. That being said integration between finance and the property software was a cornerstone of this approach. The upgrade in ICT applications occurred in 2012 where all systems were brought up to date to their current releases so as to facilitate the conversion of data to the new platforms.

A key anticipated benefit was that 'at long last' there would be 'greater integration' and council could 'provide better services – internally and externally'. This later point indicates the awareness that ICT was a tool to better provision of services to the citizen notwithstanding at this stage of the interview the ICT Manager stated that 'some improvements are on hold as we don't want to invest money in one system only to have it replaced in short time by something else from another council'. For example the records system replacement and asset management revision (noting the immediate introduction of the product did occur) are on hold. Notwithstanding the recent decision by the land and

[13] See Hunjan (2016).

[14] Refer Australian Bureau of Statistics (2016).

Environment court that Burwood is not to be amalgamated, as previously noted Hunjan (2016) reports this outcome does not appear to be definitive.

The conceptual ICT strategy would be to do more rolling on from the 'Upgrade project' began in 2011 which was essentially re-launched in the 2013/14 financial year as an even more ambitious project named 'Switch' (chosen by staff). It included its own marketing, logo and communications plan. Although not articulated, it seemed at this point of the interview that the revision and upgrade to software, appropriately documented in a plan and project managed by a specially hired ICT Project Manager, a project which was recognised with a staff award by the executive, was not considered a 'strategy'. This point was explored later when the interview moved to discussion of the three phases of the ICT Continuum.

The culture of continuous improvement in the ICT of Burwood Council was evidenced by the process upon which the Windows platform was upgraded. All software packages that would need to integrate with Windows 7 was tested and proven to integrate before being transferred. The whole of council, as a stakeholder in the process, was broken down into sections, 10 people at a time with full day training, from which they would return to a newly upgraded system and computer. The ICT manager stated 'it was like they were getting something, a reward – not only were they trained in the new software, they got a new computer.'

In discussing the benefits from the ICT advancements made and how they impacted the citizens of the LGA, the ICT manager highlighted the following direct and, in his view, in-direct benefits:

- RFID system (a radio frequency identification system) is now used in the library where you scan the book yourself, check it out, and can return it after hours.
- The use of the new asset management system allowed improved strategic asset management such as, better rating of road condition so as to guide reseals and maintenance - a tangible benefit for the citizen through prioritisation and better for council management.

- Public Wi-Fi in all major centres including the library and the railway square mall where only one business rents property as a café and the rest is open public space for the enjoyment of citizens.

- Interactive mapping system for mobile and web including locations of Child Care facilities, numerous Council services including a 'cut down' asset management list which details such things as what are the road upgrades to be completed in the next 12 months.

- Council has moved away from physical planning models that were historically displayed in council's foyer, now a kiosk is provided to show 3D models, physical models are not accepted for planned development over 2 stories high or greater than $10 million. This was readily embraced by Developers as 'they didn't want physical models'.

- Electronic housing code is now uploaded to the Department of Planning (discussed in a similar way to that outlined in *Section 4.1 Fairfield City Council*). It is mooted that this process will be mandatory for all councils by February 2017.

On the question of distinctly e-democracy, reference was made to the availability of information however nothing definitive was noted.

Reflection on interview:

A theme is developing through these interviews where there is clear performance of e-government activity with indicators highlighting transformative e-government (i.e.: t-government), however the question of the place of 'e-democracy' other than web and mobile device utilisation is unclear. Again, this NSW council comparatively measures satisfactorily against local governments globally regarding the ICT Continuum, given its e-government and t-government initiatives, however its e-democracy pursuit is not evidenced.

4.4 Blayney Shire Council

Background:

Blayney Shire Council was identified for amalgamation by the NSW government however the forced merger has not been finalised as Cabonne Council, one of two councils identified for merger with Blayney Shire Council, has proceeded with legal action in opposition to amalgamation. Saulwick (2016) reports the outcome of this case is not yet known. Blayney Shire Council is identified as a Rural: Agricultural council under the Australian Classification of Local Governments system. This LGA had an estimated population of 7,380 people as at 30 June 2015.[15]

Interview:

The Manager Information Technology (Manager IT) of Blayney Shire Council was interviewed and made it clear from the outset that as a small rural council the emphasis was on efficiencies rather than the development of ICT in the manner explained by the ICT Continuum with e-democracy as a potential goal, albeit the benefits of t-government were acknowledged.

Some 4 years ago it was decide to move the financial management of council onto one platform. The product was a West Australian (WA) based product the researcher had not heard of before. The rationalisation of the ICT platform was needed due to two main reasons: the incumbent system no longer going to be supported and there was a need for for efficiencies. The benefit anticipated was one of consolidation and ease of work flow.

The Manager IT stated 'the benefits were achieved over time' with ease of reporting and compliance with legislative requirements recognised. They also stated however that the achievement of these benefits was 'challenging at first'. Although the case was developed to rationalise the ICT systems, that decision was made prior to the Manager IT coming on board and the difficulty that emerged was a cultural one of 'longer term staff asked "why

[15] Refer Australian Bureau of Statistics (2016).

change", it's still a challenge getting people on board but we are getting there'. Success was deemed to have occurred a year after go –live and coincided with the financial year accounting preparations. The simple achievement of being able to roll over 'opening balances in 1 hour compared to 6 hours won a lot of people over'.

Blayney Shire Council will also be adopting the electronic housing codes system as provided by the Department of Planning web platform as discussed in previous interviews. It is acknowledged that this is a theme of t-government that has been readily adopted by councils, namely the transformative nature of different levels of government sharing resources to achieve a better outcome for the citizen.

The Manager IT believed that other than a change in the form of the rates notices, citizens would not be aware of the efficiencies made by improving the councils ICT systems. That being said however when asked about the ICT Continuum indicators it was acknowledged great improvements were made to the council's website. It is now seen as a 'living and breathing' thing which is supported directly by the General Manager – it is also 'only 3 years old'. The change coincided with introduction of the IP&R and gave a framework to list services on the website, a business directory, and even advice on relocating to the area. There were also some online forms for council services. The issue of rates notices by electronic delivery is also available however the 'take up is slow, possibly because of the age of the community'.

Further improvements identified but not undertaken were:

- electronic Customer Service Requests (CRS) – it 'was on foot but the amalgamation "shadow" stopped it even being in our Operational Plan.' It has now been added to the 'wish list' however it is hoped it will be 'phased in' at some time soon.
- mobile device technology utilisation – the vision is to establish dashboard for services including Customer requests, form lodgment and payment of rates/charges
- online payments through a finance gateway, although B-Pay through the Australian Post Office is available (and it was noted is used in the shires villages).

Reflection on interview:

The interview with Blayney Shire council's Manager IT highlighted the challenge faced by smaller councils, in this instance a rural council, when funding any type of ICT program. Although much was being done at the efficiency level, there remained barriers to t-government, and e-democracy was not being strategically considered at this time, not for the very least of the potential to amalgamate. Comparatively to the international progress on the ICT Continuum this NSW council performed well on the e-government level, however, as discussed above, there is not an emphasis on t-government or e-democracy, albeit this is frustrated (and acknowledged by the council itself) by funding and the impending amalgamation.

4.5 Shellharbour City Council

Background:

Shellharbour City Council was identified for amalgamation by the NSW government and the Land and Environment court recently dismissed the council's case against amalgamation with Wollongong City Council, albeit the amalgamation is currently on hold as Shellharbour City Council has appealed the courts decision.[16] It is noted the outcome of the court case remained unknown at the time of the interview, and remains unknown. Shellharbour City Council is identified as an Urban: Regional Towns/City council under the Australian Classification of Local Governments system. This LGA had an estimated population of 69,714 people as at 30 June 2015.[17]

Interview:

Shellharbour City Council's Group Manager, Information & Customer Services (GMICS) was interviewed and explained changes in the executive management in 2011/12 heralded in a mandate to transform the ICT of the council and have it as a central platform to provide solutions to functional issues (such as ICT's alignment to core business processes) and enable efficiencies. 'Internal brain-storm' sessions were held with a review of the currency

[16] Shellharbour (2016).

[17] Refer Australian Bureau of Statistics (2016).

of the ICT and the alignment as mentioned above. This type of review had not previously been funded.

After the setup of the review in 2012, changes were rolled out in 2013 using project management principles based on the PMBOK Guide.[18] The areas under review were broad, namely: ICT operations, software, and hardware. The first changes were to ICT operations by applying the ICT industry standard framework of ITIL.[19]

From this platform a process was undertaken to review the council's software. The following establishment questions were posed:

- If we use an enterprise software package - what is needed?
- How do we achieve both vertical and horizontal integration?

From the answers to these questions an ICT 'architecture' was developed over the following two areas:

- Core business
- Community and collaboration

Then the council went to tender and chose a suite of three major products, more aligned to a 'one platform' but not quite: there was one for communications, one for customer service management, and one to take the majority of the other ICT needs.

Over 2013 to mid-2015 the core implementation was undertaken which included: the finance upgrade, document management, property, and rating. From mid-2015 the value add products such as mobile field technology and online functionality were introduced. Electronic timesheets were also introduced during this period.

[18] PMBOK is the acronym for Project Management Body of Knowledge. (Refer Project Management Institute. (2013)).

[19] ITIL is the former acronym for Information Technology Infrastructure Library. (Refer AXELOS (2016a)).

In 2014 there was a decision to move premises, this occurred in 2017 however the decision was made not to shift assets and build new hardware, but rather a replace and upgrade approach was undertaken, given the potential amalgamation with Wollongong.

Notwithstanding the cessation of some hardware improvements the benefits of modernizing included increased functionality with an improvement from 70% to 90% reliability. All processes are filtered through a 'Business ownership model' which all focus on continuous improvement.

The process followed a 'like for like' upgrade with no hard financial saving realized. 'Soft savings', as described by the GMICS, however, were stated as follows:

- Transparency and quality of data
- Valuable experience for staff
- Reduction of risk of having multiple non-integrated packages

Another comment made by the GMICS was that 'we had to compete with 8 other council for [our software supplier] during the implementation' and only through 'granular' planning and investment in the relationship with the supplier was the implementation successful.

The GMICS did not believe the citizen of the council were aware of the ICT changes being undertaken and stated that they 'have not tested their experiences'. This comment was an interesting ne in that measurement of the experience of the external stakeholders had not been raised specifically in previous interviews. This was noted as a potential opportunity for later consideration of the ICT Continuum.

When questioned on the ICT Continuum phases, the GMICS responded by identifying the following ICT based improvements.

From an e-government perspective it was considered the work performed on the council's website met this criteria by providing demographic research, mobile friendly information, online development application (DA) lodgment, and open access to information on and DA

Determination status. The last item could be seen as transformative as it is focused on improving the citizen's experience.

From an e-democracy perspective there was one clear example where a US based software product named 'Peak democracy' was used for for the councils Special Rate Variation[20] and other strategies. It was said to be useful for 'identifying hot spots'. Interestingly the GMICS noted that other than this tool the council does not analyse any customer data outside of the purpose it was first collected.

At the time of the interview the GMICS sated they had 'no vision for citizen involvement in council' and council's role was just the 'provision of information'. As a counterpoint to this statement the GMICS reflected on their experience in New Zealand where there was a push to innovate and reduce costs. This was achieved through the utilisation of technology. Furthermore they observed that the pace for e-democracy in Australia may not be comparable to, for example, the United Kingdom where 'its local authorities look after so much more, things like housing and education'.

Reflection on interview:

The interview with Shellharbour City Council's GMICS enforced the proposition that e-government and t-government were being pursued, however the final observation made by them brought into light the question of what is the place of NSW local government in encouraging e-democracy even though it can utilise some of its functionality. Notwithstanding the question of amalgamation, this NSW council comparatively measures satisfactorily against local governments globally regarding the ICT Continuum, given its e-government and t-government initiatives, noting it is not pursuing e-democracy in a deliberative manner.

[20] A Special Rate Variation is where a NSW council applies to the independent regulatory authority, the Independent Pricing & Regulatory Tribunal (IPART), to increase its rates greater than the decreed limit as determined by the said regulatory body. As part of its assessment community consultation is considered. (Refer: NSW Independent Pricing and Regulatory Tribunal. (2016)).

4.6 Kiama Municipal Council

Background:

Kiama Municipal Council was not identified for amalgamation by the NSW government and did not seek to voluntarily merge with any other council. It is identified as an Urban: Regional Towns/City council under the Australian Classification of Local Governments system. This LGA had an estimated population of 21,505 people as at 30 June 2015.[21]

Interview:

The Information Technology Project Manager (ITPM) from Kiama Municipal Council was interviewed and advised that in the last 5 years the following ICT system changes were undertaken:

- virtualization (a form of consolidating servers and hardware) to provide disaster recovery (DR) and business continuity planning (BCP).
- electronic Document management
- live streaming of council meetings and allow 2 way online interactive engagements during Council public meetings (it is noted live streaming continues however the interactive component was cancelled as the council believed it cost prohibitive to continue)
- cloud computing utilizing Office 365
- CCTV monitoring
- free public Wi-Fi

[21] Refer Australian Bureau of Statistics (2016).

These changes were made, in order, to improve reduce risk of loss of business continuity, to protect data, allow improved community participation in council meetings, to reduce hardware costs, for safer streets and promote public enjoyment in public spaces.

The ITPM advised that the public Wi-Fi statistics have been used by the Kiama Tourism division to track interests, the quality of the councils DR, BCP and data protection processes are 'very good now'. Notwithstanding the interaction component of the live feed of meetings was cancelled, the community can still view live (or replay) Council meetings.

Mostly these ICT improvements were undertaken in-house with most of the implemented solutions being managed and supported internally. There are few examples of external packages which require service agreements. These improvements have been made possible by having 'a good budget and a good team; we have been able to deliver all of the projects without any major issues.'

The citizen reaction to the improvement of the free public Wi-Fi was positive, as was the reception to the CCTV by businesses and the local Police.

When asked about the ICT Continuum the ITPM noted the following indicators (some of which are mentioned above but summarized as stated for completeness):

- e-government indicators
    - Regular update of broadcast information on website
    - Notification of services provided online
    - Submission of requests online
- t-government indicators
    - Submission of regulatory documents
    - Visibility of the process

- e-democracy
    - custom requests online – 24/7 availability[22]
    - Online DA trackers[23]
    - Digital live stream meetings
    - Live streaming, 2 way interaction (noting this ceased due to funding).

There are future plans for ICT development according to the ITPM with work on an ICT strategy albeit it is 'very business operations driven' with an internal survey of key staff of different business units to try to 'capture their pain, points and wishes'. Also an internal 'audit/review' of the ICT section has been undertaken and from that information gathered it is hoped the council 'will have a strategy that can meet the demands of the business and drive us over the next few years.'

The final comment made by the ITPM was 'I feel that because of the amalgamations and Kiama [Municipal] Council needing to be fit for the future, the executives are very focused on operational process mapping to improve efficiencies.' This observation would appear to leave little room for contemplation of pursuing e-democracy.

Reflection on interview:

Similarly to the previous interview, Kiama Municipal Council's ITPM supported the sense that e-government and t-government were being actively pursued, however, the final comment made by the interviewee gives pause to the notion that e-democracy is at the 'front of mind' of local government in NSW. Again however, this NSW council, as has been found nearly universally with other councils, comparatively measures positively against local governments globally regarding the ICT Continuum, given its e-government and t-government initiatives, notwithstanding it's comments on e-democracy.

[22] Researcher comment: this was not necessarily seen as e-democracy, albeit a strong from of t-government.

[23] Researcher comment: again not seen as e-democracy rather a strong form of t-government.

4.7 Eurobodalla Shire Council

Background:

Eurobodalla Shire Council was not identified for amalgamation by the NSW government and did not seek to voluntarily merge with any other council. It is identified as an Urban: Regional Towns/City council under the Australian Classification of Local Governments system. This LGA had an estimated population of 37,882 people as at 30 June 2015.[24]

Interview:

The ICT Manager of Eurobodalla Shire Council[25] advised that only minimal changes have occurred in the ICT area over the last few years. These have been mainly in-house enhancements such as tweaks to the document management system to enable capture of multiple file types, and these have occurred based upon internal customer requests.

Recently however a tender process was undertaken to seek a comprehensive 'one stop shop' software solution to provide better functionality to staff and external customers. One of the key drivers was noted as 'mitigate the risk of few people knowing their own part of the system'. It would also provide an integrated network which is partially lacking currently. Some comfort was gained by the knowledge that multiple other councils use the successful tenderers software package.

The ICT Manager noted that there was 'some hesitation and internal resistance' to the proposed change, there being the 'standard fear of change' however they were 'slowly coming around.' The concerns were also partially mitigated by the appointment of an external software expert ICT company which assisted in preparation of the tender and the following selection process.

[24] Refer Australian Bureau of Statistics (2016).

[25] This footnote is for disclosure purposes only. The researcher oversees the staff member interviewed. The premise of the interview was to gather the perspective of the ICT Manager not to record those of the researcher.

There has been no citizen reaction noted to date on the impending implementation of a new corporate ICT system however one ICT enhancement has been the live streaming (and retention) of council meetings – this has received positive commentary from the community.

Although the ICT Manager sated at the beginning of the interview there had not been much change, indicators of e-government and t-government were noted when prompted as follows:

- Dedicated community information platforms including the council webpage and Facebook account (e-government)
- Management project at Botanic Gardens including:
    - free Wi-Fi (e-government)
    - tourist walks mapping e-delivery of information such as plant type (t-government)

E-democracy was also discussed and the live streaming of council meetings was reiterated, and the ICT Manager noted the extensive use of 'Survey monkey' across the organisation both internally and externally. The ICT manager then explained that as part of the Citizen Jury project being undertaken by the company New Democracy, a dedicated web based forum site formed part of the process. The Citizens Jury is described by Eurobodall Shire Council (2016) as 'The Citizens' Jury is an independently facilitated innovative engagement method that Council will use to review its range and level of services to inform development of the Delivery Program 2017-21 and meet Fit for the Future commitments'. The forum site is accessible to the public not just the citizen jury members. Anybody can participate in the discussions of the citizen jury. This is a clear example of e-democracy as all information gathered and discussed ultimately will feed up into the report to Council for its consideration of Eurobodalla's IP&R regime documentation.

Reflection on interview:

The interview of Eurobodalla Shire Council's ICT Manager again supported the notion that e-government and t-government were being pursued, and that this council had two clear examples of e-democracy type activities. However, whether this has been a deliberate approach to enhance e-democracy or simply the by-product of action taken to meet requests of the community (for live webcasting) and the taking of a 'new' approach to community consultation, could not be determined by this interview. Again this NSW council, compares well when measured against local governments globally regarding the ICT Continuum (noting the e-democracy pursuit is not purposely evidenced).

4.8 Northern Beaches Council

Background:

Northern Beaches Council is a recently an amalgamated council which consists of the former Warringah Council, Pittwater Council and Manly Council. All three former councils were identified as Urban: Metropolitan Developed councils under the Australian Classification of Local Governments system. The former LGAs respectively had estimated populations of 156,693; 64,189; and 45,365 people as at 30 June 2015.[26]

Interview:

The Chief Information Officer (CIO) of the Northern Beaches began by stating their experience was Warringah Council based as the amalgamated organisation was not yet 'bedded down'. They also added that 'the Warringah ICT platform has been adopted' as the platform for the amalgamated council. As this is the case, the experience of the then Warringah Council is absolutely valid as the basis for the Northern Beaches Council.

[26] Refer Australian Bureau of Statistics (2016).

The CIO advised that there were massive changes instigated for the council in 2007. The plan was mapped out in their 'Information & Technology Strategy Plan– 2007' (Refer: Warringah (2014) which included:

- Updating local area networks
- Regular updates to reports based upon central data and to the web
- Additional storage space to enable connectivity
- Establishing virtual servers given there were power outages twice yearly

The drive was to ensure applications were up to date, with the 'overarching strategy' being technology adoption. A fundamental approach underpinning this was to enable 'early adoption' rather than the 'laggard' mindset that had been prevalent.

From this revitalized approach the goals were identified as:

- creating 'integrated core systems' with the 'fundamental base line' absolute (the interviewee noted this would enable 'e-government')
- establishing a 'single source of truth' namely, one core set of unique lines of data which is then utilised for reporting by all areas of the council
- ensure reviews of software and upgrade of software be done periodically (examples noted here were 'Trim' (a record keeping software package) and Tech One (a broad based software program which was primarily used for financial information and reporting)

The CIO also noted that 'other systems' were being reviewed at the same time including the online booking system for parks and reserves – progress here enabled the citizen to search for unbooked (i.e.: vacant) sites available for use and pay online.

Also at this time the Council's financials were being updated on a monthly basis 'online' enabling complete visibility of the IP&R reports as they track budget against actuals. This

enables both the community and Council to consider options on a, relative to just quarterly reports, 'real time' basis. Progress and scheduling reports on capital works programs were also provided. Further, the report template allowed for 'Comment' against services as well year-to-date actuals. All of these reports enabled the council to to show how the commitments contained in the IP&R documents were being met The CIO advised that given the amalgamation all of these processes have been put on hold.

Another consideration for upgrading the ICT of Council was to get Councillors to work towards 'bigger' plans. That is, 'What's in Year 2 is committed, try looking to Year 3 and 4 for new projects which can be achieved during the term of council'. The CIO stated it was 'Difficult to do but quite successful'. Their confidence was founded in the guideline 'Council as an organisation must be able to deliver on what it says.' They added the support of a 'popularly elected Mayor' who 'did 2nd term' greatly assisted securing the budget required.

Support from the CEO and ICT Staff was evident with at first a focus on internal improvement. Support from Councillors stemmed from 'only their personal interest'.

This support enabled a substantial ICT capital works program to be undertaken which included identifying the council's requirements for:

- ICT software
- ICT renewals
- ICT hardware

Although the costs were high, the Deputy Mayor was very ICT savvy and was 'realistic' about the costs involved.

The CIO explained the implementation experience, especially in installing the Tech One broad based software, was the 'biggest learning' and that their belief that local government employees were 'information workers' was incorrect and many were 'process workers'. They explained this as instead of gathering information and utilising it, the staff would simply 'process' the information in the way they always had. The CIO explained 'It was very

difficult to change the way they did things – they had been doing practices the same way for many years'.

This was an important revelation as it was the culture of the organisation that was to be the greatest challenge rather than the changes to the ICT platforms themselves. From this learning the aim was to 'drive continuous change' and to encourage to 'change your process to suit the software' not 'change the system to how they work'. There has been positive movement in this direction and change is seen as easier, it has 'taken time' however.

After the implementation of some of the ICT programs there was an 'overnight positive citizen' reaction, in particular from sporting groups. These groups were particularly interested in upgrades or renewal of the sporting fields and complexes they utilised, by having the capital works and maintenance program online and being updated regularly, there was an almost immediate reduction in enquiries to the Parks and Reserves area of council – 'they found out themselves'. This 'win' was particularly pleasing as there was not 'a big launch' of the new website functionality.

When questioned on the ICT continuum, the CIO identified the following categorisations of each level:

- e-government indicators
    - online payments of rates
    - Section 149 planning certificates can be requested online
    - 'Quite a few online' forms as well as mobile device availability
- t-government indicators
    - Stopped paper based Development Applications some time ago, all electronic and completely online
    - Supported by lodgement on a CD which is electronically date stamped

  - Outsource of cleaning contract including a mobile device inspection form so that a 'quick check of public toilets' can be performed, tracked, and any action required deployed
  - Electronic mapping of hiking trails for citizen use

- e-democracy
  - live stream of council meetings for over 10 years
  - Use of 'Bang the Table' group which is a community consultation company which utilises online forums
  - Regular email updates to all subscribers, either one of the 'old' councils (Manly, Pittwater, or Warringah) or the new amalgamated 'Northern Beaches' council.

The future plans for ICT development at Northern Beaches Council are now at a 'period of pause'. Recent discussions have focused upon what platform from the three councils amalgamated would be the best platform. This necessarily involves folding three 'back end' platforms into one. The CIO is nevertheless hopeful that now that the Warringah platform has been chosen as the platform to be adopted, 'some things can happen quickly' albeit the focus will be 'internal ' rather than 'external' in at least the short term.'

Reflection on interview:

Similarly to the previous interviews there appears to be a great focus on e-government and, in the Northern Beaches case, substantial efforts on t-government. The issue remains on e-democracy albeit the Northern Beaches focus does appear to be mindful of better interaction with its citizens, in particular the length of time live-streaming of council meetings has been occurring as well as the use of on-line forum methods of consultation. Given these observations, noting there is a 'period of pause', the Northern Beaches council is well prepared to continue its utilisation of the whole of the ICT Continuum and can be seen as positively placed comparatively to other local governments globally.

4.9 Collective observation of findings of interviews

Given the focus of many councils interviews on e-government, some movement to t-government, yet little real progress on e-democracy with some examples of live streaming of council meetings, two examples of online forums/internet based chat-room and one example of live interaction with a council meeting via the internet (which was cancelled) it would be prudent to consider the role of local government in the sphere of democracy given the construct of government within Australia in future research. Whilst this is a worthy question, the focus of this paper however is on the question of why change and how NSW fares from a global perspective in its actual e-government, t-government and e-democracy utilisation. This consideration, based upon both the literature and the interviews, will be examined in the following *Section 5: Findings*.

5. Findings

A summary of both the international observations and the local NSW councils are contained in *Table 2: International findings against ICT Continuum* and *Table 3: NSW findings against ICT Continuum* following. References to '**e**', '**t**' and '**i**' are all references to the ICT Continuum terms of e-government, t-government and e-democracy (refer page 7 of this paper).

The International findings highlight a stage within that country along the ICT Continuum. Although the place of the relevant country on the ICT Continuum may have been surpassed within each country noting the literature review undertaken was built upon a timeline rather than each specific country's 'current' position, the table does clearly show a 'place' upon the ICT Continuum from 'e' to 'i' which in turn can be used for comparative purposes for NSW councils.

Table 2: International findings against ICT Continuum

Country	Observation
USA	Internet centric (Evans & Yen 2006) – '**e**'
UK	Very '**t'** but fearful of failure (Kamal 2013)
Brazil	Still government centric – some '**e**' (Rodrigues et al 2009)
Zambia	Transformative ('**t**') but held back by digital divide and corruption (Bwalya et al 2013)
Italy	'Iperbole' – free wireless and community portal – only one project – '**e**' to '**t**' (Freeman 2013)
Spain	Like '**e**' and '**t**' but reluctant to change and utilise potential (Gonzalez et al 2013)
Greece	New Business Process management – helping business but in development – '**t**' and possibly '**i**' given time (Gayialis et al 2016)

The NSW findings shown in *Table 3: NSW findings against ICT Continuum* highlight the position, not necessarily at one end or the other, of the relevant council along on the ICT Continuum. The table clearly articulates examples given by the interviewed councils which allow comparison on a global basis.

Table 3: NSW findings against ICT Continuum

Council	Examples of e/t/I and focus
Fairfield City	Large use of social media ('e'), electronic texting ('t'), Department of Planning DA website use ('t'), live stream of council meetings ('i'), live election results ('i') – *focus on 'e' and 't'*
Shoalhaven City	Regular update and use of multiple websites and use of social media ('e'), free Wi-Fi at council owned sites ('t'), live streaming of information (approaching i) – *focus on **e** and **t***
Burwood	Electronic library services ('e'), free Wi-Fi ('e'), interactive mapping for mobiles ('t'), 3D development models rather than physical models ('t'), Department of Planning DA website use ('t') - *focus on 'e' and 't'*
Blayney Shire	Electronic rates notices available ('e'), focus on 'living' website (e), Department of Planning DA website use ('t') – *focus on 'e' and 't'*
Shellharbour City	Website provides: demographic research, mobile friendly information, online development application (DA) lodgement (e), open access to information on and DA Determination status (t), use of 'Peak democracy' software which utilises online chat rooms (i) - *focus on 'e' and 't'*
Kiama Municipal	Website useability (e), requests online (e), submission online of regulatory documents (t), online DA tracking (t), live streaming and option to engage with meeting (e) - *focus on 'e' and 't'*
Eurobodalla Shire	Use of website and social media (e), e-delivery of information at Botanic Gardens (t), live streaming and retention of council meetings (i), use of internet blog in citizen engagement (i) - *focus on 'e' and 't'*

Table 3: NSW findings against ICT Continuum (continued)

Council	Examples of e/t/I and focus
Northern Beaches	On-line payments (e), Section 149 certificates requests online (e), online facilities monitoring (t), live streaming and 'current' reports (i) - *focus on '**e**' and '**t**', '**i**' considered with examples.*

As can be seen from the council's interviewed, NSW councils are achieving good levels of e-government and t-government, and are comparable to other local governments across the world. However as previously discussed poor performance of Australian councils was evidenced by Anderson et al. (2011 p. 442) with poor communication response rates when compared to New Zealand. Again, although only one example, *Table 2: International findings against ICT Continuum* highlights numerous activities which are not undertaken by NSW councils, nor based upon the interviews are they being actively considered.

5.1 Reflections on findings

Notwithstanding the NSW councils position appears to not focus on e-democracy, as has been evidenced in other countries, it cannot be concluded that the ICT Continuum is being ignored. There was evidence of e-democracy behaviour and processes, however the point is raised as to what is the governance role of NSW local governments given both State and Federal powers.

Dollery et al. (2013 p. 14-17) consider 'Australian Federal Federalism' and highlight the varying powers and responsibilities of each level of government, and, although their work focuses on the financial imperative that allays local government by 'vertical fiscal imbalance', the content infers the premise that local government is at a disadvantage should it attempt to broaden its approach on such an item as the ICT Continuum. It is stressed this is inferred and more research needs to be undertaken to assist local

government authorities understand and deliberately plan for the level of 'effort' placed in each phase of the ICT Continuum, namely, e-government, t-government and e-democracy.

Further Aulich (2015 p. 163) observes that 'State government legislative, political and cultural factors have combined to establish and maintain a comparatively weak local government sector by the standards of developed countries'. With such observations like these it is suggested before a verdict can be passed on the performance, good or bad, greater consideration should be given to this issue.

6. Conclusion

The ICT of local government have been shown to enable essential services, both statutory and discretionary, that are expected and desired by citizens to be delivered in a wide arrange of methods and processes.

This paper explored the history of ICT evolution globally as it pertains to local government including a review of the Australian experience. Consideration of the evolution of the three levels of ICT utilisation, being e-government, t-government and e-democracy, was labeled as the ICT Continuum, and was then compared to NSW councils.

The selected NSW Council's ICT staff provided information on where the respective council was on the ICT Continuum.

These observations yielded the question as to whether local government can or should seize the opportunity to transcend an efficiency only focus and achieve a platform of operation which supports and enhances a community's democratic process. This question is shadowed by the role of local government in NSW within its entire governance ambit, namely, the impact and role of Federal and State government upon local government self-determination. This question remains open, and in the interim to the consideration of that question, this paper provides information and guidance to the balance that it is contended needs to be sought out and determined by the local government authorities not only within NSW but more broadly in Australia, and conceivably the world.

Appendix A: Definitions

E-democracy: 'the utilisation of information and communications technologies… for enhancing a countries democratic processes and empowering its citizens'. Source: Nchise (2012 p. 165).

E-government: '[t]he use of the internet and [information and communication technology] to electronically empower governments to provide information and services to a diverse range of stakeholders'. Source: Chugh and Grandhi (2013 p. 234).

T-government: 'the second phase of e-government, which focuses upon cost savings and service improvement through back-office process and [information technology] change. [It]… require[s] three key transformations [being]… [ICT] services… that are designed around the citizen and not the provider,… [a] move towards a shared [government] services culture,… [and a]… broadening… of government's professionalism in terms of planning delivery, management and governance of IT-enabled change'. Source: Weerakkody and Dhillon (2008 p. 5).

Appendix B: Interview Questions

1. What ICT system changes have been made over the last 5 years?

2. Why were those changes made? What were the anticipated benefits?

3. What benefits (anticipated or otherwise) have been realised and timing from implementation?

4. How were the changes achieved? What was the approach?

   e.g. in house vs. package system implementation

5. When was this done?

6. Tell me about the implementation experience.

7. What was citizen reaction?

8. What have you got in way of e-government, t-government, e-democracy?

   a) e-government indicators (examples as follows)

      - Regular update of broadcast information on website
      - Notification of services provided
      - Submission of requests

   b) t-government indicators (examples as follows)

      - Submission of regulatory documents
      - Visibility of the process

   c) e-democracy (example as follows)

      - Citizen management of process

9. Further changes planned? What's the vision for citizen involvement in provision of services?

10. Are there any questions you may wish to ask with respect to this research paper?

Appendix C: Consent Form

Consent Form

I, [insert participant name], agree to participate in the research project *Information and communication technology (ICT) in Local Government: An exploratory study in New South Wales* being conducted by the *Centre for Local Government* of the University of Technology, Sydney.

I understand that the purpose of the research is *to assess the status of ICT utilisation by local government agencies (ie: councils) in achieving e-governance, t-governance and/or e-democracy*.

I understand that my participation will involve *interviews to inform an exploratory study to allow documentation of numerous council's experience with ICT systems, their implementation, and future plans to utilise ICT,* and will take approximately *1* hour of my time.

I am aware that I can contact *Anthony O'Reilly on mobile 0428 600 436* if I have any concerns about the research. I also understand that I am free to withdraw my participation from this research project at any time I wish without giving a reason.

I agree that *Anthony O'Reilly* has answered all my questions fully and clearly.

I agree that the research data gathered from this project may be published in a form that does not identify me in any way.

OR

I understand that I will be given the opportunity, prior to publication, to check any text that is to be used in the published report that identifies me or my organization to ensure the meaning was interpreted correctly by the researcher.

Signature ..... Date .....

Note:
Studies undertaken by the Centre for Local Government (CLG) and the Australian Centre of Excellence for Local Government (ACELG) have been granted program approval by the University of Technology, Sydney, Human Research Ethics Committee. If you have any complaints or reservations about any aspect of your participation in this research you may contact Anthony O'Reilly on mobile 0428 600 436 or the UTS Ethics Committee through the Research Ethics Officer, [tel: 02 9514 9772]. Any complaint you make will be treated in confidence and investigated fully and you will be informed of the outcome.

Appendix D: Australian Classification of Local Governments: Structure of the classification system

Step 1	***Step 2***	***Step 3***	***Identifiers***	***Category***
Population more than 20,000 OR If population less than 20,000, EITHER Population density more than 30 persons per square kilometre OR 90 per cent or more of the local governing body population is urban	CAPITAL CITY (CC)	Not applicable	UCC	
	METROPOLITAN DEVELOPED (D) Part of an urban centre of more than 1,000,000 or population density more than 600/ square kilometre	SMALL MEDIUM LARGE (L) VERY LARGE (V)	up to 30,000 30,001–70,000 70,001–120,000 more than 120,000	UDS UDM UDL UDV
	REGIONAL TOWNS/CITY (R) Part of an urban centre with population less than 1,000,000 and predominantly urban in nature	SMALL MEDIUM LARGE (L) VERY LARGE (V)	up to 30,000 30,001–70,000 70,001–120,000 more than 120,000	URS URM URL URV
	FRINGE (F) A developing LGA on the margin of a developed or regional urban centre	SMALL MEDIUM LARGE (L) VERY LARGE (V)	up to 30,000 30,001–70,000 70,001–120,000 more than 120,000	UFS UFM UFL UFV

RURAL (R)				
A local governing body with population less than 20,000 AND Population density less than 30 persons per square kilometre AND Less than 90 per cent of local governing body population is urban	SIGNIFICANT GROWTH (SG) Average annual population growth more than three per cent, population more than 5,000 and not remote	Not applicable		RSG
	AGRICULTURAL (A)	SMALL MEDIUM LARGE (L) VERY LARGE (V)	up to 2,000 2,001–5,000 5,001–10,000 10,001–20,000	RAS RAM RAL RAV
	REMOTE	EXTRA SMALL (X) SMALL MEDIUM LARGE (L)	up to 400 401–1,000 1,001–3,000 3,001–20,000	RTX RTS RTM RTL

Source: Australian Government: Department of Infrastructure and Regional Development. (2015 p 202).

The step system as outlined in the table is essentially population driven with reference to geographical considerations.

References

Ali, O., Soar, J., Yong, J. and McClymont, H. (2015). *Level of Policy for Cloud Computing Adoption in Australian Regional Municipal Government: An Exploratory Study*. International Conference Grid & Cloud Computing and Applications, p. 30-35.

Anderson, K. N., Medaglia, R., Vatrapu, R., Henriksen, H. Z. and Gauld, R. (2011). *The forgotten promise of e-government maturity: Assessing responsiveness in the digital public sector*. Government Information Quarterly, 28: 439-445.

Aulich, C. (2015). *Recognising the Local Government Sector*. In Dollery, B. and Tiley, E. (Eds). *Perspectives on Australian Local Government Reform*. Federation Press, Sydney, Australia, p. 162-175.

Australian Bureau of Statistics (2016) *3235.0 - Population by Age and Sex, Regions of Australia, 2015*. Australian Bureau of Statistics. Viewed 19 September 2016, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3235.02015?OpenDocument>.

Australian Government: Department of Infrastructure and Regional Development. (2016). *Local Government*. Commonwealth of Australia, Canberra, ACT, Australia. Viewed 5 November 2016, <http://regional.gov.au/local/>.

Australian Government: Department of Infrastructure and Regional Development. (2015). *Local Government National Report 2013-14: 2013–14 report on the operation of the Local Government (Financial Assistance) Act 1995.* Commonwealth of Australia, Canberra, ACT, Australia.

AXELOS. (2016a). *What is ITIL Best Practice?* AXELOS. Viewed 24 September 2016, <https://www.axelos.com/best-practice-solutions/itil/what-is-itil>

AXELOS. (2016b). *What is Prince 2?* AXELOS. Viewed 24 September 2016, <https://www.axelos.com/best-practice-solutions/prince2/what-is-prince2>

Belissent, J. (2010). *Getting Clever About Smart Cities: New Opportunities Require New Business Models*. Forrester Research Inc., New York, NY, USA.

Benyon-Davies, P. and Martin, S. (2004). *Electronic local government and the modernisation agenda: progress and prospects for public service improvement*. Local Government Studies, 30 (2): 214-229.

Biere, A. and Sjo, J. (1981). *Management Information Systems for Local Government*. American Journal of Agricultural Economics, 63 (5): 967-973.

Brusca, I. and Montesinos, V. (2016). *Implementing Performance Reporting in Local Government: A Cross-Countries Comparison*. Public Performance & Management Review, 39 (3): 506-534.

Bwalya, K., Zulu, S., Grand, B. and Sebina, P. (2012). *E-government and Technological Utopianism: Exploring Zambia's Challenges and Opportunities*. Electronic Journal of e-Government, 10 (1): 16-30.

Chew, E. K. and Gottschalk, P. (Eds) (2009). *Information Technology Strategy and Management: Best Practices.* Information Science Reference: IGI Global, London, UK.

Chugh, R. and Grandhi, S. (2013). *E-government in Australia: A Usability Study of Australian City Council Websites.* In Gil-Garcia, J R. (Ed). *E-Government Success around the World: Cases, Empirical Studies, and Practical Recommendations*. IGI Global, Hershey, PA, USA, p. 215-234.

Dollery, B., Kortt, M., and Grant, B. (2013). *Funding the Future: Financial Sustainability and Infrastructure Finance in Australian Local Government*. Federation Press, Sydney, Australia.

Eurobodalla Shire Council. (2016). *Citizens' Jury: is Council spending your money on the right things?* Eurobodalla Shire Council. Viewed 26 September 2016, <http://www.esc.nsw.gov.au/inside-council/community-and-future-planning/citizens-jury>.

Evans, D. and Yen, D. C. (2006). *E-Government: Evolving relationship of citizens and government, domestic, and international development*. Government Information Quarterly, 23: 207-235.

Fan, Q. (2011) *An Evaluation Analysis of E-government Deployment by Local Authorities in Australia*. International Journal of Public Administration, 34: 926-934.

Freeman, J. (2013). *Local E-Government and Citizen Participation: Case Studies from Australia and Italy*. In Gil-Garcia, J R. (Ed). *E-Government Success around the World: Cases, Empirical Studies, and Practical Recommendations*. IGI Global, Hershey, PA, USA. p. 235-258.

Gauld, R., Gray, A. and McComb, S. (2009). *How responsive is E-Government? Evidence from Australia and New Zealand*. Government Information Quarterly, 26: 69-74.

Gayialis, S. P., Papadopoulos G. A., Ponis S. T., Vassilakopoulou P. and Tatsiopoulos I. P. (2016). *Integrating Process Modeling and Simulation with Benchmarking using a Business Process Management System for Local Government*. International Journal of Computer Theory and Engineering, 8 (6): 482-489.

Gerathy, S. (2016). *NSW council amalgamations: 19 new local bodies created under forced mergers*. ABC News. Viewed 25 September 2016, <http://www.abc.net.au/news/2016-05-12/new-councils-created-under-forced-mergers-across-nsw/7408152>.

Gonzalez, R. and Llopis, J. and Gasco, J. (2013). *Innovation in public services: The case of Spanish local government*. Journal of Business Research, 66: 2024-2033.

Heeks, R. and Bailur, S. (2007). *Analyzing e-government research: perspectives, philosophies, theories, methods, and practice*. Government Information Quarterly, 24: 243-265.

Hunjan, R. (2016). *NSW council amalgamations: Councils win appeal and have two forced mergers set aside*. ABC News. Viewed 25 September 2016, <http://www.abc.net.au/news/2016-09-20/nsw-councils-win-appeal-to-have-forced-mergers-set-aside/7863126>.

Jin, J., Gubbi, J., Marusic, S. and Palaniswami, M. (2014). *An Information Framework for Creating a Smart City Through Internet of Things*. IEEE Internet of Things Journal, 1 (2): 112-121.

Kakabadse, N. K. and Kouzmin, A. (1996). *Innovation strategies for the adoption of new information technology in government: an Australian experience*. Public Administration and Development, 16 (4): 317-330.

Kallio, H., Pietilia, A-M., Johnson, M. and Kangasniemi, M. (2016). *Systematic methodological review: developing a framework for a qualitative semi-structured interview guide*. Journal of Advanced Nursing, doi: 10.1111/jan.13031.

Kamal, M. M., Hackney, R. and Ali, M. (2013a). *Facilitating enterprise application integration adoption: An empirical analysis of UK local government authorities*. International Journal of Information Management, 33: 61-75.

Kamal, M., Weerakkody, V. and Iraini, Z. (2013b). *Analyzing the role of stakeholders in the adoption of technology integration solutions in UK local government: An exploratory study*. Government Information Quarterly, 28: 200-210.

Keefe, T. and Crowther, P. (2015). *Information and Communication Technology in Government, an Historical Perspective.* In: 15th European Conference on eGovernment (ECEG) 2015, University of Portsmouth, UK, p141-147.

King, J. L. (1982). *Local Government Use of Information Technology: The Next Decade*. Public Administration Review, 42 (1): 25-36.

LeMay, R. (2016). *Accenture to develop Ipswich smart city strategy*. Delimiter. Viewed 26 June 2016, <https://delimiter.com.au/2016/05/09/accenture-develop-ipswitch-smart-city-strategy/>.

Nchise, A. C. (2012). *The trend of e-democracy research: summary evidence and implications*. Proceedings of the 13th Annual International Conference on Digital Government Research, p. 165-172.

NSW Government, Office of Local Government (2016) Your Council Report. NSW Government, Office of Local Government. Viewed 1 November 2016, <https://www.olg.nsw.gov.au/public/my-local-council/yourcouncil-website>.

NSW Independent Pricing and Regulatory Tribunal. (2016). *The review process*. NSW Independent Pricing and Regulatory Tribunal. Viewed 26 September 2016, <https://www.ipart.nsw.gov.au/Home/About-IPART/The-review-process>.

NSW Premier & Cabinet, Division of Local Government. (2013). *Integrated Planning and Reporting Manual for Local Government in NSW.* NSW Premier & Cabinet, Division of Local Government. Viewed 19 September 2016, <www.olg.nsw.gov.au/sites/default/files/Intergrated-Planning-and-Reporting-Manual-March-2013.pdf>.

Opdenakker, R. (2006). *Advantages and Disadvantages of Four Interview Techniques in Qualitative Research*. Forum: Qualitative Social Research, 7 (4): 1-10.

Ott, J. S. and Dicke, L. A. (2001). *Challenges facing public sector management in an era of downsizing, devolution, dispersion and empowerment - and accountability?* Public Organisation Review, 1 (3): 321-329.

Peignot, J., Peneranda, A. and Amabile, S. (2013). *Strategic Decision Support Systems for Local Government: A Performance Management Issue? The Use of Information Systems on the Decision-making and Performance Management of Local Government*. International Business Research, 6 (2): 92-100.

Project Management Institute. (2013). *A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Fifth Edition*. Project Management Institute Inc., Newtown Square, Pennsylvania, USA.

PwC and Local Government Professionals Australia NSW. (2016). *Local government operational and management effectiveness report - FY15: Eurobodalla Shire Council*. PwC, Sydney, Australia.

Rodrigues Filho, J. R. and Rodrigues dos Santos Jnr, J. (2009) *Local E-Government in Brazil: Poor Interaction and Local Politics as Usual*. In Reddick, C. (Ed), *Handbook of Research on Strategies for Local E-Government Adoption and Implementation: Comparative Studies*. IGI Global, Hershey, PA. p. 863-878.

Ruano de la Fuente, J. M. (2014). *E-government Strategies in Spanish Local Governments*. Local Government Studies, 40 (4): 600-620.

Saulwick, J. (2016). *Council mergers: Baird government smattering of victories in amalgamations battles.* Sydney Morning Herald. Viewed 25 September 2016, <http://www.smh.com.au/nsw/council-mergers-baird-government-wins-partial-victories-in-amalgamations-battles-20160920-grk89e.html>.

Shellharbour City Council. (2016). *Premier agrees to meet Council*. Shellharbour City Council. Viewed 27 October 2016, <http://www.shellharbour.nsw.gov.au/Media/News/Premier-agrees-to-meet-Council.aspx>.

Shackleton, P., Fisher, J. and Dawson, L. (2006) *E-government services in a local government context: an Australian case study*. Business Process Management Journal, 12 (1): 88-100.

Tate, M., Johnstone, D., Toland, J. and Hynson, R. (2007). *How the current orthodoxy of local government is failing IT managers: an illustrative case study*. Electronic Government, An International Journal, 4 (4): 509-526.

US Government. (2016) *Information technology – The White House*. Viewed 26 June 2016, <https://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/ap_17_it.pdf >. p. 281-285.

Van Helden, G. J. and Jansen, E. P. (2003). *New Public Management in Dutch Local Government.* Local Government Studies, 29 (2): 68-88.

Walker, R. M. (2006). *Innovation Type and Diffusion: An Empirical Analysis of Local Government*. Public Administration, 84 (2): 311-335.

Warringah Council. (2014). *Information & Technology Strategy 2013 - 2016 (Revision Sep 2014)*. Warringah Council, Warringah, Australia.

Weerakkody, V and Dhillon, G. (2008). *Moving from E-Government to T-Government: A Study of Process Reengineering Challenges in a UK Local Authority Context.* International Journal of Electronic Government Research, 4 (4): 1-16.

Wood, R. (2015). *The Art of the Literature Review*. Centre Local Government University of Technology, Sydney, Australia.

Yildiz, M. (2007). *E-government research: reviewing the literature, limitations, and ways forward*. Government Information Quarterly, 24: 646-665.