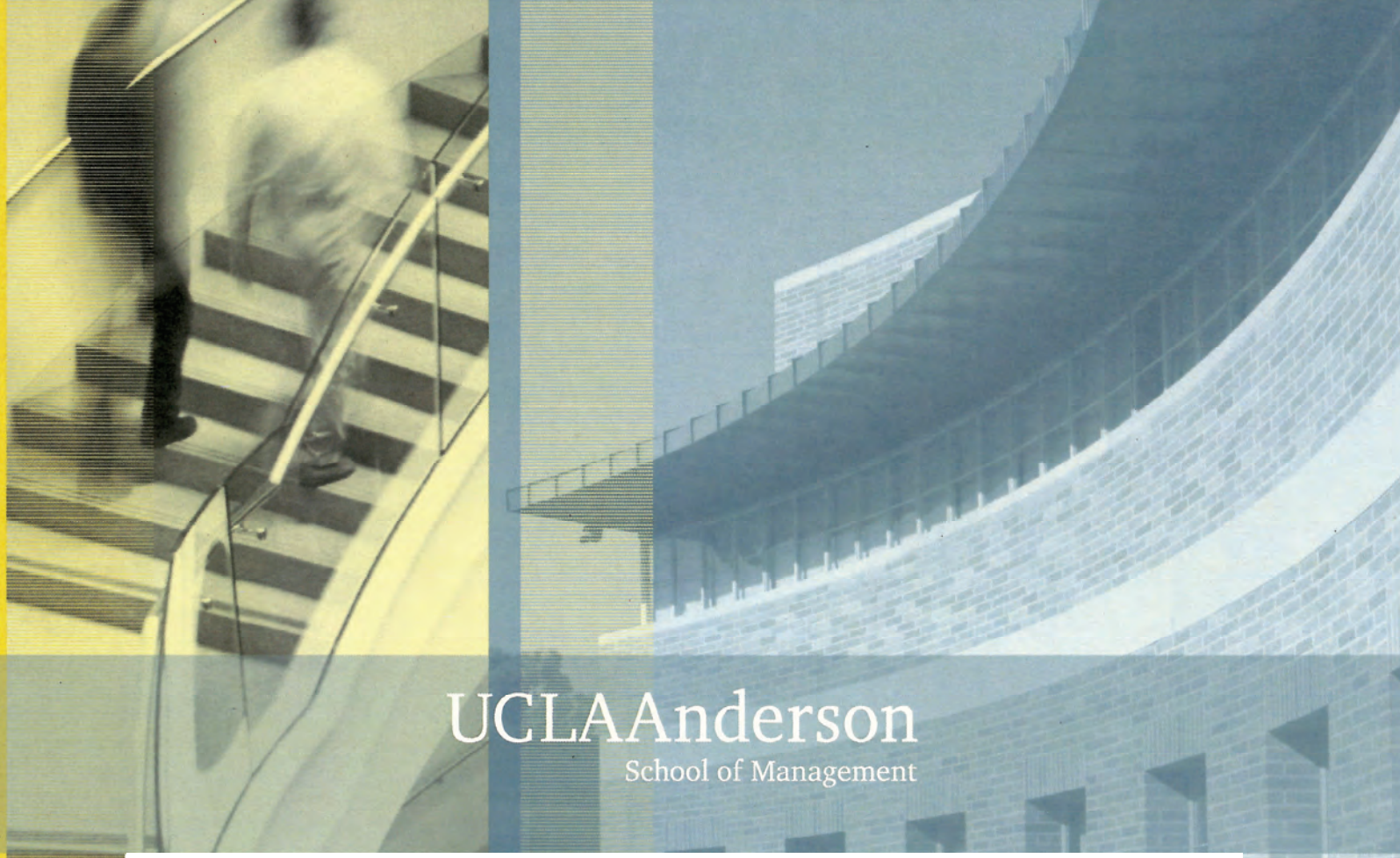

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TOWARDS TRANSFORMATIONAL E-GOVERNMENT: THE ROLE OF THE INSTITUTIONAL ENTREPRENEUR

RANA TASSABEHJI

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Towards Transformational E-Government: The Role of the Institutional Entrepreneur

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Towards Transformational E-Government: The role of the institutional entrepreneur

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Abstract

'New Public Management' (NPM) reforms have dominated public administration for over two decades. Some argue NPM is being superseded by the emergent 'Digital Era Governance' (DEG) focusing on networked, (re)integrated, holistic government and digitalised processes. E-government as the product of NPM, has the potential for transformation to DEG and is the subject of this study. Drawing on literature from different disciplines a holistic understanding of the relevant issues is generated by modifying and operationalising Fountain's Technology Enactment Framework (TEF). The impact of NPM, DEG and the role of the institutional entrepreneur (CIOs) on the enactment of transformational e-government is explored. Individual counties and cities within the States of California and Nevada (USA) are the prime dynamic context for this qualitative case analysis. Our findings reveal a resilience of NPM influence, with DEG becoming increasingly more prevalent. Furthermore, organisational forms appear to be having the greatest impact on the transformation of e-government. It is also evident that while CIOs are acting as institutional entrepreneurs and have an important part to play in enacting transformational change, there is a need to have institutional entrepreneurs in all areas of public organisations to effect transformation.

Keywords: NPM, DEG, institutional entrepreneur, e-government, transformational government

Introduction

Norris (2010) predicts, that in 2020, e-government will not be significantly different from today, providing a similar range of transactions and degree of interactivity as we currently have, with not much e-participation or e-democracy and certainly no "e-transformation". He argues that most earlier analysis of e-government was developed in a vacuum and became the equivalent of wishful thinking and notes that failure to understand prior relevant literature through this so called technological determinism means early predictions were wrong. He suggests that e-government will be largely institutionalised and routinised so that it is no longer e-government but just government.

The prevailing 'model' of e-government currently tends to be focused principally around public information and service delivery through static information and downloadable forms with some transactions, such as filing taxes online - predictably one of the most popular (revenue collecting) public e-services provided. This presents very limited interactivity which differs considerably from early predictions of e-government evaluations and potential benefits. There is therefore significant scepticism about whether e-government is able to evolve through other important spheres towards transformation of government and/or governance.

However, studies of technological innovation and diffusion, of which e-government is an example, suggest that the needs and characteristics of the organisation dramatically affect the ways in which technologies are implemented and the extent of their subsequent impact. More often than not, IT is implemented to serve the interests of those who control organisations and it is thus developed in their own "image". The last decades have provided many examples of how attempts to transform public sector organisations have failed because embedded practices, jurisdictions, bureaucracy, frequently changing senior leadership and complexity of

reforms do not make the public sector conducive to change (Cinite et al, 2009). Changes produced by new technologies are not self-evident, but are inevitably refracted through the lenses of existing institutional practices. E-government has been defined by many public sector organisations in western industrialised nations in peculiarly narrow terms – mainly through managerial control and cost reduction (Chadwick, 2006) influenced by NPM.

Hardy and Williams (2011) note that significant progress has not been made in the field of e-government over the past decade where many programmes and implementations have proven to be disappointing. They fear that this field may not achieve maturity because of lack of focus, limited theoretical progress and poor use of models that do not accurately describe or predict developments. In order to reduce the chasm between e-government policies, goals and aspirations and practice they recommend interdisciplinary and collaborative research that frames the gap between theory and practice as knowledge production rather than knowledge transfer. The aim of this paper is to address these issues on several levels and translate research into practice based on evidence that actively engages with its stakeholders (Hardy and Williams, 2011). Firstly by consolidating the literature from different disciplines, Fountain's (2001) widely accepted Technology Enactment Framework (TEF) is adapted and operationalised to include the impact of NPM, DEG (Dunleavy et al. 2005; Dunleavy and Margetts, 2010) and the role of the institutional entrepreneur (in this case CIOs). This modified framework is then applied in practice to the context of e-government with the backdrop of our analysis being the United States of America and a sample of 8 counties/cities in the States of California and Nevada, to better understand the process of enacting transformational government.

Consolidating the Multi-disciplinary Literature

E-government literature initially emerged from IT practitioners and consultants and from the academic field of information systems/information technology and information management. Much of this early literature was largely influenced by practitioners and world organisations such as the United Nations with an innate politically or commercially motivated bias towards initiating the use of the internet and other advanced computer technologies to improve their governing process (Siau and Long, 2005; Coursey and Norris, 2008). Commentators have identified a lack of clarity regarding the definition of fundamental e-government concepts amongst government, citizens and related stakeholders (Irani and Elliman, 2007; Irani et al., 2005). If placed along a continuum, these definitions can be summarised at one extreme, as Internet technology being a means of delivering more efficient and effective government services; and on the other extreme, as a means of transforming government and governance (West 2004; Grant and Chau,2005). Few studies offer explicit theories relative to its growth and development, and those that do, have been judged to be largely, descriptive, normative and predictive (Hardy and Williams, 2011).

More recently, as e-government becomes more established within public administration (PA), the discipline had taken up the research mantle and the number of articles published in leading PA journals has gathered pace. While there is a reasonable body of management research focusing on public sector management, organisational change and management of innovation, within a context of information technology, there is a dearth of management studies that focus specifically on e-government.

Much of the management research on public sector organisations has focused on organisational behaviour – in particular organisational change, organisational learning and changing roles of different occupations in the public sector. Although not specifically related

to electronic government and digital governance, consistently articulated themes stress the importance of the role of leaders in any kind of organisational transformation or adoption of innovation. Public sector studies have found that managerial capabilities Erakovic and Wilson (2005), attitudes and length of tenure (Damanpour and Schnieder (2006), commitment and support (Cinite et al., 2009) impact transformation in public sector organisations.

New Public Management (NPM)

NPM has been a dominant theme underpinning much of the public administration research over the past couple of decades (Ferlie et al., 2003; Raadschelders and Lee, 2011). Historically, NPM has focused on market oriented public reform and reinvention, results oriented performance, contracting out and privatisation, customer-focused services, more discretion for managers and removal of red tape (Fountain, 2001; Dunleavy et al., 2005; Chadwick, 2006; Raadschelders and Lee, 2011). Thus, ostensibly the public sector could be made more efficient, effective, transparent and provide value for money through such managerial techniques and processes focusing on service delivery and largely ignoring the importance of governance issues (Ferlie et al., 2003). However, more recent studies have become increasingly sceptical about NPM, finding it less able to deliver the improved effectiveness and efficiency in practice which was promised in theory, because the goals and practices largely focused on market-oriented results detached from the institutional and public contexts, undermining accountability to citizens and civil society (Raadschelders and Lee, 2011). The current prognosis is that NPM is now outmoded and highly contestable but shows a high degree of resilience in practice (Ferlie et al., 2003). This however does not mean that it has been eradicated but remains institutionally entrenched in public administration in most industrialised countries that adopted it (Rhodes, 2011), which brings us on to the theme of networked governance, considered to be the successor of NPM.

Networked governance is seen by some as a fight back against "managerialism" where public administration has shifted from bureaucracy, to markets and now to networks and the role of the state focuses on meta-governance of fragmented, decentralised, private, voluntary and public stakeholders rather than direct governance of society (Rhodes, 2011). Others call this policy trend public governance (PG) and have conducted research into the prevalence of both paradigms in a political sphere, finding that both NPM and PG are prominent and co-exist but that PG themes are more popular overall, but NPM being more popular with centre right politicians (Fattore et al., 2012). Ferlie et al. (2003) consider the extent to which public services organisations are, in practice, moving to a post-NPM era an intriguing theme and one which we will be investigating.

Digital Era Governance (DEG)

DEG introduced by Dunleavy et al. (2005; 2006) comprehensively defines the evolution of public management systems from the well-entrenched and institutionalised reforms of NPM to the emerging post-NPM-era government. Consistent with the concepts of networked governance, DEG presents a range of new ideas and reform changes where information systems and technologies take a central role but do not predict e-government utopias, virtual states or digital democracies – which are often criticised as being unrealistic, technologically deterministic and based on "wishful thinking" (Dunleavy et al., 2005; Norris, 2010). DEG is the movement from the disaggregation, competition and incentivisation principles of NPM, to reintegration, needs-based holism and digital changes influenced by increasingly inter-connected new technologies (specifically the internet, social media and more recently mobile), their applications and the emergent groundswell of the online community.

Dunleavy and Margetts (2010) recently reinforced their view of DEG, highlighting the new waves of technology (Web 2.0, cloud computing, the social web, open source) as drivers for

innovating government, considered the second wave re-integration, holism and digitalisation. The end of conventional "digital divide" in advanced industrial countries, are predicted to emerge from this second wave, being replaced by smaller fragmented pockets of "digitally disabled" amongst the elderly, sick, acutely poor or less literature (Dunleavy and Margetts, 2010). The questions for the future of DEG are the impact of the legacy of NPM and the acute austerity pressures, where scenarios range from the atrophying of the State's capacity to carry out tasks net-savvy citizens will increasingly demand to the pressure of socio-economic-political entities moving on-line forcing government to use digital technologies to achieve public sector objectives.

While acknowledging that any change is fraught with complexities, complications and difficulties, essentially the potential for digital technologies to transform government to become more agile, less institutionally complex, more administratively simplified and automated, more responsive to citizens, and more capable of social problem-solving is a view that is shared by many (Fountain, 2001; Chadwick, 2006; Rhodes, 2011; Fattore et al., 2012). Whether and how this can be achieved in reality is contested and will be investigated here using DEG as the all-encompassing concept of networked/digital/public governance – the outcome of transformed e-government.

E-Government and the Technology Enactment Model

Early e-government literature used practitioner-led models largely based on Nolan's (1979) Stage Growth Model hypothesising development from online information → communication → transaction → integration → transformation/participation/digital democracy (Heeks and Bailur, 2007, Tassabehji., 2008). However, this is misleading as the evolution of technology adoption is neither linear nor sequential but is erratic with many overlaps (Ward and Peppard, 2002). Many consider this approach as highly speculative and unrealistic contributing to the

“cyber-optimism” of which so many are critical (Coursey and Norris 2008; Heeks and Bailur, 2007;Yildiz, 2007; Norris, 2010). Established theories such as Davis’ Technology Adoption Model have also been applied to understand e-government adoption (Sipior et al. 2011), but this provides a narrow perspective on a complex multi-paradigmatic issue. Furthermore, E-government benchmarking studies provide comparative indicators of output based on sophistication and range of public e-services, but are similarly limited in scope (Janssen et al., 2004). The contribution of such a body of literature is unable to shed light on cause and effect complexities of digital government in the second decade of the 21st century (Schellong, 2007).

Thus, for our study we have selected the seminal and academically acknowledged framework for understanding the interactions between technology, organisations and institutions presented in Fountain’s (2001) thesis on Building the Virtual State. Strongly underpinned by structuration and institutional theory the Technology Enactment Framework (TEF) provides a lens through which to investigate of the complexities of “bureaucratic politics amid network formation and technological change” (p.83). According to Fountain, the objective form of IT (the Internet), is influenced by the context of its use: the given organisational form (bureaucracy and networks) and existing institutional arrangements (cognitive, cultural, socio-cultural and legal and formal). As a result the objective technology is transformed into enacted technology (perception, design, implementation, use), with outcomes that can feed-back and influence the objective technology, organisational form, institutional arrangement and the enacted technology in a self-reinforcing cycle or a cycle of transformation and change.

While Fountain’s contribution is acknowledged to be valuable in terms of providing a framework for understanding technology-motivated change and the interaction of technology, organisations and institutions, there are weaknesses in this particular framework

(Bretschneider, 2003; Schellong, 2007; Yildiz, 2007). Firstly it is rather too abstract and generalised, making it difficult to use for predicting the behaviour of key actors to determine technology enactment and outcomes. Neither does it address how actors can work together to overcome institutional obstacles to enable change in the functioning of government (Bretschneider, 2003; Schellong, 2007). Arguably, Fountain's original US cases also provide insufficient evidence of the general applicability of the TEF framework (Hoetker 2002; Bretschneider, 2003; Schellong, 2007).

Some of these limitations have been subsequently addressed in a revision influenced by Okumara (Fountain, 2005) where 3 groups of actors are added – namely (A) vendors and consultants interacting with objective IT; (B) CIOs and systems decision-makers who impacted the enacted technology; (C) policy-makers, mangers/administrations, operators and workmen who impacted enacted technology and organisational forms and institutional arrangements. Schellong (2007) made further suggestions for modifications to Fountain's (2005) TEF adding another group of actors (citizens and business). He postulates further interactions between TEF entities and other actor groups. However, these amendments are purely conceptual and quite complex to follow and can easily be rejected through lack of rigorous evidence.

Thus for the purpose of our study, we incorporate the CIO in the TEF and investigate their role as an institutional entrepreneur in the process of enacting technology to influence outcome. To account for institutional change and transformation, most studies focus on institutional entrepreneurship (Wijen and Ansari, 2007). For IT innovation in particular, here we consider e-government to be the innovation, there is a need to shift the research focus on the process and role of institutional entrepreneurs in invoking or creating more favourable institutional arrangements for diffusion of an IT innovation (Wang and Swanson , 2007). In a comprehensive review of institutional entrepreneurship research, Leca et al. (2008) identify

field-level and individual conditions as enabling the institutional entrepreneur which are relevant in this case. At the field level social upheaval, technological disruption, economic and political crises act as catalysts in trying to resolve the "paradox" of institutional determinism - namely, how can organisations/individuals innovate if their beliefs and actions are determined by the institutional environment they wish to change? The economic crisis, policy management change (NPM to DEG) and technological disruption can be seen as enablers in this instance. Individual conditions relate to the process of institutional entrepreneurship involving the mobilisation of resources, including development of alliances and co-operation especially professional, experts and embedded agents (Leca et al., 2008). The failure or success of an IT innovation's launch is reliant on the process of legitimation through discourse and mobilising the community together – each of which was found to impact the IT innovation outcome (Wang and Swanson , 2007). Most of these studies were conducted in the private sector and so whether the role of the institutional entrepreneur translates to the public sector will be investigated in this study.

Recent attempts to apply the TEF in an e-government context, have raised criticisms that technology does not carry objective characteristics in an e-government context, but rather the aims and goals of the e-government policies shape its choice, design and adoption (Cordella and Iannacci, 2010). Cordella and Iannacci, (2010) propose that the overall process which enacts e-government policies is a fundamental and critical part of the enactment process and should be included as an entity in its own right.

Despite these shortcomings, Fountain's work is widely accepted as seminal and setting a good foundation for future research into e-government. For this study, the TEF is adapted to include the impact of e-government policies (NPM and DEG) and the institutional entrepreneur (CIO) for our analysis of the e-government and transformational government

outcomes (see figure 1). The remainder of the paper discusses the operationalisation and application of this modified framework.

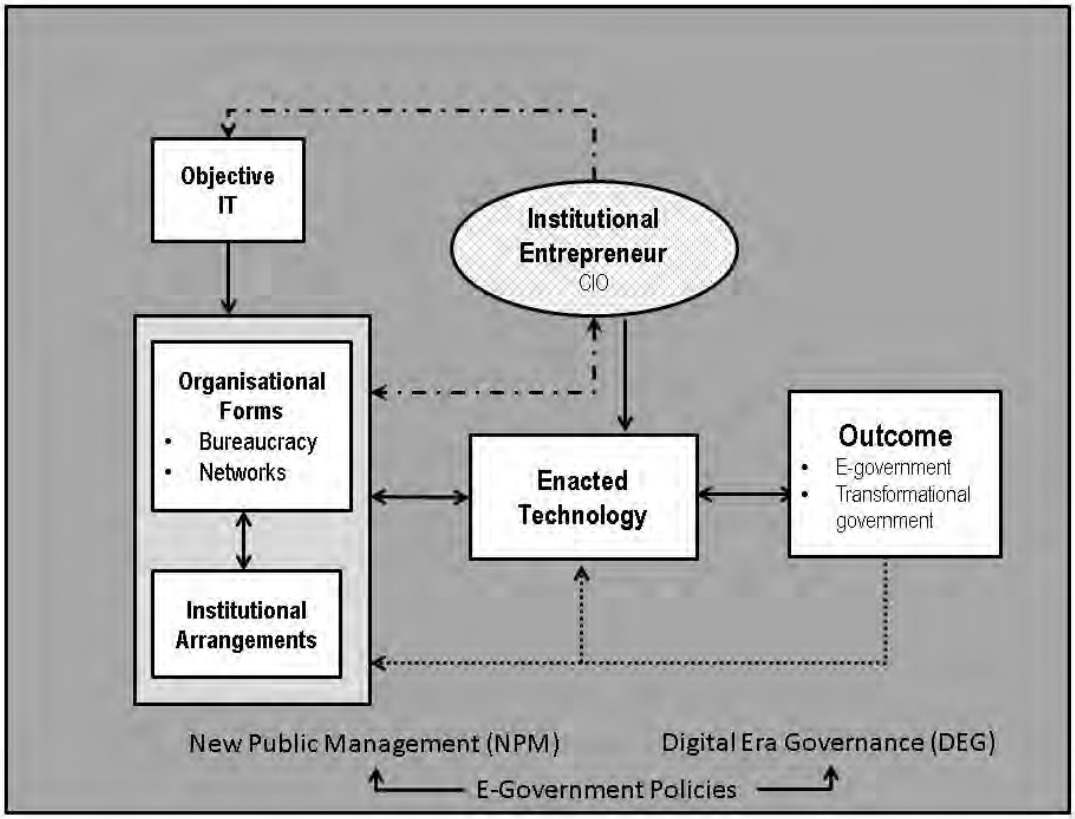

Figure 1. The E-Government Enactment Framework (adapted from Fountain, 2001)

Research Methodology

Our research approach was a qualitative case analysis to understand the process of institutionalising the transformative potential of e-government. We selected the State of California (CA) as our sampling frame due to the size of its economy, population, geographical mass and public sector, the presence of Silicon Valley and successful computing and electronics industry. As a comparison, the State of Nevada (NV) was selected because of its geographical closeness but almost polar opposite in terms of population size

and concentration of “industry” and one of the highest rates of unemployment in the country having suffered severely from the economic crisis.

County government was used as our main unit of investigation, and we selected the top 11 CA (75% of the county population) and top 3 NV counties in terms of population size. County governments are political entities in their own right, and are considered to be “important players in the federal system and beyond” operating inter-governmentally as significant service providers (Benton et al., 2007:972). Not much research has been done on e-government in counties and this study will provide a contribution to deeper knowledge and understanding. We also included one of the largest and one of the smallest cities in CA and the largest city in NV to examine any qualitative differences.

Data Collection

During a four month period (October 2010 – Jan 2011) we collected data from three main sources – interviews, observations and documentation - allowing data triangulation to be achieved to enhance the likely validity of our interpretation (Yin, 1994). All the names of the counties and cities are anonymised to protect the confidentiality of the respondents.

Interviews

Chief Information Officers (CIOs) hold the remit for designing and implementing e-government and effecting related reforms (Clinger Cohen Act 2002), and were selected as institutional entrepreneurs for our study. County Chief Administration Officer (CAO)/CEO responsible for implementing local policy directives were also contacted to request interviews.

Of the 17 respondents contacted, 6 CA CIOs and 1 CA and 1NV City CIO agreed to be interviewed. Only two CAOs initially agreed to our requests for interviews, but both

cancelled having later found out we had an interview with the CIO. We were informed they could add nothing further and that the CIO was the relevant person. In total we interviewed 8 CIOs on a one-to-one basis with each of the interviews lasting between 1-2 hours. In addition we interviewed 10 key players such as e-government managers, GIS/E-commerce developers, and others responsible for e-government. All interviews, with one exception (where detailed notes were taken), were transcribed verbatim generating considerable data. The interview protocol included several open ended questions eliciting respondent views on the current status of e-government services; "theoretical" meaning of transformational government and its practice in reality; their role in the process; e-government performance metrics and measures; institutional/organisational factors and issues preventing/promoting transformation.

Observations

Observations of each of the respective unit's e-government websites were made. Two researchers reviewed all the websites and identified a common set of services provided across all the public websites (to counter any local environmental bias). Modifying the benchmarking literature, we developed a notional score for each of the services according to the degree of sophistication of public e-services and level of integration where levels 1-3 are considered to be provider-led fixed systems and processes which form the basis of e-government and levels 4-5 are citizen-led dynamic systems and processes demonstrating the beginnings of transformation to DEG. Levels are,

(1) information only, static information about a public service is available online. Dispersed services over different websites
(2) one way interaction from the government to the citizen where forms are available to download but process offline (for instance registration forms)

(3) 2 way interaction where users can submit and receive a service based on a fixed pre-set process (for instance payment of bills online, submitting planning applications). Co-ordinated services accessible through a single portal but not integrated.

(4) dynamic citizen led transactions where citizens request and receiving the public. services on demand (for instance using a mobile device to request a service immediately such as reporting a pothole or graffiti, where the citizen takes a photograph which is GPS tagged and uploaded via the device to the service provider. This raises an incident which the public service provider who then responds and this progress is reported and tracked online. Seamless integration of systems to solve a life event.

(5) citizen consultation and involvement in the democratic process of governance (for instance citizen consultation on policy changes)

An additional measure, "Agency", was included to highlight the number of services where the citizen was linked to an external website to access the service requested. The data from these observations were charted to provide a comparison between the different entities. They were not intended as a scientific measure of advancement, but a representation of the state of e-government and thus the "outcome" in our framework. The data was collected in one week in January 2011 and represents the status of e-services being offered by each of the respective public entities via their websites at that specific point in time. The findings are discussed in more detail in the following section.

Documentation

The public sector produces a large amount of textual output of written and verbal communications in the form of policies, speeches, agreements etc. This is an important factor in legitimising government activities and demonstrating accountability to citizens. Despite this, very few public sector studies have used content analysis methods, and textual analysis

in particular (Fattore and Dubois, 2012). This method is used in this study. Data was collected by searching each county/city website for e-government related material up to October 2010. This process yielded a very large number of records (over 100) which were pooled and evaluated for deeper relevance. These were then filtered to 56 documents including policy documents, strategies, speeches and committee-meeting minutes that were directly related to e-government and were in a rich enough context to enable analysis. One of our CIO interviewees stressed that the notions underpinning e-government are accessible through these web based documents, *"I would say it [e-government] is on our webpage it is in all our policies and in our committee speak"* supporting the link between documentation on the website and institutionally applied e-government. A search was also made of each of the individual CIOs to gauge their standing within the community bolstering their role as an institutional entrepreneur.

Data Analysis

The data was analysed in three steps to operationalise different parts of the modified TEF.

Operationalising the Outcome

First we analysed the websites of each of the respective government entities and produced a comparative review of their e-government status as it stood in January 2011, summarised in figure 2. It can be clearly seen that Romeo county is the least mature in terms of public e-services with the majority of services not being online or informational. The one instance of level II services resulted from the property boom and demand for building services prior to the crash. Mike and Sierra had the most mature range of online services, with Sierra and to a lesser extent Oscar County having a large proportion of Level III services. Mike had achieved e-participation by providing facilities for online citizen consultation for local decision-

making. Lima city was also a leader in terms of sophistication of services where citizens could dynamically report requests for public services through mobile devices.

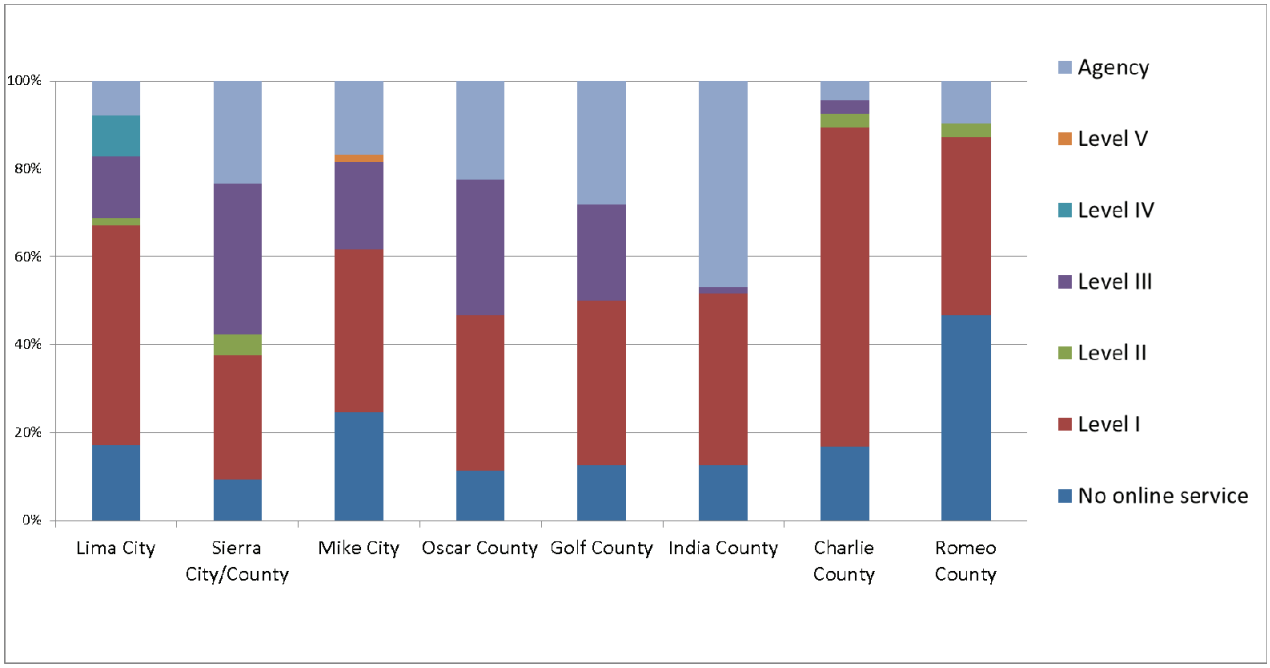

Figure 2. Comparative Status of e-government in Selected Public Sector Entities

From these findings, the Outcome of our modified TEF framework is operationalised as follows:

(1) Successful: Sierra, Lima and Mike are considered to be “leaders” with some evidence of transformation.

(2) Limited: The counties of Oscar, Golf, India, and Charlie are considered “average” with no transformation and only e-government services

(3) Failed: Romeo County is “underdeveloped” with only rudimentary e-government.

Operationalising the TEF and E-government Policies

Each of the 56 documents was re-read carefully and all sentences that referred to e-government issues were extracted and coded with a two level coding structure that was both *etic* and *emic* (Wang and Swanson, 2007). Using this approach provides insight into the way public sector organisations themselves understand e-government. The first level categories, *etic*, developed from the TEF literature identify constituents of objective technology, organisational forms and institutional arrangements leading to the enacted technology – in this case e-government (see table 1). We reviewed each of the documents line-by-line for references to institutional arrangements, organisational form, outcomes and technology to provide an *emic* level of analysis. Following the protocol of Fattore and Dubois (2012) we generated a relevant root of the word that referred to the *etic* category. Each root was used to identify the phrases and their attribution into each category was made in accordance with the contextual meaning. In order to limit errors inherent in the subjective process of classifying the sentences, two researchers worked independently in the attribution process and where disagreement arose (after accounting for errors and omissions), these were discussed until a common view was achieved. The relevant categories and roots are summarised in Table 1.

Table 1. Word Roots Associated with TEF concepts

To determine the coding for NPM and DEG, we drew on the NPM/DEG literature and Fattore and Dubois' (2012) respective coding of related word roots, where their "public governance" is consistent with DEG concepts. The contextual analysis of DEG identified two categories: reference to the process of transition to DEG and actual features that would encapsulate DEG (see table 2).

Table 2. Word Roots Associated with NPM and DEG

Having established the categories and root words relating to the TEF and DEG, the pattern of these categories across the sample counties/cities were examined by looking at their frequency of mention as a proportion of the total sentences extracted. The major objective of this study is interpretive and comparative and is not intended as a statistical study. Thus the frequency of occurrence of specific concepts relevant to the enactment of e-government in each of the specific government organisations provides an overview of their predominance in each setting. These are illustrated in figures 3-4.

From the analysis of the TEF categories, technology emerges as the most prominent aspect of e-government, for Sierra and Lima with organisational form and institutional arrangements the least prominent. For Mike and Oscar organisational forms were less prominent than institutional arrangement but for India and Charlie, organisational forms were most prominent. Interestingly, both Romeo and Golf County had a relatively equal distribution of prominence in terms of institutional arrangements, organisational forms and technology in their e-government documentation.

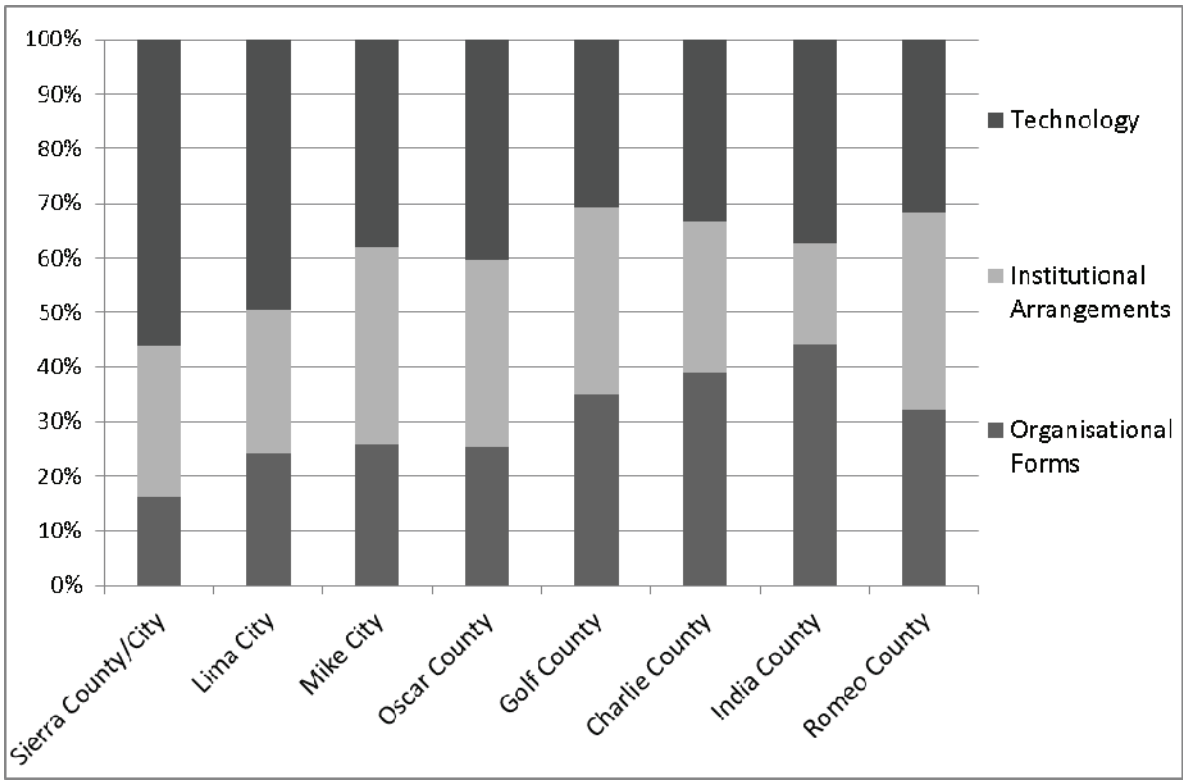

Figure 3. Prominence of Technology Enactment Framework Categories in eGovernment Documentation (by entity)

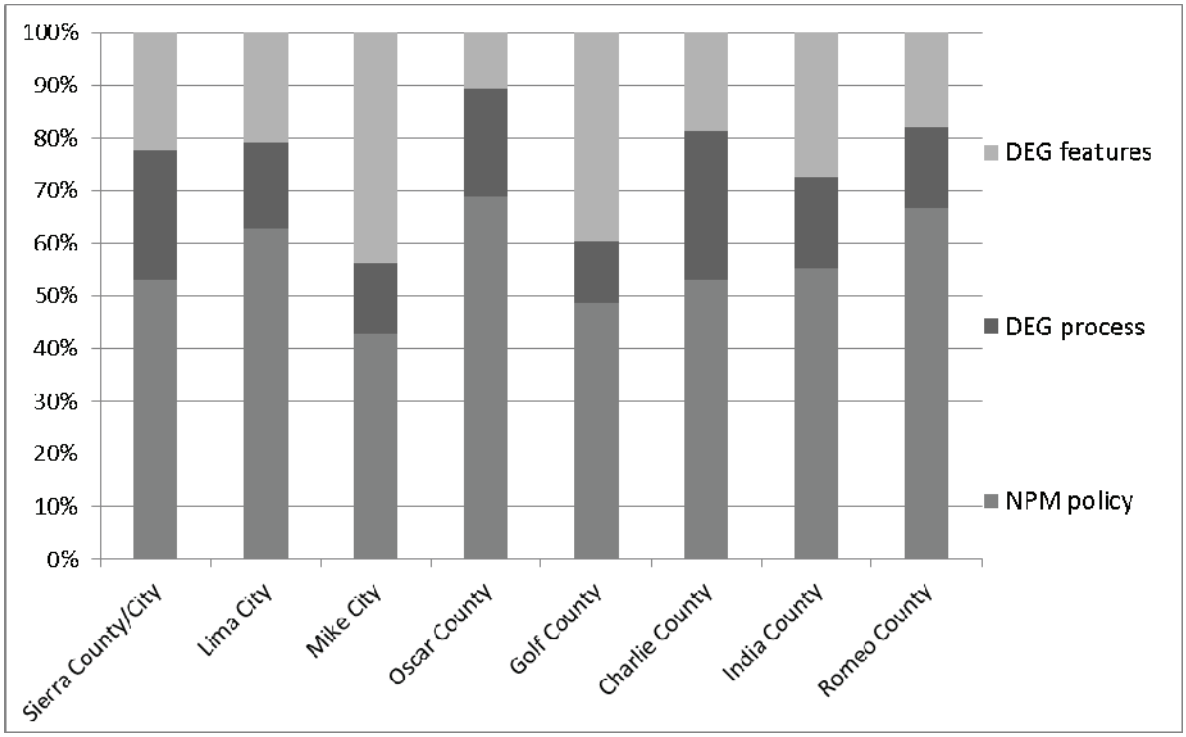

Figure 4. **NPM and DEG Influence in e-government Documentation (by entity)**

The Institutional Entrepreneur

The next stage was to evaluate the role of the institutional entrepreneur. The transcribed interviews were coded based on concepts related to community mobilisation and legitimisation through discourse as identified by Wang and Swanson (2007) and further elaborated by Leca et al. (2008). The coding was based on a qualitative understanding of the concepts of mobilisation and legitimisation by the institutional entrepreneurs in this case the CIOs. Examples are included in tables 3-5 where each table represents the Outcome assessment of e-government made earlier. – successful, limited and failed.

*****Table 3. Categorisation of Community Mobilisation and Cognitive Legitimisation by the Institutional Entrepreneur (successful e-government)**

*****Table 4. Categorisation of Community Mobilisation and Cognitive Legitimisation by the Institutional Entrepreneur (limited e-government)**

*****Table 5. Categorisation of Community Mobilisation and Cognitive Legitimation by the Institutional Entrepreneur (failed e-government)**

Using a similar protocol as above, the frequency of the coded concepts relating to institutional entrepreneurship activity for e-government were aggregated and charted in Figure 5. This illustrates the comparative degree of institutional entrepreneurship demonstrated by the number of times examples of community mobilisation and legitimisation were mentioned. This is not intended to be scientific but is comparative and notional based on the interpretation of the data from the interviews.

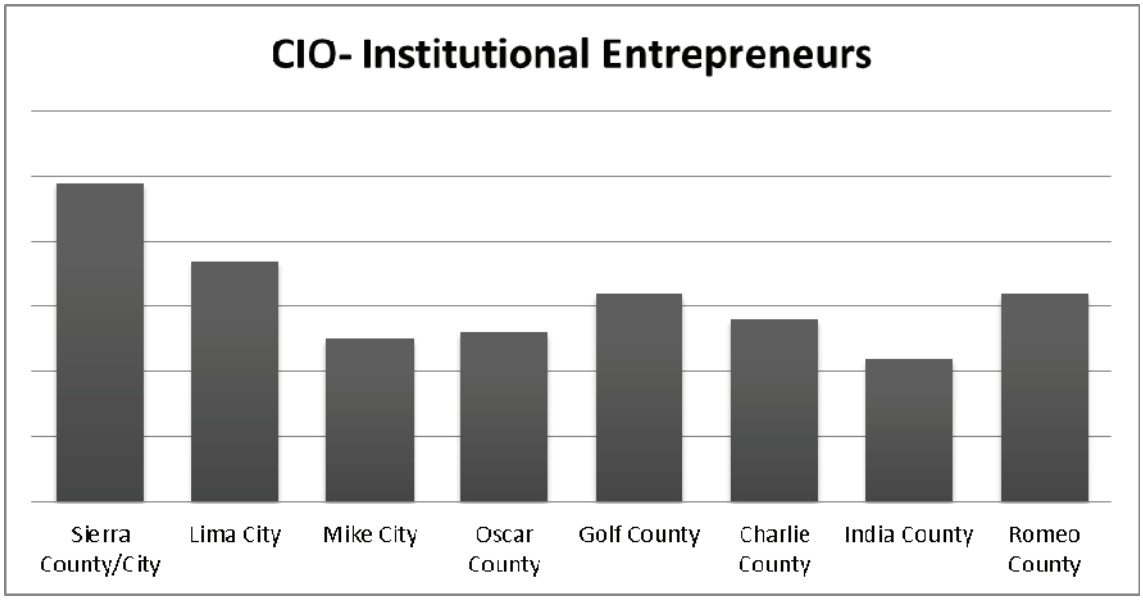

Figure 5. Comparative CIO Degree of Institutional Entrepreneurship All the CIOs demonstrated institutional entrepreneurship skills and understanding of the need to mobilise communities through leadership and focusing members' interests and also legitimation through coherent organisational vision and success stories. In addition to the interviews, we

also searched the internet to establish the degree of legitimation by the number of references and articles on or by the respective CIO and legitimation through their standing in the community by examining the number of Linked-in connections. The pattern largely mirrored that of the above chart and again is a comparative and notional overview of the external standing and potential legitimation influence of the respective CIO.

*****Table 6. External Standing of CIOs**

The CIOs of Sierra and Lima showed very strong signs of institutional entrepreneurship particularly in the mobilisation of community where they were very close to the powers that allocate budgets and other resources and were highly engaged in the process of ensuring the community understands the issues related to e-government and the potential it can deliver. All CIOs were aware of the importance of legitimation through coherence of vision and success stories and where e-government had "failed", there was no evidence to provide internal success stories and the CIO was in the process of trying to acquire these.

Discussion

All the results compiled from the constituent parts of the modified TEF that were operationalised and analysed above are presented in figure 6 as a conceptual overview of the predominance of different elements in the process of enacting e-government in the selected public organisations[1]. The public organisations are grouped according to their outcomes: (Sierra, Lima and Mike are relatively successful in terms of diffusion of e-government with some signs of transformation. Oscar County, Golf County, India County and Charlie County are similar and are typical of Norris's (2010) characterisation of e-government offering

[1] Although the sample size (n=8) is far too small to be of any statistical significance, Pearson's correlation tests were conducted to determine any correlations between the different constituents of the modified TEF. Strong correlations resulted between outcome and (a) organisational form ($r=0.789$, $p<0.05$), (b) to a lesser extent NPM ($r=0.701$, $p<0.05$) (c) technology ($r=0.718$, $p<0.05$). Correlation between technology and NPM ($r=0.755$, $p<0.05$).

limited information and transactional services with no integration. Romeo County is considered to have failed in diffusion of e-government.

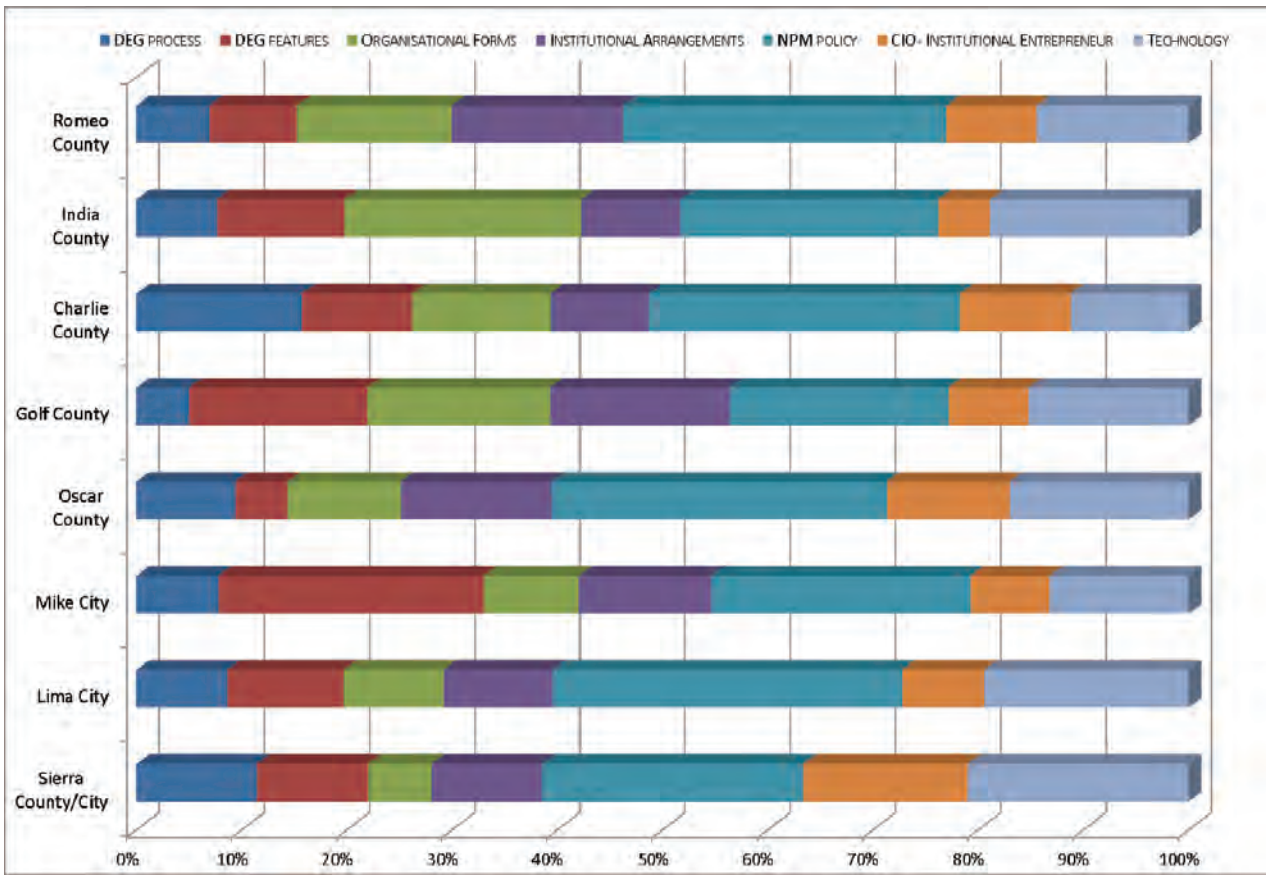

Figure 6. The Influence of Technology Enactment Factors on E-Government in the US

Our findings suggest that the influence of NPM in e-government policy is still considerable and suggests that e-government, as pessimistically characterised by Norris (2010), is a product of NPM. Whether this is a remnant of old reforms or whether NPM remains the foundation of e-government policy directly influencing the enactment of digital technologies can only be evaluated in a longitudinal study over at least the next decade.

Our study confirms in the US, the progress of the wave towards digital era governance (Dunleavy and Margetts, 2010) articulated in the language of public institutional documentation. The prediction of an ending to the conventional digital divide is also confirmed by the majority of CIOs sampled, where the digital divide was considered “not an issue” anymore with only pockets of “digitally disabled” amongst the elderly, sick, acutely poor or less literate. CIOs predicted this would be even further reduced by mobile access to e-government.

Looking at the core TEF framework, organisational forms appear to be more prevalent in influencing e-government development in the organisations where the e-government outcome has been less successful. Where there has been successful e-government diffusion, organisational forms consistently appear to be less prevalent in the overall process. While theoretically organisational forms are the most important influences on technology enactment (Cordella and Ianucci, 2010), our findings suggest that where they are more predominant, they act as a hindrance to the transformation of e-government, confirming the crucial role they play in the transformation process.

In comparison, institutional arrangements appear to be less prevalent than organisational forms, but play a consistent role across all organisations. Where institutional arrangements were comparatively more prevalent than others (Golf and Romeo County), qualitative evidence suggested they were experiencing much resistance to change, the culture was largely anti-e-government and anti-digital technologies and in these instances the design (or lack) of e-government was reinforcing existing structures of entrenched power and control (Fountain, 2001; Chadwick, 2006) resistant to transformation.

Overall, all the CIOs demonstrated institutional entrepreneurship skills and articulated the need to mobilise communities and legitimate e-government through discourse in order

achieve successful outcomes. This confirmed the private sector model of institutional entrepreneurship (Wang and Swanson, 2007) for the public sector. Of those that were successful, they had been able to a marshal support, develop and mobilise allies, and focus the attention of a myriad of stakeholders, while at the same time developing a coherent vision and broadcasting success stories throughout the country and beyond. In fact, all the CIOs identified the same CIOs as “leaders” (mainly Sierra and Lima) underlining their external legitimacy. Where e-government had failed, this was largely as a result of the institutional arrangements and organisational forms that had disabled opportunities for community mobilisation and opportunities for discourse.

In order for a change to be effected and e-government to achieve its transformative potential, there is also a need to have institutional entrepreneurs in all positions and department of the complex organisation not just the CIO and this provides opportunities for further research.

Based on these findings, we can also modify the overall conceptual model of how e-government is enacted, to incorporate the role of the institutional entrepreneur (figure 7).

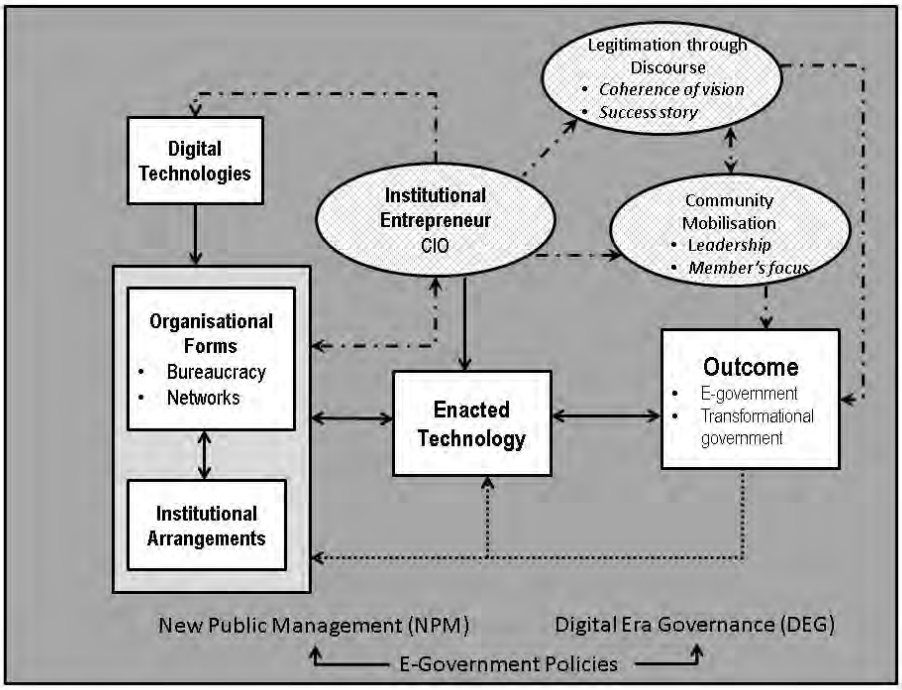

Figure 7. The Institutional Entrepreneur and the E-Government Enactment Framework (adapted from Fountain, 2001 and Wang and Swanson, 2007)

This study is an interpretive and qualitative case study based on 8 sampled cities/counties in the US and respective CIOs and thus cannot be said to be generalisable or representative of the whole institution of government or governance in the State or country, and this was not the intention. The case study presents an example of operationalising and applying the TEF as a lens for understanding the enactment of technology in the context of e-government. From these findings it would be difficult to predict whether the institutional entrepreneurs can influence transformation to DEG and a longitudinal study would be useful to track any trends and changes. The research was conducted in a time of severe economic crisis and limited public budgets. Rather than being a negative, this is seen as potentially fertile ground for transformation (Leca et al., 2008). Future research could build on the measures of evaluation developed here and formulate statistically sound metrics to measure the impact of different constituents of TEF. The role of other institutional entrepreneurs within public

organisations can be further investigated to evaluate similarities of entrepreneurship processes and their impact on government transformation.

Conclusion

From the literature, there appears to be a consistent articulation of pessimism which impacts transformational development in public sector organisations. This mirrors Norris' (2010) pessimism about transformational e-government, with warnings that achieving fundamental change is extremely difficult and there must be caution against the over-optimistic hope of public sector reform and their advocates.

Addressing Norris' (2010) criticism that e-government research has tended to expect transformation of governance through technological determinism, we have illustrated some the different influences and factors that are at play in this context (figure 7). We confirm Fountain's (2001) TEF in the context of e-government and posit that while institutional entrepreneurs play a central role in the enactment of technology, institutional arrangements and organisational forms are often more influential in preventing that technology from being enacted in an alternative more transformational form. E-government in its current state, is a product of NPM policies and the drive for efficiency, effectiveness and cost savings, and citizen centricity, but there are also signs of DEG influence beginning to diffuse into the public institutional language of the organisations studied.

From this study NPM and organisational forms seem to be having the most impact on development of e-government. With the demise of NPM and witnessed rise of DEG this may be the catalyst to change, however, this alone cannot effect that change and in the current turbulent economic and political climate it might be that public sector institutions driven by citizen demand and changes in communications and transactions in wider society will be

more motivated to adopt changes– but turning the tanker that is public institutions will take time.

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Towards Transformational E-Government:
The role of the institutional entrepreneur

TABLES:

Organisational Forms	**Institutional Arrangements**	**Technology**
bureaucratic/bureaucracy	govern(ment)/Board	privacy
Rules/files	political	data
Hierarchy	policy	social (media/networking)
Jurisdiction	legal/legislation	website
standardisation	State	web 2.0
regulation	***culture***	web 3.0
agency		twitter
department		cloud
committee		mobile
control		facebook
Networks		Blogs/Discussion boards
Trust/Exchange		
interoperable		
support		
***Italic* – "etic" categories derived from the literature** Non- italic – "emic" roots derived from the data		

Table 1. Word Roots Associated with TEF concepts

DEG process	**DEG features**	**NPM policy**	
Transformation	collaborative	budget	transparency
Change	share	costs	internal (efficiency/effective/BPR)
innovative	participatory	efficient	private (sector)/outsourcing
modern	collective	effective	customer
new	consult (ative)	non-profit	external (partners)
R&D	network(ed)	profit	productivity
simplification	integration	management (public)	audit
creativity	communication	administratio n	professionalisation
entrepreneurial	community	performance/ best practice	competition
	open	measure	
	partner	financial	
	cooperation	service	
	coordination	satisfaction (customer)	

Table 2. Word Roots Associated with NPM and DEG

CIO- Institutional Entrepreneur (Successful E-Government Implementation		
Mobilisation of community		**Textual Examples**
Developing and recognising leadership in the organisational community	Leadership	*When it comes to government however, we have an amazing leader the current mayor because he understands the transformative power of technology and is unafraid to try things*[1] *I am a change agent and want to make things better and more rational*[1].
	Innovative/creative	*I am never going to win the political battle, ever, so I have to change the rules of the game*[1]. *all I am doing is throwing that bowl of spaghetti on the wall over and over and over again and watching whatever sticks – regardless of whether it is actually going to be what I want or will have the most impact … because when you are dealing with such … stove piped independence within the government - I can't force them …I have to find a third and alternative way to give them something exciting and will make them look good and by the way help me, underneath the radar we build the technology … and slowly but surely I can get everybody into the funnel* [1] *I don't even know if a lot of folks ever realise that by the way there is a community out there* [3] *So we couldn't proportionately grow the city and our services at the same rate as the citizens were coming in and trying to provide those services so the infrastructure had to be here and considering the infrastructure you are talking about traffic lights to medical services so we had to get innovative in how we were going to deliver*[3]
Marshalling resources by persuading community members to focus attention on the innovation	support	*We have a great deal of support from city council and the support trickles down from there to the city manager's office*[4] *The biggest advantage I have is the mindset that you are hearing in all this. I have the freedom to have that mindset because my boss allows it and it is extremely rare*[1]. *I have direct control over … budget and the like which also allows me to be a little different than other directors because I can be an entrepreneur if I choose to be, which i choose to be. So I can recommend policy and adopt budgets for self-sustaining activities*[4] *he spent about 18 months turning the organisation upside down and I am not just talking about IT, but I am talking about the entire city making folks think differently before we ever put the first code line down to try and get a vision. I thought he was going to get my butt fired to be honest with you.* [3] *the citizen as part of the process and actually in some cases part of our solution. As well as our own internal users, we call them citizens and we have turned everything back to them.* [3] *We have a city manager that's not only embracing it but she is encouraging it and supporting it.* [3] *I had a conversation for 2.5 hours with Chief of Police and the Detention Chief about 8 years ago to convince him that he had a relationship with leisure services and once he started to realise those kinds of things the light came on.* [3] *We had the city manager who used to be a pilot … I was in the air force, i was a pilot too – our vision was the same and I understood where he wanted to go and had already done that before in the private sector, so I had a lot of support*[3]
Cognitive Legitimation		**Textual Example**
Coherent organising vision for the innovation	vision	*He matches the culture of the city and pushes all of us – he doesn't care if we fail, obviously within reason, but he keeps pushing us.*[1] *There has been a continuum of leadership and there is vision and planning long term. Another part of this is that I have been with the city … for 31 years so there has been a continuum of care my initiatives and my programmes really haven't [changed] and I have had an opportunity to build the short term view and build a much longer term view too and I have had the opportunity to be here and had the patience and fortitude with which to finish those projects which were envisioned years ago. I think that's really what makes a lot of the difference.*[4] *we sort of got a vision and I went out looking for someone and [e-gov officer] popped up … we were probably first on the block with an e-government officer in*

		municipal government … we were the top government websites in 2008[3] *e-government can't be talked about as a product its delivering, its a state of being, its a culture. In this organisation it is a culture, we don't build anything that doesn't integrate with everything else and with the customer in mind.*[3]
	strategy	*The worst thing we can do is just keep doing the things the same way. Keeping things the same is not an option for this city* *I need to get the mayor to make an executive order that calls for consolidation of services and operations and standardisation of how we do it and simplifying it so that our citizens as well as co-workers as well as tourists or anyone else coming in has a uniform common way of dealing with the city … That was the goal and I developed a 5 year plan to do that.* *I have come up with plans and strategies and have had to talk my heart out on PowerPoint presentations*[1]
Incorporation of definitive success stories from users and vendors in the organisation vision of the innovation	Understand Engage Learn	*I don't have any good data to say whether I am having an impact, all that I know is that I am doing stuff and people are looking to our city as a leader and I don't know exactly what that means other than we are doing a lot of different things and talking about it and becoming a sort of thought leader if anything*[1] *… we were the top government websites in 2008*[3] *but I am an Oracle showcase and the only municipal government that is an Oracle showcase* *So I am measuring everything we do … once we had proven ourselves, they were very happy to throw everything back over the wall*[3]
1 Sierra City/County ; 3 Lima City ; 4 Mike City ;		

Table 3. Categorisation of Community Mobilisation and Cognitive Legitimisation by the Institutional Entrepreneur (successful eGovernment)

CIO- Institutional Entrepreneur (Limited E-Government Implementation)		
Mobilisation of community		**Textual Examples**
Developing and recognising leadership in the organisational community	Leadership	*The CEO understands [technology] … he has been here a year … partnering with some consulting professors … at the University centre for leadership and transformation… to help start putting rapid transformation methodology in place here. There are efforts going in parallel … it's not just the IT people but the business people that have to come to the table and its taking us a while and we're getting some experts in because I don't feel this is the skill sets that we should have*[2] *I don't think the people that can answer those questions are the technology people. I think the transformational side needs to come from the business side they are the ones that identify the transformational changes.* *In the past the more successful projects have been the ones that have been driven by the business. If you don't have that and it doesn't come from that side then it is like what I call pushing a string.*
Marshalling resources by persuading community members to focus attention on the innovation	support	*we convinced the CEO and the CFO that ... and then we went out and talked to all the agencies … they got up in arms and went and told the CEO we don't want this and so there was a backlash ... they said nobody else can do it, … and that is where it died basically*[5] *I am trying to move the sponsorship … from the CIO to the business and involving the assistant CEO and other agency directors is the way we are trying to achieve that, they really need to own it .*[5] *for e-government … we are really trying to get that high level of sponsorship and visibility*[5] *we took a social media policy to the board we tried to get approval for blogs and chats in communities and there was a huge amount of resistance so we ended up backing off and we now allow only moderated blogs and discussion boards which is not truly engaging the public.*[5] *You try very hard but with very little success, because you are trying to evangelise and when you start talking technology and people don't understand technology then you cannot tie it to the business value for that transformation. That's where a lot of projects fail.*
	frustration	*In government you live with a lot of pain but you just put up with it – there is no one going to change anything. So this gave them hope that they had a voice*[2] *I don't have the authority to ensure that the solutions they go off and find are approved in some way and that is a frustration. In the past leadership has focused on the wider remit for telephony and data centres and that's it and then there has been a lack of leadership here for IT for the last 5-6 years,*[5]
Cognitive Legitimation		**Textual Example**
Coherent organising vision for the innovation	vision	*We are in silos, we are federated we are a conglomeration of department – even though I am county CIO I don't have responsibility over everything. I have it here and there am responsible for all the "ugly" stuff, security .. yes, policies .. yes, and key enterprise applications but … we have to work together … as best as possible but the prior county executives didn't really understand technology – it's a website.*[2] *It is no longer about the technology but politics and policy – it is about control that's what it boils down to – I want to control my own destiny and the culture in our own county is totally autonomous agencies that prevails*[5] *When we first introduced the egov term many of us felt we have to change how we do business inside and then it will be easier to work with the public – but people just didn't hear it*[2] *The CIO's role is really to try and make some sense of the chaos that exists, it really is an anarchy to be frank about it … a good number participated in creating the vision, and strategic plan … but we have not been able to progress beyond that because of reasons of control and lack of funding – so my role is to create the vision then cajole people to move in that direction.* [5] *The entire design philosophy is to organise the [e-government] content based on constituents' life events,… It will happen organically from the bottom up .. but it is a*

		long haul from here."[5] *I have accomplished at least a shared vision but I don't have the authority to influence decisions beyond that. We are working on it, there has been a management audit and this has suggested that the CIO would have a much broader authority , but it remains to be seen.*[5] *So transformational government from an e-government perspective I think coming up with a clever way to use some of these new technologies to engage the constituents – I think that's the magic formula that we are trying to understand how to do that* [5] *E-Government is a journey not a destination*[7]
Incorporation of definitive success stories from users and vendors in the organisation vision of the innovation	Understand Engage Learn	*A good study is the province of Ontario where they went away from multiple municipal government to a metro government [mandated by federal government] It will never happen here in California*[5] *the biggest stumbling block is the amount of effort by key people having to work towards educating business people*[2]
2 Charlie Country ; 5 Golf County; 7 Oscar County		

Table 4. Categorisation of Community Mobilisation and Cognitive Legitimisation by the Institutional Entrepreneur (limited e-government)

CIO- Institutional Entrepreneur (Failed/ Underdeveloped Innovation)		
Mobilisation of community		**Textual Examples**
Developing and recognising leadership in the organisational community	Leadership	*It is very frustrating it is like a vicious cycle. How do you break the cycle. Well I think in better financial times we would have done it and already broken the cycle*[6] *I don't believe e-government is a luxury, I know at least 3 of the 5 board members were very much would like to provide more services over here, but they are at the point where they see an employee in front of them in tears and in my mind they are making the right choice. Another person in the employment line is not going to get us where we need to go and that kind of a need is so immediate as opposed to what we might be able to do in 6 months in delivery of services.* *All the board members have been briefed from me that they had better be ready to hire the 12 year old with a cell phone in one ear and an ipod in another and these kids don't have any patience they won't wait, they are used to getting things now and having access to everything and if we don't have a working environment set up they will go somewhere else, they won't stay.*
Marshalling resources by persuading community members to focus attention on the innovation	support	*if you deliver it to them in the right form they can be pretty supportive. Now they don't have anything to be supportive with.*[6] *We have an government task force that has not met in the last year and it has been strictly because of the lack of funding.* *We had a very strong e-government project to put in a full blown portal with a lot of ideas for apps to deliver services and I could not get funding. I mean for the last four years I haven't been able to incur a dollar towards e-government.*
Cognitive Legitimation		**Textual Example**
Coherent organising vision for the innovation	vision	*'show me it works and I will follow you to the end of the earth' is the kind of attitude they have but they are not quick to appropriate money to a concept. They believe in seeing concrete evidence – if you deliver it to them in the right form they can be pretty supportive. Now they don't have anything to be supportive with.*[6] *There is so much we can do, there is so much*
	strategy	*It had been our original plan we had organised a very comprehensive group that involved all of our department heads and interested parties even if they weren't in management to help us design a portal all with the idea that if we delivered a service at the counter then we ought to deliver it electronically for those that chose to use it.* *That's unfortunate that we have not been able to realise that*
Incorporation of definitive success stories from users and vendors in the organisation vision of the innovation	Understand Engage Learn	*when it comes to e-government its somewhat of an unproven concept to them. they really aren't sure [it will be used] because we haven't had the major success where I can go and say "wow, I saved $200K costs annually offset by this $100K project.* *There haven't been those kinds of things that would firmly implant them to invest in the future.*[6] *And by giving the board … metrics they realise that these extraordinary costs I have to pay for software still make sense as high as they are when applied to the potential lost productivity across county wide when there is an interruption*
6 Romeo County		

Table 5. Categorisation of Community Mobilisation and Cognitive Legitimation by the Institutional Entrepreneur (underdeveloped e-government)

	Sierra	Lima	India	Mike	Oscar	Charlie	Romeo	Golf
Linked in Connections	500+	210	156	98	0	0	31	177
Google Search (hits)	8.3 million	1.55 million	269 thousand	212 thousand	49 thousand	407 thousand	8,060	3,110

Table 6. External Standing of CIOs