Preface: A Reflection of the Past, Present and Future of E-Government Research

EXECUTIVE SUMMARY

Government and industry e-commerce agendas have become more closely linked in recent times and more people are now less tolerant of poor, impersonal service in the public sector as they become aware of the power of the web and experience good service in the private sector. With the advancement of Information and Communication Technologies, electronic government (e-government) has emerged as an effective means of delivering government services to citizens. It is in every government’s interest to make their public services more efficient and available in order to gain citizens’ trust, which has often eluded many governments and political leaders in modern society. While e-government has already established itself as the primary enabler for transforming the way government services are offered to citizens in developed countries, it is now beginning to show promising results in many developing countries. This article offers a reflective account of the key research themes that have emerged in the last few years in the International Journal of Electronic Government Research and in the wider published domain. The article suggests that e-government research has evolved from initially focusing on strategy and implementation issues to later examining adoption and diffusion of services from a citizen perspective, followed by exploring technical complexities of implementation and finally to the current studies of transformational government.

INTRODUCTION

Electronic government (e-government) can be broadly viewed as the adoption of information and communication technology (ICT) in government organisations to improve public services. For many countries, e-government implementation efforts began in the late 1990s. The e-government led implementation of ICT in public administration during the last ten years has offered better, faster and more transparent means for citizens and businesses to interact with government organisations. Equally, it has also created a platform for better collaboration and information sharing between various government agencies. Implementation efforts in most countries have now evolved from basic information provisioning to more integrated service offerings that involve cross-agency process and information systems (IS) transformation to enable more joined-up and citizen-centric e-government services. However, public sector service transformation is a complex undertaking involving distributed decision-making that requires a good understanding of the political context, business processes and technology as well as design and engineering methods capable of breaking through the traditional boundaries that exist between public organisation units. Conversely, from a demand perspective extensive efforts are required to increase
citizens’ awareness about the transformation of the delivery of government services and their online availability.

In order to prevent digital divide in terms of using e-government services, it is also necessary that citizens from all facets of society are equipped with basic ICT skills as well as private and or public access to high-speed Internet connections. Yet, despite the availability of innovative technologies, government agencies are faced with many technical, organisational and socio-economic challenges and barriers that need to be addressed when developing, adopting and diffusing e-government systems and services. Furthermore, from an organisational perspective e-government has introduced an environment where most public institutions such as healthcare, social services, education and employment have struggled with the need to balance issues such as transparency and opaqueness, or social inclusion and professionalism. Consequently, there has been increasing pressure on the academic and practitioner communities for research that focuses on bridging the gap between e-government theory and practice.

In the aforementioned backdrop, various researchers and practitioners have attempted to offer insights into the implementation, acceptance and diffusion of e-government services. The last few years has seen e-government being regarded with the same level of importance that e-business was treated with in the mid 1990s. Consequently, in the last two years in particular, transformational government (or t-government for short) has emerged as the parallel of business process reengineering (BPR) that the private sector witnessed in the early 1990s. While early e-government efforts focused on e-enabling customer facing, front-office processes, t-government entails the same principles as BPR and focuses on ICT enabled transformation of both front- and back-office processes in public sector organisations. In this context, when examining e-government literature, it can be concluded that principally four key themes have emerged in published research on e-government. These include: a) articles that examine the implementation of e-government from a policy-oriented perspective that includes strategic, organisational and wider socio-political dimensions; b) papers that take a citizen-centric perspective on e-government through adoption and diffusion research; c) papers that explore the technical complexities of delivering e-government that cover aspects such as interoperability, integration and information sharing; and finally, d) articles that explore the transformational aspects of e-government development.

In this article, the aforementioned themes will be examined briefly in the context of previously published research and conjectures will be drawn on how these themes will evolve in the future. This article is structured as followed. The next section will offer a review of research that examines e-government implementation from a wider organisational and policy viewpoint. This will be followed by an analysis of e-government adoption and diffusion literature from a citizen-centric perspective in section 3. Research that examines the technical aspects of e-government will then be discussed in section 4 followed by the concept of transformational stage e-government in section 5. Finally, conclusions will be drawn in section 6 and presumption of future research directions will be offered in section 7.

E-GOVERNMENT IMPLEMENTATION: STRATEGIC, ORGANISATIONAL AND SOCIO-POLITICAL INFLUENCES

The implementation of e-government projects in various countries has taken different strategic approaches concerning key issues such as financial, technological, project management and control of programmes. For instance, while some European countries such as the UK has maintained central control of the national e-government project using a top-down management style, other countries such as Norway, Denmark and the Netherlands take a more decentralised bottom-up approach (Weerakkody et al, 2006).
E-government is currently embryonic and can be viewed as a concept operating in a dynamic and changing environment. Therefore, it is as yet unknown whether a more rigid, comprehensive approach to e-government strategic planning (Sambamurthy et al., 1994; Earl, 1993; Galliers, 1991; McFarlan 1971) or a more flexible, incremental approach (Sambamurthy et al., 1994; Earl, 1993) is suitable. While advocates of comprehensive planning (Mintzberg, 1994) suggest that this approach will succeed in a turbulent environment such as e-government, critics such as Johnson and Scholes (1999) argue that a more flexible, incremental approach is suited for such environments.

According to Hunter and Jupp (2001), a true Internet strategy must examine all aspects of the business model, interactions with customers and stakeholders, and should identify those areas where more value can be created for all stakeholders by moving processes and interactions online. The plan of action for e-government should therefore include: a clear definition of e-government that covers key areas to be addressed and identification of all customers; a vision that is easily understood and succinctly expresses the concept of and plans for e-government; specific goals and objectives that can be monitored and measured; and identification of policies necessary to support e-government (Weerakkody, et al., 2006). Holmes (2001) argues that from the various e-government strategies and actions there are five underlying principles emerging: put information and services online and do everything online; ensure easy and universal access to online information and services; skill government employees to be knowledge workers; work in partnership to make it happen; and remove barriers and lead by example.

Many studies have also captured organisational level influences that have impacted upon e-government efforts including reluctance to embrace change (Irani et al., 2008; Mansar, 2006; Beynon-Davies and Martin, 2004), bureaucratic organisational structures (Hu et al., 2006; Altameem et al., 2006; Fang, 2006; Kraemer and King, 2005), and the lack of leadership in change efforts (Irani et al., 2008; Beynon-Davies and Martin, 2004; O’Donnell et al., 2003).

In addition to the strategic level and organisational level influences, the next most prominent research theme has to be social and political aspects of e-government. Much has been written about the various social level benefits of e-government (Irani et al., 2008; Al-Shafi and Weerakkody, 2008; Raffat, 2003; Hazlett and Hill., 2003; Silcock, 2001), whilst on the contrary political level issues have been discussed in a more negative light as they have often been seen as barriers to e-government (Irani et al., 2008; 2007; Ramaswamy and Selian, 2007; Beynon-Davies and Martin, 2004; O’Donnell et al., 2003).

E-GOVERNMENT ADOPTION AND DIFFUSION: THE CITIZENS AS USERS

E-government diffusion is an international phenomenon that has received much attention and publicity in the last five years or so. This coincides with the implementation and widespread availability of e-services in the public sector. In particular, the lack of demand and adoption of e-government services has resulted in the need for research into understanding the factors influencing the adoption and diffusion of e-government from the citizens’ perspective. This line of inquiry has been pursued vigorously by scholars who have an interest in Internet related IT service adoption and diffusion research. This is no surprise given the impact of the Internet on modern society. For instance, according to a global study conducted by comScore there are over 694 million Internet users worldwide. However, in light of the increased ubiquity of e-government, most countries, including the United States (US) which accounted for the largest number of Internet users (152 million users) and the United Kingdom (UK) which rounded out the top five with 30,190 million users, are eager to increase citizen acceptance of this innovation (ComScore, 2006).
The European Union (EU) and United Nations reports ranked both the US and the UK in the top tier of its e-government readiness index (UNPAN 2008; European Union, 2004). However, despite the UK e-enabling many of its services, its government is encountering several barriers to e-government adoption (Weerakkody and Choudrie, 2005; Al-Sebie and Irani, 2005). A study by Gilbert et al., (2004) indicates that citizens’ potential usage of e-government services in the UK is extremely low (Al-Sebie and Irani, 2005). Despite marketing efforts to increase awareness (Adeshara et al., 2004), many local government councils in the UK (www.direct.gov.uk) have stated that the usage of their services is sparse. Cross (2007) reports that a £5m campaign to persuade citizens to contact their local council via the central e-government web portal (www.direct.gov.uk), has had little effect in the UK. In a wider European context, other research by the European Commission’s Eurostat service has found that the UK is behind Germany, Sweden, Norway, Iceland and Finland in the number of individuals interacting online with public authorities (Kablenet.com, 2005). According to this research the UK is also behind most EU countries in the number of businesses obtaining information and transacting with the government over the Internet. According to the European Commission, 31 percent of businesses in the UK get information from the government online, placing the country behind Sweden (90 percent), Lithuania (63 percent), Poland (57 percent) and Italy (51 percent) in this category (Kablenet.com, 2005).

Although the aforementioned context is encouraging, according to the latest survey by the United Nations, universal access to the Internet is still in the distant future for many countries (UNPAN, 2008). In the US, 50 percent of citizens use the Internet compared to a global average of 6.7 percent whereas in the Indian sub-continent, it is a mere 0.4 percent (UNPAN, 2008). Studies have shown that even in developed countries online transactional systems have achieved only modest levels of usage (Carter and Weerakkody, 2008).

Given the aforementioned context, researchers have argued that the rate of e-government adoption and diffusion will depend on some key factors (Carter and Weerakkody, 2008; Al-Shafi and Weerakkody, 2008). Among these, trust (Carter and Belanger, 2005; Warkentin et al., 2002; Welch et al., 2005) and ICT divide (Huang, 2007; Wright, 2002) are seen as an integral part of e-government adoption.

## The Influence of Trust on E-Government Adoption

Research has shown that citizens’ confidence in the ability of an agency to provide online services is imperative for the widespread adoption of e-government initiatives. In this context trust is seen as an imperative for e-government adoption. Trust of the government refers to one’s perceptions regarding the integrity and ability of the agency providing the service (McKnight et al., 2002; Beccera and Gupta, 1999; Ganesan and Hess, 1997; Jarvenpaa et al., 1998; Lee and Turban, 2001; Mayer et al., 1995; McKnight et al., 1998). Gefen et al. (2005) posit that trust in the agency has a strong impact on the adoption of a technology. Before endorsing e-government initiatives, citizens must believe government agencies demonstrate the competence and technical savvy necessary to implement and secure e-government systems. Transparent, accurate, reliable interaction with e-government service providers will enhance citizen trust and acceptance of e-government services. On the contrary, broken promises and fraudulent behaviour from government officials and employees will decrease trust and increase opposition to these initiatives (Carter and Weerakkody, 2008). Oxendine et al. (2003) compare citizen adoption of electronic networks in different regions of the US (Oxendine et al., 2003). They found that system adoption was more prominent in localities where citizens are more trusting. Due to the impersonal nature of the Internet, citizens must believe that the agency providing the service is reliable. Wang and Emurian (2005) posit a lack of trust as one of the most formidable barriers to e-service adoption, especially when financial or personal information is involved.
The Impact of ICT Divide on E-Government Adoption

As governments worldwide increasingly implement e-government services, concerns about the potential impacts of a digital divide continue to grow. While definitions of the concept of the digital divide vary, it generally refers to the distinction between the ICT haves and have-nots: the difference between those who have Internet access and computer skills and those who do not. Regarding access, Internet connections are still not distributed evenly across racial, regional and socio-economic lines. According to Wright (2002) in 2001, 60 percent of white households in the US had Internet access, while only 34 percent of African American and 38 percent of Latino households did. Similarly, roughly 78 percent of households with an income between $50,000 and $75,000 had Internet access compared to only 40 percent of those with household incomes between $20,000 and $25,000 (Wright, 2002). Thomas and Streib (2003) suggest that among Internet users, ethnicity and education are important predictors of which Internet users will also utilize government Web sites, with those users more likely to be white and better educated. They construe that government web sites seem to draw an even more exclusive audience than the already somewhat elite audience for the Internet in general (Thomas and Streib, 2003). Further, Huang (2007) finds that in US counties’ adoption of e-government is highly correlated with various socio-economic factors.

The ICT divide is even stronger for the skills needed to use technological innovations (Wellman and Haythornthwaite, 2002). Mossenberger et al. (2003) suggest many people lack the basic skills needed to interact with computer hardware and software. Researchers have found that the elderly, less-educated, poor and minority individuals were more likely to need computer assistance, such as help with using the keyboard or e-mail (Jackson et al., 2004; Weerakkody et al., 2004). Even those who obtain basic computer skills are frequently unable to use a computer or the Internet to retrieve and interpret information (Mossenberger et al., 2003).

Trust and ICT divide surface as two of the most significant factors that influence e-government adoption and diffusion. The other factors mentioned in the literature revolve mainly around commonly cited ICT adoption and diffusion themes such as usefulness, usability and accessibility (Venkatesh et al., 2003; Rogers, 2003; Davis, 1989) of e-government services. These are not exceptional to the e-government context and therefore not discussed here. Certainly, adoption and diffusion studies are still emerging in the e-government context and comparatively small when examined against the wider ICT and e-commerce adoption research. Nevertheless, these emerging studies are helping to advance the understanding of the concept from a user (or citizen) perspective and continue to shed light on the challenges facing governments in respect of citizens’ adoption of their services. However, this is only the tip of the iceberg as there are many technical complexities and challenges that need to be tackled when implementing e-government services as outlined in the next section.

E-GOVERNMENT IMPLEMENTATION: TECHNICAL COMPLEXITIES AND CHALLENGES

As more and more citizens become Internet savvy they demand faster delivery of public services and better insight into the status of their requests. While integrated service delivery requires the sharing of information among the information systems of public agencies and harmonization of cross-organisational business processes, a debate that is facing many European governments’ on-line agenda, at least in the short term, is how to proceed best with this integration. Existing systems are typically build-using architectures that do not readily support enterprise-wide integration, thus requiring the development of
new architectures to link on-line government (Allen et al., 2001; Weerakkody et al., 2007). The challenge is that many e-government initiatives require information exchange in networks across different governmental organisations. Most public institutions today manage technology in what is popularly described as ‘stove pipes’ or ‘isolated islands of technology’ (Weerakkody et al., 2007), with individual institutions implementing their own channels, web applications and supporting infrastructure. Traditionally, government agencies are organised vertically around departments. Cross-organisational processes can only be created by integrated IS delivering timely and accurate information, and supporting cross-departmental processes (Champy, 2002; Weerakkody et al., 2006). Current systems are often developed within the boundaries of departments without having in mind the ‘big picture’ capturing the enterprise architecture of the whole organisation. The existence of isolated, overlapping in function and content, highly fragmented and unrelated computerized applications within the same public organisation has resulted in a major interoperability problem and has led to ‘isolated islands of technology’ (Peristera and Tarabanis, 2000; Kamal et al., 2009).

Having largely evolved from e-business ideas, e-government requires the collaboration of various stakeholders and integration of business processes and IS in disparate organisations in order to deliver on-line-real-time services. As such, an e-government environment needs business processes that can be continuously optimized and expanded outside the enterprise and outside internal enterprise systems (Fustes, 2003; Champy, 2002). While the linking of these processes and IS require enterprise application integration (EAI) technologies, EAI has been an expensive and often problematic solution for many organisations engaged in e-business (Linthicum, 1999; Sutherland and Willem, 2002; Kamal et al., 2009); these problems are multiplied in the public sector, where inefficient and bureaucratic business processes and disparate legacy IS/IT systems need to be integrated in an e-government environment (Weerakkody et al., 2006; Kamal et al., 2009). In a resource limited environment such as government agencies, enterprise architectures should therefore not be merely about service delivery, but also about integrating and sharing resources and using common systems (Hanafin, 2004; Weerakkody et al., 2007). Opportunities for joint-development, pooling of resources and coordination of efforts are often neglected due to the lack of an overview. Although there are a number of enterprise architectures available (e.g. Zachman, 1987; Bernard, 2004; Nora, 2006; Schekkerman, 2004; Office of the e-envoy, 2002; Danish Ministry of Science, 2003) public managers find it difficult to translate the architecture to their specific situation, use these architectures to guide their decision-making and use these architectures as guidance for development from the existing situation. One of the reasons is that concepts are only vaguely defined, and too abstract or too technically defined (Kunda and Brooks, 2000; Peristera and Tarabanis, 2000).

A key research question that is often asked in e-government literature is, ‘what are the process integration and enterprise architecture challenges faced by government when implementing integrated e-government services’ (see for instance, Janssen and Cresswell, 2005; Weerakkody et al., 2007; Kamal et al., 2009). In this respect, the technical infrastructure and IS used in public agencies have to come under heavy scrutiny. In the last few years substantial investments have been made by governments around the world to improve their infrastructure and technology. Despite these investments, improving interoperability and integration in the context of e-government still presents a significant challenge, as the public sector can be characterized as largely non-process-oriented, legacy system driven. In the last few years various technologies have offered a new context for addressing some of these integration issues. From an organisational perspective, the implementation of e-government demands the reengineering of business processes and supporting IS in a way that is more radical than any other form of change seen in the public sector (Irani et al., 2008; Weerakkody et al., 2007). Consequently, there are many technical, semantic and organisational challenges needing to be solved.
In respect of integration, the two main challenges facing government agencies are related to Process Integration and Enterprise Architecture. Process integration refers to the ability to connect systems in one way or another. In general this is complicated as there are many systems that need to be connected to many other systems (Weerakkody et al., 2007). In addition, there are often many connections necessary between systems, as each message or data exchange requires a connection. There are various methods and change management approaches to deal with this aspect. Enterprise architecture (EA) lacks a universally accepted description. An EA identifies the main components of the enterprise, its information systems, the ways in which these components work together in order to achieve defined objectives and the way in which the systems support integration (ibid). As such, it can be used as an umbrella for guiding and supporting integration activities.

Integration challenges are further compounded by the different implementation focus, objectives and levels of transformation in public services in different countries. For instance, in the USA, the main objective is to automate and integrate different islands of information to simplify and maximize the benefits of technology (Navarra and Cornford, 2003), whereas in Europe the emphasis is to modernize public services and offer better services to citizens (Weerakkody et al., 2004; 2006; 2007). Given this context, examining one of the most cited representations of the different stages and dimensions of e-government development (see Layne and Lee, 2001) is appropriate (figure 1). Figure 1 captures the process transformation and integration aspects and the scope needed for a one-stop e-government web portal according to Layne and Lee (2001).

In the cataloguing stage in figure 1, governments focus on establishing an online presence by publishing index pages or a localised site where electronic documents offer the public information relating to government services (Layne and Lee, 2001). This is the simplest and least expensive form of web presence and from the government's perspective it helps to save staff time spent on answering basic questions (Bonham et al., 2003). In the transaction stage the focus is on connecting the internal government systems to online interfaces thus allowing citizens to electronically transact with government institu-
tions. While the speed of which this sector has progressed is disappointing, the process of developing and maintaining services in this stage are more complex than at the first stage (Vasilakis et al., 2003). In the third stage, vertical integration, federal, state and local governments are expected to connect to each other to offer a higher level of integrated service. The main challenge is to ensure compatibility and interoperability between various government databases (Layne and Lee, 2001). The most complex stage is horizontal integration where different services and functions within the same level of government are integrated to provide a one-stop-shop for all major services (Raffat, 2003). This, according to Bonham et al., (2003) requires a transformation of how government functions are conceived, organised and executed and is more difficult to realize than the first three stages.

Developed countries (in North America and Western Europe) have managed to realise a few horizontal level integration of key services (such as taxation, social security and licensing) and many transaction level services such as e-billing, e-payments, e-voting and e-forms.

Although the abovementioned cases are encouraging, it can be argued that the transfer of public administrative processes that are organised around functional silos to an e-enabled, real-time, automated and process-based state would involve the rethinking and redesign of processes and IS at both local and national government levels (Irani et al., 2008; Weerakkody et al., 2008. There are also many instances where information is clearly not available locally (within the organisation) to execute processes and service specific customer demands. This adds a further complexity to the process, as information now may need to be obtained from sources outside the organisational boundaries of local government/councils. Organisations that are part of different hierarchies need to collaborate to ensure integrated service provisioning. Therefore, it is fair to state that progressing from the cataloguing stage to the horizontal integration stage (in figure 1) will require a radical redesign of established business processes and legacy systems utilizing techniques such as business process redesign as suggested by Hammer and Champy (1993); this is a complex undertaking (Hazlett and Hill, 2003; Halachmi, 1997). The next section reviews recent developments that have influenced the evolution of e-government from the current state of largely transaction level services to a more integrated one-stop environment. As explained in the next section, this evolution has largely been enabled by various governments’ strategies to transform public administration processes across their organisations using ICT.

REALISING TRANSFORMATIONAL STAGE E-GOVERNMENT: FROM VISION TO REALITY

Recent e-government efforts have shifted their focus from e-enabling front-end to reengineering back-office processes. These efforts closely resemble the principles of business process redesign (BPR) seen in the private sector in the early 1990s and governments have commonly labelled them as transformational government (or t-government). In most western countries, t-government has naturally evolved from e-government. Yet, there still remains considerable confusion about t-government. The definitions offered for e-government differ according to the varying e-government focus and are usually centred on technology (Zhiyuan, 2002), business (Wassenaar, 2000), process (Bonham et al., 2001), citizen (Burn and Robins, 2003), or a functional perspective (Seifert and Peterson, 2002). These different schools of thought show that there is no universally accepted definition of the e-government concept (Yildiz, 2007). However, we can distinguish between transformational government and e-government; t-government covers broader organisational and socio-technical dimensions which involve radically changing the structures, operations and most importantly, the culture of government (O’Donnell et al., 2003; Ramaswamy and Selian, 2007; Irani et al., 2007). Thus, a suitable definition for t-government that encapsulates
a wider perspective of the transformational aspects of e-government would be: “t-government is the ICT-enabled and organisation-led transformation of government operations, internal and external processes, structures and culture to enable the realisation of citizen-centric services that are transparent, cost effective and efficient” (Weerakkody et al., 2008). In this definition it is proposed that the creation of citizen-centric services require considerable changes at all levels, which might be radical changes rather than incremental improvement.

Lee et al., (2005) and Norris and Moon (2005) have found that local e-government efforts remain primarily informational (i.e. offering basic online services) and seldom achieve joined up service delivery or the potential positive impacts claimed by its most dedicated advocates. In this context, authors such as Kraemer and King (2005) have also argued that e-government is not transformational [as implied by Hammer and Champy (1993) in the case of BPR], but is incremental [for instance as suggested by Davenport (1993), Harrington (1991) or Carr and Johansson (1995)]. Kraemer and King (2005) further predict that the path of local e-government efforts that has been observed to date (i.e. incremental change) is likely to continue into the foreseeable future. Even though many governmental entities have built one-stop-shops to streamline the efficiency of services, the basic paper-based forms are continuing to rule the day (Conklin, 2007). Therefore, it is arguable that many government agencies are focusing on incremental improvements that are wrongly being branded as transformational. Moreover, some argue that more than 70 percent of e-government initiatives have failed to meet initial transformation objectives in the early stages of implementation (Gandhi and Cross, 2001; Beynon-Davies and Martin, 2004; Di Maio, 2006). Most of these failures can be attributed to the inability of governments to change business processes in response to the e-government model (Joia, 2004; Davison et al., 2005; Ferlie et al., 2003). Therefore, these early failures have resulted in an even more pressing need to integrate the front-end and back-end systems and processes (West, 2004; Kim et al., 2007; Jas and Skelcher, 2005).

Many researchers have suggested that governments should be willing to change their business processes in order to reap the full potential of an e-government initiative (Kim et al., 2007; Andersen and Henriksen, 2006; O’Donnell et al., 2003; Swedberg and Douglas, 2003). In particular, to achieve t-government and the associated benefits, government departments and agencies need to actively co-ordinate and align with one another through the integration of processes and IS/IT systems (Murphy, 2005; Andersen and Henriksen, 2006; Weerakkody and Dhillon, 2008). T-government will enable government services to be fully integrated (vertically and horizontally) and citizens can expect to have access to a variety of services through a single portal (one-stop-shop) (Gil-Garcia and Martinez-Moyano, 2007). However, governments find it difficult to reach mature stages of e-government and a superior customer-focus as joined-up service delivery will require a considerable level of integration of back-end information systems such as electoral registers, land and property systems, council tax systems and benefits systems (Beynon-Davies and Martin, 2004; Holmes, 2001; Sarikas and Weerakkody, 2007).

Ultimately transformational government will require the ability to rethink processes in a cross-functional way as championed by BPR approaches (Hammer and Champy, 1993; Champy, 2002; Fagan, 2006). Whilst this has proven difficult in the private sector, research suggests that local authorities will face even more severe challenges in the bureaucratic, functionally oriented, legacy systems driven environment of government (Weerakkody et al., 2007; Fagan, 2006). Moreover, as discussed in the previous section this will require concepts such as EA and service oriented architecture (SOA) that are capable of seamless integration of cross-agency processes and IS.

It is arguable that t-government is seen by many as the final phase of e-government, which focuses upon cost savings and service improvement through back-office process and IS/IT change. The t-government vision will require three key transformations, which firstly includes services enabled by ICT that are designed around the citizen and not the provider. Secondly, governments must move towards a
shared services culture, thus eliminating data duplication, and integrating and re-engineering back-office processes (Janssen et al., 2007). Thirdly, there must be broadening and deepening of government’s professionalism in terms of planning delivery, management and governance of IT-enabled change (www.cio.gov.uk; Palanisamy, 2004).

Many scholars and practitioners have identified challenges that are facing e-government efforts and in particular in reaching the transformational stage of e-government (Irani et al., 2008; Mansar, 2006; Gupta and Jana, 2003; Fang, 2006; West, 2004; Margetts and Dunleavy, 2002; Raffat, 2003; Palanisamy, 2004; Weerakkody et al., 2007; Sarikas and Weerakkody, 2007). When drawing upon the normative literature on e-government in order to distinguish the key challenges affecting governments’ progression onto the transformational stage of e-government (or t-government), the key challenges identified in e-government literature can be broadly classified under four key themes which capture the organisational, process change, socio-cultural and IS/IT integration aspects (Lee et al., 2005) (Table 1).

The complexity of transformational change in the public sector (as outlined in table 1) is reflected in the fact that in practice only 4 percent of e-government initiatives are in fact aiming to reach t-government (Balutis, 2001; Conklin, 2007). This is reminiscent of the BPR era during the early 1990’s, where many private sector organisations failed in their transformation efforts with BPR type changes (Willcocks, 1995; Hazlett and Hill, 2003; Coram and Burnes, 2001; Motwani et al., 2004; Hammer and Champy, 1993; Peters et al., 2004). Given BPR’s chequered history, it conveys more negative signals than positive indicators. Consequently, many researchers (such as Gupta and Jana, 2003; Palanisamy, 2004; Andersen and Henriksen, 2006; Mansar, 2006; Fang, 2006; Irani et al., 2008; Weerakkody and Dhillon, 2008) have begun to focus their immediate research efforts in the t-government area.

### Table 1 Challenges Affecting Transformational Change: An E-Government Literature Perspective

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<tr>
<th>Challenges Affecting T-Government</th>
<th>Literature Source</th>
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<td><strong>Organisational Challenges</strong></td>
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<tr>
<td>Reluctance to embrace change</td>
<td>Irani et al. (2008); Mansar (2006); Beynon-Davies &amp; Martin (2004)</td>
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<td>Bureaucratic organisational structure</td>
<td>Hu et al. (2006); Altameem et al. (2006); Fang (2006); Kraemer &amp; King (2005)</td>
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<td>The lack of leadership in change efforts</td>
<td>Irani et al. (2008); Beynon-Davies &amp; Martin (2004); O’Donnell et al. (2003)</td>
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<td><strong>Process Change Challenges</strong></td>
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<tr>
<td>Confusing existing processes</td>
<td>Wimmer (2001); Gouscos et al. (2006); Altameem et al. (2006)</td>
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<td>Information fragmentation</td>
<td>Irani et al. (2008); Gouscos et al. (2006)</td>
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<td>Incremental and modest change</td>
<td>Beynon-Davies &amp; Martin (2004)</td>
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<td><strong>Cultural and Social Challenges</strong></td>
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<td>Organisational culture</td>
<td>Irani et al. (2008); Montagna (2005); Ebrahim &amp; Irani (2005)</td>
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<td>Unwillingness to share IS/IT systems and processes</td>
<td>Ebrahim &amp; Irani (2005); Murphy (2005); Conklin (2007)</td>
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<td>Employee resistance to change and fear of change</td>
<td>Robinson &amp; Griffiths (2005); Murphy (2005)</td>
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<tr>
<td>Data sharing and data protection laws</td>
<td>Murphy (2005); Janssen et al. (2007)</td>
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<td><strong>IS/IT Integration Challenges</strong></td>
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<td>Inflexible and incompatible legacy systems</td>
<td>BCS (2006); Gichoya (2005); McIvor et al. (2002); Sarikas &amp; Weerakkody (2007)</td>
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<td>Existing legacy systems increase costs</td>
<td>Sarikas &amp; Weerakkody (2007); Ezz &amp; Papazafeiropoulou (2006); Ebrahim &amp; Irani (2005); Holden et al. (2003)</td>
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<td>Lack of technology and BPR skills by IT staff</td>
<td>Ramaswamy &amp; Selian (2007); Weerakkody et al. (2007)</td>
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CONCLUSION

This article has attempted to offer a snapshot of how e-government research has progressed over the last few years, from inception to implementation, and through to adoption and diffusion. In doing so, the article has touched on the past, present and future of e-government in the context of governments’ role (as the service provider) and citizens’ role (as the user). Four themes have emerged in e-government research: a) strategy formulation and policy making in the context of implementation; b) adoption and diffusion of services; c) technical challenges in implementation; and d) the transformational stage of e-government or fully functional e-government.

E-government research indicates that the diffusion of digital services has been slower than anticipated and that many governments are not making use of available technology for transforming government processes and offering value added services. In cases of successes ICT enabled change; the impact of e-government has been only incremental rather than transformative. According to the literature, a number of challenges have impacted upon the successful implementation and diffusion of e-government. Many researchers have shown that several social, economic and political barriers constrain the scope of transformation and restrict successful e-government implementation from an organisational and strategic perspective. Conversely, digital divide and the socio-political nature of public sector reforms are cited by many as key factors affecting e-government diffusion from a citizen centric perspective.

When examining the papers published in the International Journal of Electronic Government Research (IJEGR) and the wider e-government domain, it is evident that early research on e-government was very much focused on examining the strategy, policies and the electronic service delivery plans of various governments. In this phase many researchers also looked into the complexities of implementation from an organisational perspective. Subsequently, after basic e-government services were successfully implemented by governments and became available on a more widespread scale, researchers were beginning to focus on adoption and diffusion aspects, particularly due to poor take-up of these services. Well established theories such as the technology acceptance model (Davis, 1989), diffusion of innovation (Rogers, 2003) and unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al. 2003) have been used to study adoption and diffusion. Thereafter, in parallel, when e-government services that were offered became more advanced (i.e. as per figure 1) and implementation efforts were beginning to undergo process and IS integration problems, a number of researchers began to focus on the technical complexities. Finally, in the last two years, the concept of transformational government or t-government has emerged, which encompasses a broader perspective of public administration, as t-government is seen as the final stage of fully functional electronic service delivery for the public sector.

In the transformational e-government stage, greater cost-savings, transparency and efficiency and effectiveness are offered in all government services. To date, few countries have excelled in reaching the transformational stage of e-government. This is due in part to the complexity of reaching this high level of maturity for e-government. The literature suggests that e-government efforts in most countries are incremental and seldom is a joined-up service delivery created. In addition, Kraemer and King (2005) and Weerakkody and Dhillon (2008) further predict that the path of local e-government efforts observed to date (i.e. incremental change) is likely to continue into the foreseeable future, whereas there is a need for more radical changes. From this perspective many academics and practitioners have identified a variety of change barriers and challenges affecting t-government such as the lack of compatible IS/IT infrastructures, lack of standardised data definitions, management commitment, bureaucratic organisational structures and employee resistance towards change to name a few. Therefore, transformational change in the public sector poses many challenges to governments that are reminiscent of the BPR era in the private sector in the early 1990s. It is reasonable to assume that most developed countries will
spend the next five to ten years tackling these challenges, while in the developing world many countries are only beginning to implement basic transactional level services. In this context, it is predicted here that e-government will remain a major research theme for the foreseeable future.

**FUTURE RESEARCH DIRECTIONS**

Current research into e-government indicates that the concept of electronic service delivery in the public sector will continue to grow at an accelerated pace, but its diversity and impact will be determined by the extent to which citizens adopt it as well as various governments’ efforts to diffuse the concept. While most research into adoption and diffusion point a less than encouraging picture, lessons are beginning to emerge which indicate that citizens are demanding more value added services before they could be fully enticed to use e-government. The early e-government efforts have focused very much on e-enabling existing front-office services without much consideration on reengineering the back-end business processes and IS/IT systems that support these customer facing processes. Therefore, it is fair to state that most e-government initiatives were offering an e-business front end to existing, often inefficient and ineffective business processes that were experienced by citizens for many years. In this context, many governments have realised that the present and future e-government efforts should be focused very much on transforming the way services are delivered, not only in terms e-enabling them, but also in terms of efficiency, effectiveness, transparency and most importantly the value-added features offered to citizens through e-government.

Future research on e-government will no doubt explore the key facets of process transformation and reengineering including strategic, organisational, socio-cultural and human influences. Most significantly, the technical complexities that arise in a transformational context, including integration of legacy systems with new and reengineered IS/IT systems will be a major challenge that will need much research effort. Finally, the economic and efficiency aspects will be as important for governments where new and relatively unproven concepts such as *shared services* will need major research efforts on the part of the academic community in order to generate a better understanding and help effective exploitation. In a broader context, the potential impact of e-government on reforming socio-economic, political and democratic policies to establishing the notion of ‘e-governance’ will be an interesting area to observe in the future.

**REFERENCES**


