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Doing it Tough: Factors impacting on local e-Government maturity

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Abstract

As growing numbers of citizens seek to use the Internet to do business, governments across the world have moved into the area of electronic service delivery. For the last decade significant advancements have been made in the area of e-Government. Today, e-Government is often assumed to be well-established. However, ongoing support is often missing, particularly at the local government level. The multi-level nature of government often means that citizens are frustrated when accessing services that span many levels of bureaucracy. This paper describes an empirical study which explores the factors influencing local e-government maturity and identifies the barriers, enablers, priorities and objectives that impact on local e-government maturity in Australia. It concludes by presenting a model that describes both the internal and external factors that impact on local government maturity.

Keywords: Local e-Government, Interoperability, Electronic Service Delivery

1 Introduction

The implementation of e-Government has not been easy for local government in Australia and in many other countries. The local government sector frequently lacks truly independent decision making powers in the area of e-Government and it is often reliant upon funding from higher levels of government to implement new initiatives. While most state and federal governments have made significant advancements in e-Government, many local councils in Australia have often *window dressed* their implementations in an effort to maintain legitimacy amongst their communities (Dollery, Marshal, & Worthington, 2003).

In the past, local government in Australia was a notable omission from national e-Government strategies. The assumption, it would appear, was that local governments would automatically follow their state and commonwealth counterparts or that the services they offered were not of high priority (NOIE, 2001, 2003b; NOLG, 2002). In Australia, commonwealth and state governments have appeared more concerned with conducting annual surveys critical of local government electronic service delivery rather than offering funding and assistance to move them forward in the area (Multimedia Victoria, 2002; NOIE, 2001; NOLG, 2001, 2002).

However, the latest survey reveals that more than half of all adults in Australia use the Internet to contact an Australian government (DFA, 2005). The services most often accessed are the compulsory services at the commonwealth and state government level, such as personal tax and registrations. However it also revealed that where services become more citizen focused, or where services involve an exchange of information or payment, it is local council services that are more popular. Indeed, 80% of government transactions of this type with citizens take place at the local government in many countries (SOCITM & I&DeA, 2002).

In recent times there has been a growing awareness amongst state and commonwealth governments that enhanced service delivery and improved government-to-citizen relations from truly integrated e-Government is only possible with the inclusion and co-operation of local government (NOIE, 2002, 2003b, 2004). There is a growing interest in the role of local government in e-Government maturity and more research is being undertaken investigating this level of government. Nevertheless a significant amount of the research on local e-Government has concentrated on eParticipation, which has more likelihood of success at this level than at higher levels (Holzer, Lung-Teng Hu, & Seok-Hwi Song, 2004; NOIE, 2003a; OECD, 2001). Yet community engagement should not be the sole focus of local government nor should electronic service delivery be the sole domain of higher levels of government. In the United Kingdom, as an example, the Local t-Gov Project incorporates a both a large e-Democracy project focusing on participation and other projects to improve services (DCLG, 2005)

Local e-Government needs to offer more than electronic replication of existing information and services as it provides an opportunity to offer new and enhanced services to the public, to increase the involvement of communities in policy making and improved service provision. There is growing recognition that local government is often the first port of all call for government enquires and they must be included in future initiatives.

This paper commences by reporting on the progress Australian local government has made over the years in e-Government. The paper then builds on previous research on the progress that local governments in the State of Victoria, Australia have made utilising the Internet to deliver traditional services, improve governance and enhance community contact (Shackleton, 2002; Shackleton, Fisher, & Dawson, 2004). Through an ethnographic-based case study, the paper then identifies the factors impacting on local government that determine the level, type and support for different forms of electronic service delivery and governance. The paper concludes with a model showing the impact external and internal factors have on local e-Government maturity.

2   Background

2.1   Australian Local Government

Australian local government comprising independent local councils was not established under the Australian Commonwealth Constitution but was created by state governments to implement a large range of services such as roads, waste collection and local town planning. Councillors within each Victorian council are elected by residents for three years. Residents pay council rates that comprises approximately 80% of total council funds (ABS, 2001, 2003). Over the last 30 years more responsibility for service delivery has passed to the local councils via concurrent federalism, a process whereby the commonwealth government has attempted to by-pass the state governments.

Despite their apparent lack of independence and limited number of revenue options, Australian local governments provide a large number of services and they have become increasingly important in the grassroots implementation of policy and service provision (Industry Commission, 1997). In the last three decades, council responsibilities have expanded to include services such as social and community welfare, economic development and environmental management. With the large provision of services at the local government level, it is understandable that e-Service provision is mandated by State and Commonwealth policies as the major focus of local e-Government (Lips, 2001).

2.2   Local e-Government Maturity

Many of the existing e-Government models describe maturity within state and national bureaucracies and emphasise service provision (United Nations, 2002). These models attempt to depict the path that governments follow as their electronic activities grow and mature (Deakins & Dillon, 2002; Layne & Lee, 2001; Riley, 2001; Sood, 2000; Stowers, 1999). The models outline a transition that moves from basic web presence where web sites are little more than an alternative technology on which to place basic information (Stowers, 2004) to integrated systems which involve more complex service provision.

However, the move from a physical to an online delivery environment in the local government sector is more complex as it involves multiple types of service provision and high levels of community engagement. Thus more recent research has identified different patterns of e-Maturity for local government (Quirk, 2000; Shackleton, 2006; Shackleton, Fisher, & Dawson, 2005). There is a growing belief that local governments mature in different ways other than via a linear path and that they concentrate on different areas of importance. Quirk's (2000) model outlines four progressively maturing stages with Information Giving at the lower end and Empowering Citizens as the final stage but it also marries this with different *spaces* of local e-Government. Although now developed further by other researchers (Shackleton, 2006), his initial model outlined five spaces of local e-Government as given in Figure 1.
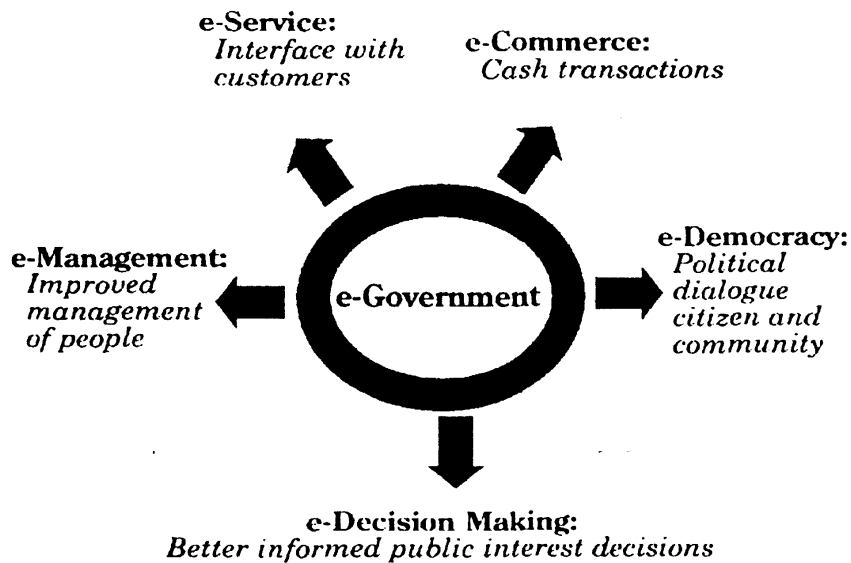
Figure 1: e-Government for Local Authorities (Quirk, 2000)

This model was used as the basis for the evaluation of web sites in this study as it most matches local e-Government maturity.

2.3 Factors affecting local e-Government implementation

There are many factors impacting on the selection and implementation of electronic service delivery on e-government maturity at all levels of government. Diagrammatically, Hackney and Jones (2002) showed the relationship between barriers, objectives and priorities and how they can influence the direction of an eGovernment strategy (Figure 2)
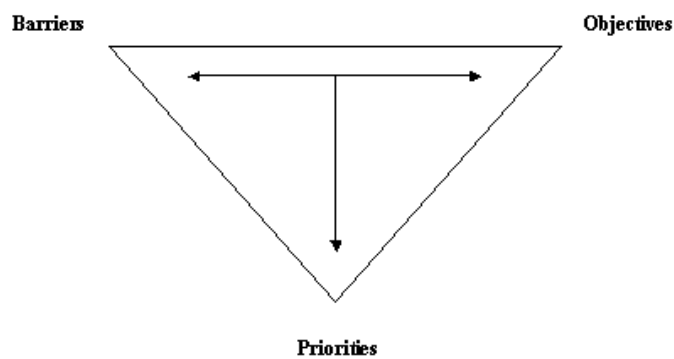
Figure 2 : eGovernment Framework (Hackney & Jones, 2002)

This diagram shows the interrelationship between the three different types of competing factors. A barrier is defined as a factor that stops or restricts an eGovernment implementation; an objective refers to a desired outcome, either mandated or by choice, in local eGovernment policy, and a priority includes the competing issues that exist within individual local councils to provide different levels of information and services (Hackney & Jones, 2002). Another factor that

may be added to the diagram is the reverse of a barrier, that is a factor that may be an enabler which encourages some development.

For local government the first major category of influencing factors are external factors, that is those that are beyond the control of local councils and impact on local eGovernment maturity. A search of the literature reveals that they may be explicit or implicit and the factors identified in the literature can be place under three broad headings:

- Higher levels of government policies, priorities, and funding,

- Technological Advancements, and

- The Digital Divide.

The second major category of influencing factors for local government are internal factors, that is, those over which council management has substantial discretion. In some cases this may be to accept or reject some policy, or it may be to proceed in one direction versus another. In some cases the internal factors are not easily identified as they are often intertwined with the external factors. A search of the literature reveals that the internal influencing factors (either barriers, enablers, objectives or priorities) included:

- Structural and process reform (such as New Public Management reforms),

- Funding and resourcing,

- Innovation and change, and

- The policy priorities of the individual local council.

The remainder of this paper reports on research that used content analysis of local government web sites to examine the maturity of services in local government and a case study of selected local councils to examine these and other factors impacting on that maturity.

3   Research Methodology

The aim of this research was to explore the factors influencing local e-government maturity. Firstly, data was collected from a content analysis of 20 local council web sites (in 2001, 2003, 2004 and 2006). The categories for the content analysis were based on Quirk's (2000) model. This first stage of the research was a longitudinal study running from 2001 and which formed the basis of previous reported research (Shackleton, 2002; Shackleton, Fisher, & Dawson, 2003; Shackleton et al., 2004, 2005). The objective of this component of the research was to identify and investigate changes to the content of different aspects of Victorian council web sites.

A context matrix was developed and used to examine the presence of, and changes to, information and services over a five year period. Twenty of seventy nine council web sites (25%) in Victoria were selected to be examined. It should be noted that the time the first content analysis was conducted some councils did not have any web presence at all. The representative sample was chosen to reflect the breakdown between metropolitan, rural and outer suburban councils known as 'interface' councils as well as budgetary size and population size.

Secondly, the results of the content analysis of the web sites were explored with the developers of local e-government in 4 different councils. Data was collected using participant observation and in-depth interviews with council staff.

4 Content Analysis of Council Web Pages

The Content Analysis was undertaken four times on the web sites of the same councils. A summary of the findings of the early research conducted in 2001 (Shackleton, 2002) and 2004 (Shackleton et al., 2005) together with the most recent analysis in 2006 is summarised in Table 1.

The purpose of the context matrix is to show overall maturity in broad functional areas grouped under headings as outlined in Table 1 and matching Quirk's model. In this research, e-Decision Making and e-Democracy are grouped together as the information available on a council web page assists the user and both could be regarded as decision making relating to democratic processes.

Local councils are the most identifiable level of government and as would be expected e-Decision Making is an area where local councils must be proactive. It is an area of e-Government in which local councils were initially quick to move. Although there is little more that local councils can do to mature this area except to include imaginative features such as the subscription to specific services or the use of SMS. The analysis found that there is a significant amount of governance-related information in the form of council details and information relating to council decision making on council Web sites.

In 2006, e-Commerce continued to be the area in which there has been the greatest growth. Nevertheless there continues to be a substantial variation between councils. All the councils have improved their e-Commerce facility for the payment of rates. This includes most small rural councils who provide a link to an external electronic provider similar to many of the metropolitan councils. Most councils have expanded their payment options to include a range of services such as pet registrations, fines, child care costs, and meals on wheels.

The analysis found that there substantial variation between the level of e-Commerce activity and the provision of other electronic services. For example, one council offered a very sophisticated map function and a searchable database of photographs of lost dogs however the same council only offered online payment options for rates and pet registration through a link to a third party payment provider. Another council with its own electronic payment system provided for the payment of a variety of accounts online however it offered no other electronic services.

Category & Feature	Percentage (%)			
	2001	2003	2004	2006
eService				
Service details	90%	95%	100%	100%
News and coming events	25%	100%	100%	100%
FAQs	25%	25%	25%	90%
Direct Email support	0%	5%	25%	80%
Novel e-Services (interactive maps, lost dogs)	0%	20%	25%	60%
Service Tracking	0%	55%	55%	70%
eCommerce				
On-line payments (Rates)	23%	90%	95%	100%
On-line payments (Other – pet registration, fines)	0%	5%	55%	65%
Ordering facility (Downloadable Forms direct ordering, prepared forms)	5%	70%	100%	100%
Email payment/ordering	5%	15%	20%	55%
e-Decision Making/e-Democracy				
Council Information	95%	100%	100%	100%
Community information	20%	100%	100%	100%
Email address (for contact with the Council)	95%	100%	100%	100%
	20%	95%	100%	100%
Council decision making – minutes, strategic plans	65%	95%	95%	100%
Links to other organizations/businesses				
Community Groups/Bulletin boards/Chat				
Room/Broadcasting	0%	5%	5%	55%
Subscription service				70%

Table 1: Summary of main characteristics by category in 2001 to 2006

The most variation, however, comes when we examine the e-Service category. This category included what could be regarded as the more creative uses of the technology for the delivery of services with some councils using the web to provide services such as tracking of building permits. Some examples of these are: interactive maps which allow the user to drill down and find a specific street or building, pictures of dogs held at the pound searchable on breed, electronic feedback forms and opinion polls, tracking of services and in one case video streaming of council meetings. Apart from links to other levels of government in the building and planning section, there is little evidence of advancements in interoperability and joined up government with higher levels of government.

An aspect of local government activity that cannot be identified from the content analysis are changes to e-Management. Moreover there is little that can be determined about why these changes have occurred in some areas and not others. To investigate these and to provide some understand of these differences, an ethnographic-based case study of a council was undertaken.

5 Case Study

The results of the content analysis were explored in an ongoing case study in four councils at various stages of local e-government maturity.

This study began with an ethnographic case study in 2002 and involved the researcher working with staff in a council (identified as OzCouncil) for over two years with an intensive period of six months, observing and interviewing council staff as they developed and implemented OzCouncil's latest web site in March 2003. Further interviews were conducted after the launch of the web site. Apart from observing the process OzCouncil undertook in its moves to web development and electronic service delivery, interviews were conducted with a range of OzCouncil staff such as area and service managers, IT and Web staff, councillors and associated OzCouncil support staff.

Three other councils were chosen for comparison with OzCouncil and are identified as RuralCouncil, RegionalCouncil and MetroCouncil. Each of the councils chosen for the case study research were at various stages of e-Government implementation and represented different demographic parts of Victoria. In-depth interviews with various members of council staff were undertaken to provide additional data to that collected from OzCouncil.

RuralCouncil is a small rural municipal council located in the Victorian Mallee district. It has a basic static but dated web page. There is no IT support at the council and an Environmental Engineer works approximately 4 hours per week on web related support. MetroCouncil is a metropolitan council that covers a number of affluent inner suburban areas of Melbourne. It has five Web/IT support staff incorporating business analysts, web editor, editor in the Communications section. The council has had a web page for several years and it uses a content management package and payment software. RegionalCouncil is a large regional city 200km from Melbourne. It has made significant advances in eParticipation with the introduction of web-casting of council meetings. It has 3 IT personnel in various roles supporting and developing new systems.

6   Discussion

The analysis of council web sites revealed that most individual councils are maturing services to their communities in an ad hoc manner. The results of the case study illustrated the impact of the influences on e-Government maturity and changes to e-Management which is often not revealed through council web sites. External and internal factors influencing local e-government maturity were identified and are discussed in the following sections.

6.1   External Factors

The influence of higher levels of government and technological issues on local e-government maturity, as discussed in section 2.3 above, were confirmed by the case study. However, while the "Digital Divide" appeared to be an important factor in the early maturity development stages, problems associated with access and the Digital Divide were seen as the domain of higher levels of government and the community and local government agencies were identified as major influences on maturity.

6.1.1   Funding Policies and ICT Infrastructure

The case study revealed high levels of adoption of new forms of managerial efficiency and accountability in government by local government employees.

Coupled with this general trend were e-Government priorities from the State and Commonwealth governments that had local councils reacting to what they referred to as *new programs*. The combined result was a mixture of pressures that had municipal councils attempting to achieve improved forms of government, such as better service delivery that matched the needs of constituents, but at the same time restricted by costs, knowledge and resources.

The case study revealed that the e-Government incentive programs often forced upon them by the controlling State government, enabled some councils to mature their electronic service delivery but they often had to forgo another good initiative to take advantage of the offer. Moreover, councils appear to have a discontinuous approach to e-Government maturity by immersing themselves in a series of self-contained *new programs* often when funds become available. The result of this somewhat unplanned approach is a skewing of e-Government services towards mandated programs and a widening of the gap between services offered electronic by individual councils.

As an example, the NTN funded Victorian Local Government Online Service Delivery Project (DCITA, 1999) provided funds to enable rural councils to implement specific identified initiatives. Expert assistance was provided to all councils but funding support was only available to rural councils. By mid 2003 when the funding was completed, all Victorian councils (78 councils at that stage) had a web site backed with a content management package and a link to an external online payments option for rates. This enabled many rural councils to move forward in the area of electronic service delivery which had previously been beyond their reach.

At the time the NTN funding was removed, the Victorian state government made the first moves into joined up government. SPEAR (DSE, 2003), a program to consolidate and provide uniformity in the management of land titles including GIS was initiated and required the co-operation and involvement of local government. The initiative was seen by all of the councils as important but given available resources in councils, its implementation was only feasible with additional funds. MetroCouncil had sufficient resources to purchase and implement a system, OzCouncil gained a grant to pilot a system while the rural council was unable to implement a system.

Both these are examples of how councils are often forced to make decisions about the implementation of fundamental e-Services and how external funding and higher level of government policies impact on local government.

6.1.2 Community Influence

Councils are directly accountable to their readily identifiable communities and the case study revealed the explicit and implicit influence of communities on e-Government maturity. Specifically, the community impacts in two broad areas; in e-Decision Making and e-Democracy by the need to provide increased transparency and access to information, and perceived community pressure from within the councils to *catch up* with other state and semi-government authorities by providing better e-Services.

The outcome of this community pressure was for council administrations to skew their response towards what it felt would satisfy the community at that time. In many cases, councils do not have the funds to develop back-end systems to

provide better electronic service delivery, despite the obvious advantages, and choose instead to expand into areas of governance and democracy. It is important to appreciate that this not only relates to available funds but, as revealed in interviews with staff and councillors, to a belief amongst councils that the community view e-Government as an opportunity to provide greater transparency. Thus this takes a higher priority over enhanced services, is the key driver of e-Democracy, and accounts for the emphasis on this area as revealed in the content analysis.

Where an enhanced electronic service is provided which is not directly related to a higher level of government initiative, it is often in response to a community need or criticism. Although there was no evidence to suggest extensive community pressure for electronic service delivery in any of the councils in the case study, there was a perception that the metropolitan councils needed to have more than just a basic static web site.

Importantly, community influence can also act as a barrier to e-Government maturity. In RuralCouncil e-Government is viewed as a low priority amongst all of the key stakeholders; the council, council staff and the community where even basic services are difficult to provide. This resistance to implement electronic service delivery is despite the extensive computer usage within the community to support functions such as crop and animal management. Council services are seen as being accessible via phone queries and visits to the main town.

6.1.3   Local Government Support Agencies

Another influence on municipal councils that was not revealed in the research literature, was that of council associations, in this case the Municipal Association of Victoria (MAV), of which all councils are members. The association is seen as the voice of councils on general issues and lobbies the State and Commonwealth government. The MAV was seen as applying pressure to move lagging councils towards mature sites with enhanced services. 'Lighthouse' examples of progressive councils were often flagged by the association for others to follow. The interviews exposed the insecurity of councils who were often envious of more progressive councils, and they frequently offered excuses why they had not or could not replicate that progress in their own council.

The analysis also revealed that councils were reluctant to adopt a new initiative if it was not well trialled, documented or supported by other councils or the municipal association. Many councils, which are sensitive to community criticism were not prepared to commit to a new untried e-Government initiative for fear that it might fail and be seen as wasting money.

6.2   Internal Factors

Issues such as structural and process reform, funding and resourcing, innovation and change, and the policy priorities of the individual local council, as discussed in section 2.3 above, were confirmed by the case study but these factors were also revealed as heavily influenced by staffing issues such as expertise and attitudes to innovation and change and strategic planning and performance management.

6.2.1 Staff Attitudes and Expertise

The case study revealed that it is often internal factors such as the push from staff or councillors for more flexible delivery that accelerates the process of e-Government. In part this would account for the slow transition to the web by some councils initially and the acceleration in e-Service and e-Commerce in recent years as revealed by the Content Analysis. All of the four councils experienced some of this change in the early stages where an enthusiastic staff member championed the need for web-based service delivery and developed an initial static web page. Moving on, however, from this initial stage has often been more difficult.

The interviews with ordinary staff in councils reveal that they did not have a sense of ownership of the page in the early stages. It was not until a content management package was introduced did they believe that they had some influence over the council web site.

The IT managers at many of the councils engaged staff in discussion of e-Government issues and attempted to involve other divisions in new programs. More importantly many of the IT Managers were committed to using technology to support and then change business processes. This had an impact and some council staff were starting to question the type of material on the existing web page and the need to deliver genuine services. A staff member observed:

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.

While the content management system was supported and made available to the RuralCouncil, it did not bring about significantly improved electronic service delivery. In part, this is explained by the lack of internal support for such an initiative and available resources.

### 6.2.2 Strategic Planning and Performance Management

The NPM literature suggested that modern governments at all levels had adopted many of the modern management practices of the private sector. It also suggested that they were more transparent and accountable for their actions. Whilst the research found that this was the case, it also found that in the area of eGovernment most councils had not established planning and measurement regimes.

Plans outlining strategic objectives for eGovernment were either non-existent or vague. There is very little overall vision of where a council wanted to progress to in the next stage. Many councils did not have a strategic plan on electronic service delivery or it was established after the fact. Where planning was undertaken it lacked a strategic focus. It often outlined web initiatives supporting existing practices but not changing processes. Ad hoc development was the norm in councils rather than a co-ordinated council-wide approach. In some cases this was an advantage to a council as it could use untied discretionary funds for opportunistic developments as they arose. Once established, very little formal measurement was undertaken. What tools were used, such as web site visits or hits, are notoriously unreliable. There was heavy reliance upon anecdotal evidence

such as the innate knowledge staff have of the community to support web development.

6.3   Summary of Findings

The research revealed a number of external and internal factors which impact on local e-Government maturity. In addition to the factors identified in the literature the key factors include community influence, council associations, and model software and systems applicable to the local government sector. Interestingly, at the local government level little significance is given to the digital divide. At the internal level a key factor, in addition to those identified in the literature, is strategic planning and performance management. A model outlining the factors impacting on local e-Government implementation and maturity can be depicted as in Figure 3. It shows how external factors often impact on factors internal to the council. These inturn combine with other internal factors to determine the direction and level of support for electronic service delivery.
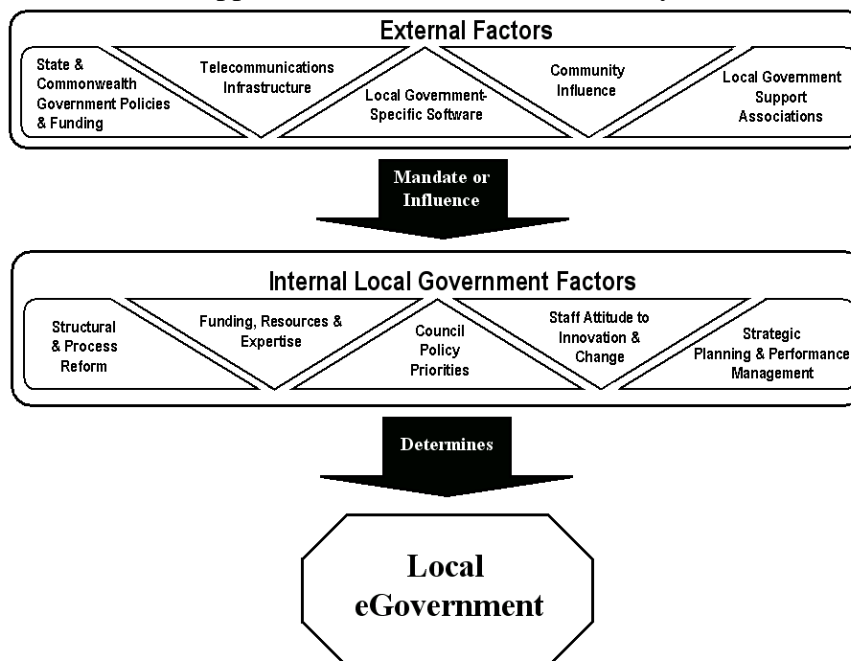
Figure 3 External and Internal Factors influencing Local e-Government

7   Conclusion

This paper reported on the progress local councils have made over the years in e-Government. It reveals that individual councils in the local government sector mature in different areas and at different rates. Moreover, these are not necessarily related to the size or location of councils. While the availability of external funds and other forms of expertise have assisted municipal councils on their path to e-Government, many other external factors and internal initiatives have influenced the extent and direction of e-Government implementations in individual councils. The research identified additional factors and developed a model showing how these factors impact on local eGovernment maturity.

The comparative examination of 20 representative local council web sites found that local councils matured their web offerings substantially between 2001 and 2006 in a number of key areas including: service tracking, online ordering and payment, provision of information relevant to the local community. While this analysis indicates significant maturity more research is needed identify the changes to the nature of those services. Research into the types of services that are important to councils at various stages would also provide some understanding of council priorities at various stages of maturity.

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