

Evolution of Local Government E-Services: the applicability of e-business Maturity models

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Abstract

Governments around the world are increasingly interested in the potential for delivering government services on the World Wide Web. Examples of substantial transition to electronic service delivery can be found in some sectors in some countries, however most government services have failed to evolve from enhanced information-based web pages. The failure to move from web based information to e-service provision is most notable in the local government sector in Australia (particularly Victoria where this research took place) despite numerous policies and hopeful deadlines imposed by governments at all levels. This paper presents research, which examined the current status of Australian local government electronic service delivery, exploring the appropriateness of current e-Business maturity models for evaluating the progress local governments are making towards electronic service delivery. The research involved an evaluation of local government websites and a detailed case study of one local council. The results indicate that apart from Web based information provision, little progress has been made in the transition to electronic service delivery in most areas of local government. In an effort to promote and enhance the use of web sites, local governments have started to make non-integrated moves

toward e-Democracy and e-Governance suggesting that conventional linear e-Business and e-Government maturity models may not be appropriate for this sector.

1. Introduction

Australia is ranked second to the USA amongst United Nation member states in eGovernment capacity despite the comparatively low level of funding from state and federal governments for these types of initiatives [1]. It is easy to understand the impediments that local government in Australia have faced in implementing innovative reforms. The relative poverty of local governments in the Australian federal system is in marked contrast to the situation in many other countries where they are true third tier authorities with real powers and responsibilities. Australian municipal councils, which have no constitutional legitimacy, are led by a mayor and elected by the residents who pay municipal council rates for services. Prior to World War II, the service supplied by councils was mostly of physical infrastructure such as road maintenance and waste management but it

has now expanded to include social services and community welfare, town planning, and environmental management.

In the state of Victoria, local government has seen arguably the most significant changes of any Australian state. In 1994, 220 councils were abolished by the State government and replaced with 78 (now 79) in the single most radical restructure in Australian local government history. Changes were also made to service provision with the introduction of Compulsory Competitive Tendering with greater emphasis on customer service and quality. Australian local governments have had to reframe their processes to incorporate these new competitive practices and to accommodate the expectations of their community [2, 3, 4, 5].

Australian State and Federal Governments have endeavoured to benchmark local government services with an expectation that they will implement reforms to achieve higher levels of efficiency, effectiveness and accountability [6, 7, 8]. In a major study of local government world-wide [9], Australian local governments were seen as opportunistic with an emphasis on e-Service provision as a way of driving down operating costs. As a part of this process, municipal councils have been forced to consider the Internet as an alternative method of delivering information and some services often solely as a means of reducing costs.

Despite the pressures on Australian local government to adopt e-Service provision, the low level of funding from higher levels of government has often impeded the implementation of innovative reforms. The Victorian State Government provided some assistance to municipal councils in the mid 1990's through its Electronic Service Delivery Project [10] although very little was in the form of funding and on-going support. In 1997 the Australian Federal government provided \$A250 million in funding under the *Networking the Nation* to support a range of e-Government initiatives but only \$A5.77 million was allocated to the Victorian Local Government Online Service Delivery Project (VLGOSD project). Funds were restricted to regional municipal councils who typically received \$AUD15,000 - \$20,000 for one or more of nine identified areas of importance. These included online planning, web and intranet provision, online payments and e-procurement [11]. Despite these limitations, by the end of 2002 nearly a half of all Victorian councils had implemented some form of web

content management system while a lesser number had installed online payment systems.

In recent times, the Victorian State Government, has placed even more pressure on municipal councils by outlining four pillars of e-Government that include a desire for improved participatory democracy [2, 8]. Although it is often seen as the final stage in a transition to the Internet, it is the potential of the WWW to alter the relationship with communities that has *citizen-focused government* or *e-Democracy* as a new platform in Victorian e-Government policies [12, 8].

This paper examines the progress local governments in Victoria have made utilising the WWW to implement and establish a virtual counter for service delivery. It examines the models that have been suggested to define the maturity of government electronic service delivery and proposes that existing linear models may be inappropriate. The research involved an examination of local government websites, and a case study involving one local council to further illustrate the issues discussed.

2. Local Government Services

The Municipal Association of Victoria identified 22 main functions undertaken by Victorian councils [7] although they often see their role as providing more than just services. Municipal councils play an important role in determining the direction and framework of community infrastructure and culture. Some writers suggest that municipal governments across the world are faced with a range of different types of *residents* each demanding different types of services [5, 13]. Residents have a wide variety of contacts with the government sector and in each case the agency may respond differently and play a different role. Shand and Arnberg [14] outline different relationships between governments and residents that give rise to different types of services being necessary. Table 1 lists seven different resident roles and examples of types of services.

Table 1: Examples of different client/supplier relationships [14]

Resident	Example of Service
Consumer	Home assistance for the aged
Receiver	Grant to a sporting club
Prosumer (producer and consumer)	Parent volunteers in kindergarten.
User	Public parks
Purchaser	Hire of bin service
Taxpayer	Payment of Rates
Regulatee	Town Planning

Steyaert [13] provides some insight into matching services and information flows from local government to those required by their residents. The resident's role is divided into two political categories (*voter and citizen*) and a third category of *consumer or client* of a service. Moreover, Steyaert [13] establishes 5 *dimensions* of governments which can be matched to each resident type. This relationship helps identify the necessary content requirements of a web site if each resident role is to be supported. Table 2 shows the applicability of the five dimensions of local government to the primary role of the three resident types.

Table 2: Relationship Between Dimensions and the Three Roles of the Resident [13]

Dimension	Primary Role of the Resident		
	Voter	Citizen	Client
Govt Info	Low	Low	High
Community Info	N/A	Med - High	N/A
Interaction	N/A	Med - High	Low
Service	N/A	N/A	High
Democracy	Med	High	N/A

Steyaert [13] suggests that there are a number of items on municipal council web sites that help support each dimension. As an example, a resident whose primary role is a *client* of council services would have considerable interest in the *Information* and *Service* Dimensions. The Information Dimension could include general information and contact details while the Service Dimension may include application forms, payment facilities and documentation. Both of

these dimensions enable a municipal council web site to take the form of an electronic or virtual counter.

As many citizens suffer inconvenience and high compliance costs in dealing with public bodies it is in the interest of governments to draw attention to the *virtual counter* component of e-Government [15, 16]. Nevertheless, there is now an increasing desire for local government to be more responsive to the needs of their community.

3. e-Government Maturity Models

Several models have been proposed which outline stages of maturity as businesses embrace more of the capabilities of the WWW. Most e-Commerce or e-Business models outline three or four stages starting with net presence and often moving through to a stage incorporating elements such as a rich array of information, the full provision and payment of services, or interaction with customers. Government departments often provide different types of services than commercial businesses, and frequently without payment. It is therefore probably inappropriate to extrapolate e-Business models to the government sector.

Recently attempts have been made to establish models of e-Government. The United Nations outlined a five stage model used to benchmark government web sites at a national level [1]. While applicable at this level, it is more appropriate to establish a different sequence of steps for local government who have a greater empathy with their residents, and higher levels of community engagement.

Musso, Weare et al's [17] model of *metropolitan reform* divides municipal government activities in the USA into two categories. *Entrepreneurial* measures emphasize the provision of services to residents and businesses to facilitate economic development. In their outline of a more mature electronic presence, changes to municipal web sites advance activities of providing *participatory* or *civic* reforms such as facilitating the formation of interest groups and improving access to the decision making process.

Riley [18] outlines a model containing three progressive stages; e-Government, e-Governance and e-Democracy. In this model, governments move from net presence (e-Government), through to service provision and representative

democracy (e-Governance), to a final stage of e-Democracy.

These models suggest a linear progression to final maturity. Stamoulis et al [19] offer an alternative suggesting governments and their agencies mature in various *spaces* rather than in distinct *stages*. Building on Angehrn's [20] work they outline four spaces for a government revenue agency; Virtual Information Space, Virtual Communication Space, Virtual Transaction Space, Virtual Distribution Space. [19].

Similarly, although Quirk [21] offers a four stage model with Information Giving at the lower end and Empowering Citizens as the final stage, he outlines different *spaces* of e-Government for local authorities. Quirk's [21] are described as "e-Service: Interface with customers, e-Commerce: Cash transactions, e-Democracy: Political dialogue citizen and community, e-Decision-making: Better informed public interest decisions, e-Management: Improved management of people."

The model described by Quirk [21] above has been selected for this research as it emphasizes the disparate range of functions and services provided by governments at the local level. While there is strong evidence to suggest the maturity of e-Government services for national governments is consistent and follows a linear path [1], the same may not be so for municipal councils where community engagement and participation are more prevalent. Although many individual municipal councils lack the financial resources and expertise compared to higher levels of government, many councils have a strong web presence and it is both relevant and important to examine the stages of e-Government maturity at this level of government.

The literature as described above recognises the inappropriateness of a staged model approach to describe e-local Government tending instead to describe the approaches taken in terms of 'dimensions' or 'spaces' [13, 19, 21]. The research reported here confirms the difficulties associated with applying staged maturity models to e-local Government.

4. Research Approach – a two-stage study

The research reported in this paper was based on a two-stage approach. Stage 1 was a quantitative study of the characteristics of 20

local government web sites. This quantitative study identified common features and provided some indication of maturity levels of those sites. Stage 2 was a case study of the approach of one municipal council and a resultant examination of its maturity level in the implementation of e-Government services.

4.1 Stage 1 – Survey

The objective of the first stage of the study was to examine the content and level of maturity of different aspects of Victorian council web sites¹. A context matrix was developed and used to examine the presence of a number of features such as basic information, email facilities and the ability to make a payment. These features were grouped under eight areas, in the four categories as outlined by Quirk [21]:

e-Management

- Basic information
- Web site navigation
- Contact details

e-Service

- Product and service details
- Product and service support

e-Commerce

- Transaction handling

e-Decision Making/e-Democracy

- Sense of community
- Links

As an example, for the Basic Information area the researchers looked for the presence or lack of presence of features such as, information about the council, a location map, and information on the mayor or staff.

A Web site feature was given a score of '1' if it had been fully implemented, or a reduced score ('0.5') if the feature was partly implemented. The *score* for each feature was totalled and then divided against the total number of Web sites. As an example, if 8.5 out of 10 Web sites had implemented a particular feature, it would be given a content rating of 85% for that particular interest area. The analysis of quantitative data from this pilot study enabled the researchers to identify the extent of development and the directions in which local governments are moving in the area of e-Government.

¹ The study was part of a larger study examining web sites of a number of Australian public and private institutions funded by the Electronic Commerce Research Unit, Victoria University.

4.2 Stage 1 – Findings of Web Site Evaluations

The findings from the web site evaluations are discussed below and are summarised in Table 3 at the end of the section.

- e-Management

This category included features that assisted a resident to navigate through a council web site to obtain basic information and to contact the council or preferably a person within the council, if necessary. Moreover, it determined if there were incentives to encourage the user to use the web site rather than face-to-face, over-the-counter services.

All of Victoria's 78 councils have some web presence and as expected the sites examined in this study included a substantial amount of basic information about the council and the services they provide (90 – 95%). Email is available to the council organization but not necessarily to specific staff within the council (95%). The low number of council sites that have details on forthcoming events or what is new on the web site (25%) suggests that the sites are relatively static and not frequently updated and/or they are administered by external web designers. There were no incentive programs in place, such as discount for payments, to encourage residents to use the site.

- e-Service

This category included features that assisted a resident to seek information about a product or service provided by the council. A more mature site would enable a user to seek support for a service product or service without having to wait until the council office opened. Features such as Frequently Asked Questions and email support assist in this area.

While a significant number of sites provide details of their services (90%), only 20% of sites contain FAQs and none of those examined had email support. Services such as the ability to track the progress of a planning permit, a common over-the-counter query, was not available on any of the sites examined.

- e-Commerce

This section covers the transaction handling involved in placing orders for services or products and paying for them over the web. In businesses, this may involve an ordering facility where the customer orders the product or service by email. Typically, the customer has to wait for a response from a person, although some email responders can generate an automatic email

confirmation receipt of the order. At the next level, an ordering facility is offered where the customer orders a service or makes an appointment through a form on a web page. The order or appointment is then sent to a database. Confirmation of the order or appointment usually comes immediately. Payment facilities usually require an online credit card payment approval system. Another option is where a council provides a facility for customers to send an email or fill in a form relating to a specific service enquiry.

There appears to be some anomaly between the small number of sites that have any form of ordering facility (5%) and the larger percentage of sites that provide for online payment (23%). This can probably be explained by the fact that in municipal councils there is one main type of online payment – council rates – which is not an order-based transaction. Placing orders (by email or interactively) is more suited to commercial organizations where the products or services are easily definable and deliverable such as hotel reservations. Nevertheless, councils do provide some easily definable products and services such as garbage bins. For those products or services that may require further investigation or explanation (such as the discussion of complex house plans) an email service or form could be provided for a further inquiry but was rarely available (5%).

- e-Decision Making and e-Democracy

This section covers features that aim to inform the resident of broad issues about the operation of the council. Items such as council minutes or strategic planning issues and newsletters are examples of this type of feature. Other features include links to bodies within the council region or to significant businesses. Links to other government services is another important feature which was, surprisingly, not present on any of the sites examined. Some sites offered job information through a listing of the types of employment available within the council. A more mature web site would facilitate discussions on issues through a bulletin board, organised electronic community forums, or email response.

Features that became apparent during the study, but not initially included in the study, were instances where information about the local area, or 'things to do' were listed on the Web site.

Many councils have placed a moderate amount of community-based material on their sites (10 – 20%) and established links to a large

number of community and business organizations (65%). This was somewhat unexpected for councils at a low level of maturity. Councils' web sites, however, are not sufficiently interactive to conduct activities that would support the interchange of information and ideas. Bulletin boards did not exist on any of the sites examined.

In summary the review of council web sites found that service maturity varied according to service type, that is there was no consistency. Services relating to governance are generally more mature with a greater level of sophistication compared with other services. This is consistent with the fact that the general focus of council business has a more hands on approach in its dealings with the community. Limited e-Commerce facility is available; some councils accept rate payments over the Internet but little else. There is a strong focus however on providing information about governance and opportunities for community participation in council business. The main characteristics are summarised in Table 3.

Table 3: Summary of main characteristics by category

Category & Feature	Score
e-management	
Basic Information	95%
News and coming events	25%
Email address	95%
e-service	
service details	90%
Service tracking	0%
FAQs	25%
Email support	0%
e-commerce	
On-line payments	23%
Ordering facility	5%
Email payment/ordering	5%
e-Decision Making/e-Democracy	
Community information	20%
Links to other organizations/businesses	65%
Bulletin boards	0%

4.3 Stage 2 - Case study

To better understand how the activities and services identified in Stage 1 are selected and implemented, particularly in terms of maturity levels, a case study of a single municipal council

was conducted. The major component of the research involved an intensive ethnographic case study of a moderately sized progressive Victorian municipal council. Ethnographic case studies, where the researcher becomes part of the case being observed, enables the researcher to "observe, interview, record processes as they occur naturally" [22]. This study involved working with staff over a period of six months, observing and interviewing them as they developed and implemented the last iteration of the council's web page (March 2003). A strength of this interactive research methodology is that prolonged engagement in the natural setting allows the researcher to observe and record processes that would be difficult to observe by the use of other methods [23]. Fourteen interviews were conducted with a range of council staff, councillors and associated council support staff. Documents were collected and collated, while detailed observations were made both of formal and informal meetings and other settings.

The municipal council was chosen as historically its web development reflects that of other Victorian municipal councils, however, it is more advanced than the vast majority in its achievements to date. It was important to select a municipal council that had made significant progress in its e-Government strategy. Since its first introduction in 1999 the council has not only changed the format and content of their site but on two occasions they have completely replaced the old web site.

The municipal council selected is located on the fringe of Melbourne in the state of Victoria and is classified as an 'interface' council, that is its population is concentrated in a number of large suburbs while it also serves a sparsely populated rural constituency. The council serves 19,000 households and recent census data showed 47.6% of the council population use the Internet [24]. Historically the community has a strong commitment to environmental protection and is actively involved in council governance.

The council web page was only launched in June 2001 and although managed through this organization is maintained by an external provider. Again the categories described by Quirk [21] are used to illustrate how one council approached the implementation and management of information and service provision over the web.

- e-Management

The web based services the council provides reflect the broad environmental, and

artistic/cultural interests and concerns of the community. Apart from the general information about the council and contact details, the site enables the user to access detailed information about the history of the council, local artists and environmental groups. However the relative inexperience of the council to this new medium has meant they have yet to effectively exploit the potential of the web even to the extent that publicity of the availability of the website is limited. For example, the community is encouraged to contact staff through a central contact point even on the web. This means if a resident wishes to contact the council concerning a road repair they must go through the central registry rather than directly to the maintenance department. This increases response time and increases internal workloads. The council retains manual checks and balances for recording purposes and appears suspicious of external emails. On this matter one interviewee stated:

The problem is that people see email as being immediate, similar to a phone call but it is not. We still treat it as written correspondence so still follow the same channels. Registered and then forwarded to the appropriate person. ... Sometimes we get emails about more investigation type things. If it is an investigation matter then they are requested to put it in writing. Start paper trail – can file it.

- e-service

The relative immaturity of the council in web use and design is reflected in the level of web based service delivery. This is consistent with the state of many local council web sites as previously discussed. Rather than provide direct services, most of the links to services are for one way information about the service, there is little option for interaction. Most information and brochures are in PDF format with limited search capability. If a resident wanted to order a new garbage bin, information about garbage bins and collection services are available but the resident has to follow conventional procedures and contact the council by other means.

- e-commerce

There are strong pressures on municipal councils to enable the payment of municipal rates over the Internet particularly as it demonstrates the commitment of the council to a more mature level of web based service delivery. This has resulted in debates around the level of e-commerce functionality that can or should be provided. In terms of council rate payments, BPay (facility for telephone or online payments

through the banks) is widely available and at very low cost for both users and councils. In reply to a question about the direction the council should take in the area of web development one interviewee stated:

It is about tailoring the limited resources to get the maximum improvement in services. If you are getting a 5% improvement in putting resources into transactional stuff then I see that as marginal. Getting a 50% improvement somewhere else I see that as substantial and that is where I think resources should go ahead.

While there maybe a debate over the online payment of compulsory council rates, without the provision for online payment of fines and other charges (dog licence, new garbage bin, booking a service) online rate paying does not go far enough in meeting residents' needs. There are numerous options for paying rates but not so with the other charges where residents have to either pay by cheque or in person. Yet the pressure for councils, in terms of e-commerce, is almost exclusively on rate payments and forcing the council to focus on that rather than on other payments which may be more convenient for residents. This is impeding the maturity of web based service delivery.

- e-Decision Making and e-Democracy

Although only released in June 2001, the web site for this council contains an enormous amount of material designed to inform and engage the community. In comparison to web based service delivery it led one interviewee to explain:

We need to go beyond the governance side and concentrate more on services. As a ratepayer I want to go to a web page and find out what services they can provide. Through the technology it gives me the opportunity to seek out the right people and it has confidentiality.

Despite the council's limited resources and experience with web technology, it has moved rapidly in this area to leverage their web site as a strong communicator of political information. On the issue of communications, a different interviewee stated:

The web is information not a motivation. Communications is about communicating council issues out to the community ... (and it is) ... fantastic for the community to feel that they have dialogue. I see great benefit for community consultation.

More importantly, in this area of local government the same interviewee stated:

It is not a matter of whether I will use the web or not – the web is intricate to everything we do so it is about how best do we use the web.

4. Discussion

The various levels of government are responsible for different types of service provision and establish different types of relationships with communities. National governments, responsible for the welfare of a whole country, are unlikely to understand the needs of communities in the same way as local government. Local government are more likely to render services to readily definable groups whose services are more community focused. At the local level, communities have greater opportunity to influence decision making and the direction of policy that has a direct impact on their life style. This is in contrast to more aloof state and national governments. It is therefore problematic to attempt to apply a *one-size-fits-all* model to all levels of government.

Municipal councils frequently do not have access to the same level of resources as their counterparts at the state and national level. It is generally the case that state and national governments have more mature web sites and that local government lags behind them. While the various agencies of state and national governments appear to move uniformly through the stages of e-Government [1], at the local government level there appear to be *lighthouse* municipal councils who are far more advanced in the area of e-Government compared to others [25].

This research reveals that many municipal councils, while often unable to move to a transactional stage of e-Government, exploit the potential of the web to enhance the participatory side of their activities. Governance issues such as strategic planning, and reporting of council meetings, draws the community into the decision making process. It is more likely to see municipal councils mature at different rates in different functional areas than at higher levels of government suggesting that a different web-based service maturity model for local government is required.

5. Conclusion

This research paper reports on the progress local governments in Victoria, Australia have made towards the implementation of services

over the WWW. The paper outlines a number of models that are suggested for the maturity of e-Government services. Most of these models propose a linear path from basic presence through to full participatory functions at maturity. In Australia, local governments have moved more slowly into e-Government compared to the larger state and federal governments. This research found that most municipal councils have relatively immature web sites with limited transactional services, yet in the area of participatory government, they are often far more innovative than governments at higher levels. The research suggests that linear maturity models of e-Government do not fit the local government equivalent and that the disparate range of services mature at different rates in an electronic environment.

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