JIST 2(2) 2005

The Information Institute

Journal of Information Science and Technology

www.jist.info

Exploring E-Government in the UK: Challenges, Issues and Complexities

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Abstract

Information and communication technology facilities offered by the Internet have encouraged not only business enterprises, but also governments around the globe to invest significantly into electronic service delivery in the form of e-government. While the numbers of the different national e-government initiatives have rapidly increased in the last three years, the success of these will largely depend on whether the services they offer will be used by the citizens of the respective countries. Initial efforts to deploy e-government in the UK suggest that many local boroughs are lagging behind the national expectations for e-government due to various social and technical challenges. This paper will identify and examine the impact of these challenges on realising e-government through the results of an exploratory study in one of the largest

local boroughs (Hillingdon-London) in the UK. The results of this study found that from a social perspective, while issues such as lack of awareness, trust, language barriers and lack of access to the Internet were impeding citizens from using e-government services, financial and political constraints were thwarting the government from fully implementing the concept. These social challenges are further compounded by technical complexities such as the need to integrate processes and technology across different government agencies to facilitate the efficient and effective delivery of e-services.

Key Words: E-Government, Hillingdon, Technological, Organisational, Integration

Introduction

The two decades leading up to the mid 1990's witnessed many private sector enterprises embarking on various management innovation and change initiatives[1] with a view to improving their business processes and IT systems. This helped the private sector to minimise waste, produce better quality products, and resulted in the manifestation of a customer services driven business environment. Although at a much slower pace and often lagging far behind, a similar pattern emerged in the government sector during the same period. While management innovation and technology continued to grow at an impressive speed throughout the 1990's, the late 90's observed the emergence of the Internet and a new array of associated Information and Communication Technologies (ICTs). This gave birth to a new phase in the business evolution cycle in the private sector in the form of e-business. Not surprisingly, governments across the globe began to respond with their own form of e-business, popularly referred to as 'e-government'. While pledging to promote trust between governments and citizens (OECD Observer, 2003), e-government encompasses a broad spectrum of activities that are offered using ICTs and allows an improved service of the government to citizens (Northrup and Thorson, 2003). There are many varying definitions of e-government, but for the purposes of this paper, the following definition is offered. *E-government is the delivery of online government services, which provides the opportunity to increase citizen access to government, reduce government bureaucracy, increase citizen participation in democracy and enhance agency responsiveness to citizens needs* (Prins, 2001).

There are many substantial benefits of e-government initiatives including, improving efficiency by reducing the time spent upon manual tasks, providing rapid online responses, and improvements in organisational competitiveness within public sector organisations (Yttersad and Watson, 1996). Since the benefits of e-government became apparent, the number of worldwide

1 Examples of management innovation and change programmes include total quality management (TQM), business process redesign (BPR) and knowledge management (KM)

e-government projects has increased since 1996 from three to more than five hundred national initiatives (Al-Kibsi *et al.*, 2001). In Europe, plans are being made to speed up the deployment of e-services as an effort to modernise the public sector EU-wide (Cuddy, 2003).

While we acknowledge the benefits of the model that has emerged where the government sector copies the processes and technologies used in private sector, we argue that in a hurry to replicate the highly dynamic e-business environment governments may be overlooking basic *e-customer-service-criteria* such as quality, accessibility and privacy. Furthermore, this paper will show through a case study, how issues such as lack of resources, skills and public awareness is posing a major challenge to the UK government in realising e-government implementation.

This research intends to offer a realistic perspective of e-government implementation at local government/borough level within the UK. Therefore, the research question driving this paper is, *what are the factors that are influencing the implementation of e-government in the UK?* This question is explored by examining the experiences of a large local authority in the UK, London borough of Hillingdon. The motivation for this research lies in the following reasoning. Although advancements in information and communication technologies (ICT) has enabled e-government to a large extent, it can be argued that the relationship between ICT and local governance is not just one underpinned by technology and capacity, but by less predictable elements such as social pressures (Odendaal, 2003). While the technological factors influencing any new or emerging concept are often obvious, the social and political aspects are usually identifiable through in-depth research. Furthermore, e-government is also being considered as a special case of ICT enabled business process change in government departments. However, when business process change occurs, it is not only a technologically focused imperative; it also involves the co-operation of people (Weerakkody and Currie, 2003; Teng *et al*., 1996). Therefore, examining the wider socio-political aspects of national and local e-government initiatives is timely. This is even more significant in the densely populated region of London in the UK where the population is diverse and multi ethnic.

To explore further the arguments set out above, this paper is divided as follows. In the next section a literature review identifies the challenges facing e-government in the global context. This is followed in section 3 by a summary of the methods used to carry out the research discussed in this paper. Section 4 then offers an analysis of the research results and examples of the empirical evidence derived from a survey of local citizens. A discussion follows in section 5 to examine the process and information systems and technology (IS/IT) integration aspects of e-government. Finally, the paper concludes by summarising the main research findings, and discussing the key challenges, issues and complexities facing the implementation of e-government in the UK.

Research Context: Key Issues Influencing the Deployment of E-Government

While the concept of e-government is rapidly gaining momentum, the various e-government websites and the services offered by them are being continuously assessed and 'leagues of tables' are being produced (www.nua.com, 2003). For instance, the consultancy firm Accenture has compiled a report of countries that have been accredited for their e-government initiatives, which include Canada, Singapore, the United States, Denmark, Australia, Finland, Hong Kong, the United Kingdom, Germany, and Ireland (see figure 1) (Accenture, 2002). As shown in figure 1, Canada heads the league table for excellence in e-government initiatives and has done so far three years in a row (www.nua.com, 2003).

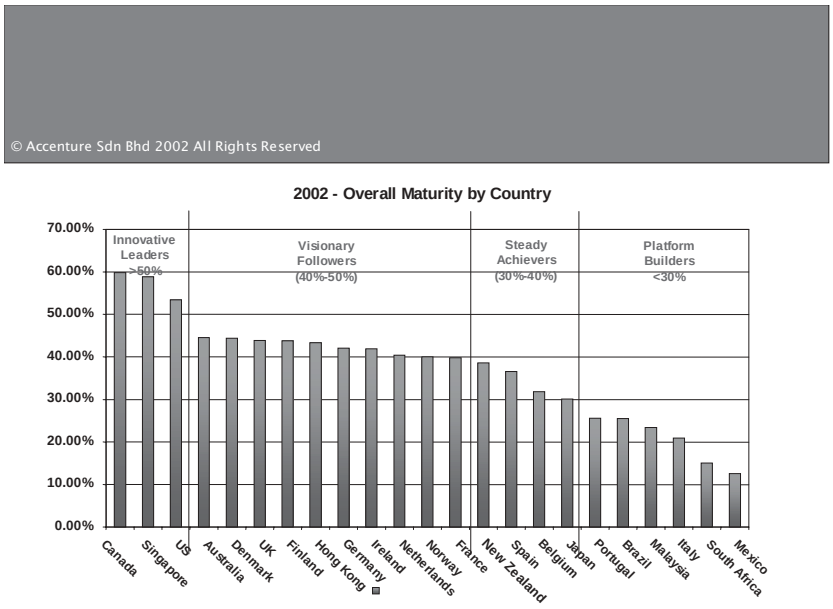

Figure 1. A Snapshot of the Global E-Government Scenario

Empirical evidence is also being produced within government agencies and industrial organisation domains (West, 2002) offering a practical slant to e-government initiatives around the world. While such research is invaluable for the further development, understanding and promotion of e-government initiatives, the success of e-government will largely depend on the benefits and level of usefulness of the services it offers to citizens (Holden *et al*., 2002). An example supporting this notion is provided by Araujo and Grande (2001).

Their research focused upon e-government within Spain's municipalities by examining the e-government web sites for content, management and style. It was found that large municipalities have much developed web sites whereby interaction with the citizens is prevalent. However, the smaller municipalities did not have web interaction. A reason provided for this is the familiarity of the citizens to the sites and online services and products in general (ibid).

E-enabling Public Services: The Need for Process Transformation and Integration

Like many other forms of organizational change, the successful implementation of E-government will involve the transformation of key customer facing business process in many government institutions. In this section we analyse such changes that can occur as a result of e-government. The implementation of e-government implies different 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 maximise the benefits of technology (Navarra and Cornford, 2003), whereas in Europe the emphasis is to modernise public services and offer better services to citizens (Cuddy, 2003). With a view of realising the latter, many UK local authorities and public sector institutions have already begun to exploit new and emerging information technology and process redesign techniques such as Web Services[2] and Microsoft.Net[3] by collaborating with leading software and technology providers in the country. A few such examples are the London boroughs of Newham, Merton, North Lancashire; the Inland Revenue Service; and the Southend Hospitals NHS Trust and Wigan and Leigh NHS Trust (Infoconomy, 2004). All these organisations have reengineered and integrated disparate business processes and IT systems using Web Services and Microsoft .Net technologies to offer the public a more integrated service across different disciplines (ibid).

Although the above mentioned cases are encouraging, it can be argued that the transfer of public administrative processes from a largely inefficient and bureaucratic manual state to an e-enabled real-time automated state would involve, in some countries fundamental rethinking and radical redesign [as suggested in the case of business process reengineering (BPR) by Hammer and Champy (1993)] of processes at both local and national government levels. In this context, a range of typical public administrative processes such as accountability arrangements, budgeting, monitoring and reporting, decision-

2 Web services are built upon existing web protocols and open XML standards and allow information to be passed between remote applications running in different environments (Monson-Haefel 2004).

3 Microsoft .NET framework provides a programming model for building, deploying and running web based applications, smart client applications and XML web services (Infoconomy 2004).

making and performance management can be reengineered with the influence of ICT (Navarra and Cornford, 2003). However, the level of ICT enabled change to state services will depend to a large extent on the ICT resources available to the different governments (Gant and Gant 2002) and their attitude to IT enabled change (Heeks, 2000).

Given this overall context, Layne and Lee's (2001) representation of the different stages and dimensions of e-government development is significant (figure 2). As outlined in figure 2 it captures the process transformation and integration aspects and the scope needed for a one-stop e-government web portal.

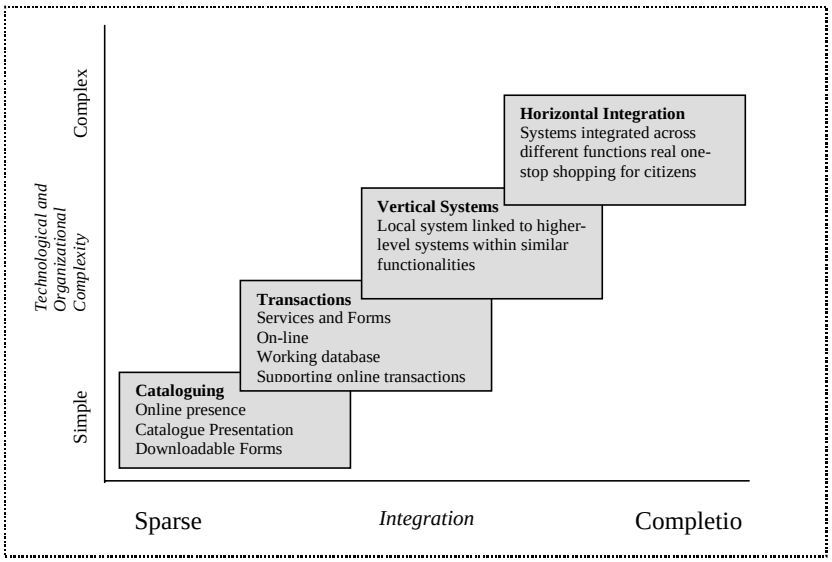

Figure 2. Dimensions and Stages of E-Government Development (Adapted from Layne and Lee 2001)

In the *cataloguing stage* in figure 2, 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 institutions. 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 the first stage (Vassilakis *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 (Reffat, 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 realise than the first three stages.

The aforementioned framework is not only theoretical but has been researched in real life. Gant and Chen (2001) state that, different countries around the world have strived at different speeds to move from the *cataloguing* to *transaction* stage. The UK is no exception where the country has managed to realise transaction level services in key processes such e-billing, e-payments, e-voting and e-forms.

The current program of e-government in the UK focuses on e-enabling local authorities in different counties or regions in the UK. Typical services as stated before include making government information available on the Internet, electronic voting and online bill payments at local or regional level. Although these services may satisfy local e-government strategy, they fail to offer a single point of contact for integrated government services at a national level. In the national context of the UK, although the ukonline.gov.uk web portal provides a single point of contact for the e-government initiative in the country, it is yet to function as a proper web portal [one that offers a gateway to local and national government websites and provides a single point of contact for online service delivery (Gant and Gant, 2002)]. To appreciate the full potential of a web portal in the e-government context therefore, Burns and Robbins (2001) for instance propose the concept of 'value alliances' or 'virtual agency models', which will integrate a range of government services and facilities and offer them as single point of contact. For the purpose of this paper, the framework suggested by Laynes and Lee (2001) assisted the researchers to identify the factors that prevent or promote e-government in the selected local authority.

Implementing E-Government: A Glimpse of the Current Challenges

As with any other new technology or organisational concept, the introduction of e-government to a country will result in a number of challenges for the citizens and governments alike (Margetts and Dunleavy, 2002). Overcoming these challenges therefore would be one of the biggest tests for the government and citizens of any country planning to implement the concept.

Many citizens have a minimal understanding of how government processes are executed or decisions are made. This lack of awareness according to Reffat (2003) can prevent the citizens from actively participating in government

services. Contrastingly, some observers have pointed out that governments often interact more with the elderly, poor, language limited and less educated people, a group who are less likely have access to the internet (Fang, 2002).

Another aspect is the benefits and experience that citizens would get by using online services (Margetts and Dunleavy, 2002). For instance, a badly designed website will result in an unpleasant user experience of e-government for the citizens (Porter, 2002; Sampson, 2002). Furthermore, if governments fail to consider websites that are accessible to all the citizens then the benefits of e-government will not be fully realised (Darrell, 2002). Trust is another obstacle that e-government has to overcome. While lack of trust can hinder adoption of e-commerce in general (Bhattacherjee, 2002), the same applies to the case of government to citizens relationships that involves sharing of personal information on the Internet (Navarra and Cornford, 2003).

From the government's perspective, sharing information using Intranets and linking with other government institutions may threaten the hierarchies of local government employees. Furthermore, some may also feel threatened when new web technologies are introduced thus creating a resistance to change (Margetts and Dunleavy, 2002).

A lack of strategy and organisation of information can also impact the effectiveness and usefulness of e-government. Reffat (2003) argues that an information management framework is necessary to make use of various government information and records, which many governments are ignoring in their rush to e-enable their services.

Another issue is the lack of funding to attract the necessary skilled IT labour into government service. Below market salaries and the inability of states to offer benefits to IT staff can lead to outsourcing resulting in delayed projects. On the other hand, lack of funding for the actual e-government initiatives themselves can be a major problem. In the UK, the way in which local authorities are segmented into different groups can also affect their chances for funding. Most government funding in the UK come in packages which have to be spent within a financial year or within the particular group or area that has been targeted for regeneration (Perera, 2004)

Bonham *et al*., (2003) state that UK data protection and privacy laws are hindering the progress of e-government where many public sector organisations are finding it hard to meet the demands of existing laws. It is argued that countries with a more chequered history of '*government respect for citizens' privacy*' will struggle to overcome the trust and security issues involved in online transactions (Harrris and Schwartz, 2000). Furthermore, Javenpaa and Tractinsky (1999) debate the need for citizens to be informed of the social, financial and privacy risks when engaging in online transactions. The recent case of the UK Inland Revenue office (income tax office) suspending parts of their self-assessment tax service is one such example of the risks of online services (http://news.bbc.co.uk).

Research Approach

Whilst much of the e-government literature has been focused upon various diverse issues, this research intended to provide an in-depth study of an e-government initiative at local level. The purpose of this research therefore is to investigate the challenges and success factors that are driving e-government initiatives at the local level. In this context, a case study combined with a survey was considered to be suitable for the purpose of the research, and begun at a large local authority (Hillingdon) in London in the early part of 2003. A longitudinal approach is followed for the case study (Pettigrew, 1990), whereby a short-term view of e-government is prevented. Moreover, this will assist the researchers in identifying the challenges faced and changes obtained by e-government, which is still growing within the UK. The decision to conduct a longitudinal study also influenced the choice of local authority, as Hillingdon council is conveniently located within five minutes walking distance to the university where the researchers are based.

While the paucity of prior theoretical and empirical research necessitates 'going into the field', using multi-methods - interviews (Yin, 1994) and surveys (Miles & Huberman, 1994) ensured that the data gathered was not biased. The interviewees included a cross section of employees who were involved in various aspects of the e-government project in the council and were selected after initial discussions with the e-government Programme Manager (who is responsible overall for the e-government project in the council). This process helped to eliminate any bias from forming in the data collected. Semi-structured interviews (Yin, 1994) lasting around two hours were conducted with two senior managers-the e-government Programme Manager and IT Director in the Libraries of Hillingdon, one middle manager and two operational level staff. Follow-up structured interviews were thereafter arranged in order to confirm the results that were obtained by the researchers. The interviews were tape-recorded and the notes were later transcribed.

The interviews were complimented with one hundred survey questionnaires, which were distributed within the borough of Hillingdon by randomly selecting candidates at the main local shopping centre in the borough. In order to prevent the possibility of bias in relation to the sample of citizens chosen for the survey, the researchers ensured that they approached a cross section of citizens covering obvious aspects such as age and gender. Furthermore, when approaching the citizens to seek their consent to participate in the survey, the researchers explained the purpose of the questionnaire and at the same time endeavoured to identify the occupational backgrounds of the citizens. This further ensured that the survey sample covered a diverse set of citizens. From the one hundred questionnaires distributed, sixty-one usable responses were received.

Questionnaires were selected as a supplementary research method as they are relatively inexpensive and less time consuming to administer to a larger sample (general public in this case) and have the ability to provide both quantitative and qualitative data (Cornford, 1996). Before the actual survey

could be undertaken, a pilot study of the questions to be posed to the citizens was undertaken with 15 participants from various age groups and genders. As suggested by Walliman (2001) this prevented inappropriate questions from arising or confusion amongst the participants to occur. To ensure that the collated data will be easily accessed and saved for future analysis, the responses were recorded into a Microsoft Access database.

For the case study, an approach that collated qualitative rather than quantitative data was pursued. This measure was adopted so as to obtain rich data that would provide a deep and meaningful understanding rather than a numerical one (Walsham, 1993).

To verify and validate the primary findings, triangulation (Saunders *et al*., 2000; Ragin, 1987; Eisenhardt, 1989) of the interviews and survey results with secondary data in the form of officially published government documents, and other notes transcribed by e-government officials was undertaken. This was to ensure that no bias from either the researchers or the respondents could emerge. Finally, the data analysis was done by comparing the different findings against each other and initially forming themes, which were later merged/divided and categorised into appropriate headings.

Research Findings: Challenges Faced by Local Government in their Efforts to Deploy E-Services in the UK.

This section describes the efforts of a local authority in the UK, Hillingdon, in deploying e-government and the various challenges they faced. Hillingdon was formed in 1965 and is London's second largest unitary borough covering 42 square miles. Hillingdon has a population of 250,000 people from diverse backgrounds and ethnic minorities.

Hillingdon begun its e-government programme in July 2001 and the first phase of implementation focused largely on improving the customer phasing business processes. The second phase of implementation began in mid 2004 and focused on improving the back office operations and infrastructure in the council including networking facilities, hardware, operating systems and databases. For this, Hillingdon is working with leading IS/IT vendors such as Cisco and Novell.

In this section we examine the progress that Hillingdon has made so far in e-enabling some of their local government processes, and discuss the council's plans to improve citizens' relationship management through e-government.

The Government's Perspective

Interviews with government officials and project managers in Hillingdon council revealed a number of factors (positive and negative) that were influencing the implementation of e-government in the borough.

First, the positive factors that are encouraging e-government in the borough are summarised below.

Technological Advancements: Addressing the technological advancements required to convert from manual operations to an e-business environment, Hillingdon has taken a number of steps towards digital-connectivity. The council has already linked and integrated their outlying offices in a wide area network (WAN) configuration resulting for the first time in 300 home working and mobile connections, video conferencing and electronic learning facilities. Hillingdon's e-government programme manager points out that a number of security features such as the use of firewalls, load balancing software, single directory structures and passwords are being implemented to compliment the above. Subsequently there is an encouragement towards digital media, which according to Hillingdon's IT manager is helping to convert many manual and tedious tasks currently performed in the borough offices.

Improved Services: In keeping with the overall philosophy of e-government, the borough is focusing on providing a number of key services that are likely to have a positive impact on its citizens. These include free Internet access through public terminals and kiosks, free access to information through digital television, e-payments, e-billing and e-voting. Moreover, the borough is working hard to link up with other boroughs (local governments) and local businesses in an effort to offer local government to local government (LG2LG) and local government to local business (LG2LB) services. This is highly encouraging when viewed in the context of Layne and Lee's (2001) work (see figure 2), and indicate that the council has a well-defined e-government strategy.

On the negative side however, there were many issues that were impeding the deployment of e-government and related services in Hillingdon. The e-government programme manager in particular was quick to point out a number of challenges that were faced by the council in their efforts to implement e-government. These can be summarised as follows:

Accessibility of the Website: From a social context, it was revealed that Hillingdon has an ageing population who are more comfortable with face-to-face meetings with a borough employee than using online services. Furthermore, financial constraints prevent many citizens from owning a PC. More importantly the cost of broadband services (averaging around £15/$22 per month in the UK) and Internet access prevent the less privileged from using e-services. Research carried out by the council during the last two years indicate that around 70% of the residents believe that the telephone is the easiest mode of access to information, and many thought that there was limited demand for online services. In this context, the council is faced with the dilemma of having to sell *(push)* the e-government concept to a market with little demand *(pull)* from the buyer's (the citizens in this case) side.

Data Protection and Security Constraints: UK data protection laws, cyber crime and credit card fraud was identified by many interviewees as proving to be a obstacle for e-government diffusion, since people are less confident of disclosing their personal information on the Internet. As suggested by the e-government program manager, this is to be expected given that Hilligndon's population is made up of diverse ethnic and social backgrounds and many

citizens were nearer or pass the age of retirement making them less confident of using technology.

Language Barriers: Language is another social obstacle that is preventing citizens from using the e-services offered by the council according to a senior manager. It was suggested that some of Hillingdon's ethnic minorities did not communicate in English and were therefore unable to use e-services. These categories of people prefer information in hard (paper) format in their own languages. This senior source pondered, "perhaps, this issue will be ultimately resolved with time when web pages are published in different languages to cater to some of the other main languages spoken by the citizens of the borough".

Paradigm Shift: Not surprisingly, from an organisational perspective, some staff was resisting the change in roles and responsibilities and was exhibiting a reluctance to switch to the new way of working. While the majority of the staffs are residents in the borough, the e-government programme manager disappointingly stated, "it seems like ICT training has had little impact so far in increasing their motivation". Resistance to change though is nothing new, and project managers encounter this routinely in the context of most organisational change and improvement initiatives. One of the common and established strategies for overcoming this obstacle remains education and training of staff on the technology or work practices driving the change.

Political and Financial Constraints: In the context of management and strategy, although senior and middle management level members of the Hillingdon local authority offices embrace e-government and are largely committed to the initiative, various political factors influence the level and speed of progress made in the various projects. Two such factors are the allocation of funding and resources needed to redesign and e-enable current business processes. Moreover, many senior managers were frustrated with the lack of funding for e-government initiatives at local authority level. Hillingdon's efforts were constrained due to insufficient funding and the fact that government funding comes in packages for each financial year. This method of funding is hindering senior management plans for a long-term e-government strategic plan for the borough. This suggests that the government's planned target of having all councils online by 2005 may need to be postponed by some time while more funding and resources are found to support the e-government implementation plans of the various councils. Furthermore, the method of allocation of funding to local councils by central government as well as the level of alignment of the local strategies and spending habits with those of central government may need to be reviewed.

Technology Constraints: From a technical perspective, as pointed out by the IT manager at Hillingdon council, the process of tendering and procuring the technology and e-business application software needed for e-government is quite a complex task considering that Hillingdon has limited experience of e-business. The programme manager added, "there are lots of presentations given by reputed companies, which makes the task of selecting the format of the electronic forms and screens, for instance quite difficult." This however is

not surprising given the lack of experience in the subject of procuring and using e-business type applications in the government sector.

The Citizens' Perspective

While the above factors were the state's perceived influences on e-government, we summarise the results of a survey on the citizens of Hillingdon and highlight below their views on e-government. Around one hundred questionnaires were distributed amongst the Hillingdon residents and sixty-one usable responses were received. The survey respondents were categorised into three main areas, age group, gender and occupation.

Not surprisingly, the survey results indicated that the younger generation (16-30) and private sector employed workers accessed the Internet and the councils e-government website more frequently than any other category. With respect to access to the different services offered by the Hillingdon council's e-government website, the results were spread across the age groups and gender as outlined in table 1.

Age Group	Learning	Leisure	Care	Complaints	Job Search
16-30	26	26	5	16	26
30-50	35	35	0	5	20
Over 50	0	33	0	11	6
Gender					
Male	30	24	0	12	9
Female	15	43	4	9	30

Table 1: Access to Local e-Government Services by Age and Gender (Shown as a % from 61 responses)

As indicated in table 1 above, some of the services offered by Hillingdon Council are popular with residents. Frequently used services include, reservation of books from local libraries (learning), inquiring and booking of local sports and recreational facilities (leisure) and filing online complaint forms (complaints). The libraries initiative known as the 'Peoples' Network' has been very successful at Hillingdon such that the library has been winning awards for its efforts (http://libraries.hillingdongrid.org/). These include providing training and education services and computing services to the disadvantaged citizens such as, the unemployed and older citizens. With respect to user satisfaction and trust - two issues that arise in the offering of online products and services, the survey results indicated a mixed reaction. Interestingly, many respondents irrespective of age or occupation indicated that they would benefit from the services offered through the e-government initiative at Hillingdon.

Independent research (surveys) by Hillingdon council confirms our findings and shows that the free access to ICT facilities offered by Hillingdon Library is a popular service used by citizens (Hillingdon People's Network ICT User Survey Report, 2004). Furthermore, according to this research the occupational background of the citizens using the free ICT services offered by the council indicates that the online services are attracting the computer literate and able citizens more than the retired and disabled ones (ibid). Sadly, this suggests that the government's objective of enticing *all* citizens to use e-services is not yet being achieved.

The above mentioned findings are further compounded by the mixed reaction indicated by the survey respondents to issues such as user satisfaction, trust and security in relation to the services offered by Hillingdon's e-government website. As outlined in table 2, of the citizens who use e-government, a fair proportion were 'dissatisfied' or 'did not trust' the e-services offered by their council. This is worrying, but consistent with the observations made by interviewees at Hillingdon council who were involved in e-government implementation.

Age	**Satisfied**	**Dissatisfied**	**Trust**	**Don't Trust**
16-30	26	74	55	45
30-50	40	60	42	58
Over 50	11	89	36	64
Occupation				
Private Sector Worker	67	33	70	30
Public Sector Worker	48	52	63	37
Student	52	48	54	46

Table 2. User Satisfaction and Trust in Local e-Government Services (Shown as a % from 61 responses)

Discussion

While it is suggested that advancements in ICT will ensure that every citizen has basic level of universal access to public services and information (Selwyn, 2003), our empirical research suggests that only certain groups of citizens were aware of and had access to e-government services in the London borough of Hillingdon. While it is imperative to have Internet access to use e-government services, our findings suggests that much has to be done in the UK to make Internet access affordably available to citizens.

The literature has also suggested that trust and security (Harrris and Schwartz, 2000; Jarvenpaa *et al*., 1999) were key areas that needed attention

in the deployment of e-government. This is substantiated in the empirical evidence, which clearly indicates that a majority of citizens, particularly the over 50-age group and pensioners, did not feel comfortable with online services. In a borough such as Hillingdon, which has an ageing population and 20% ethnic minorities, education and awareness are crucial factors. Therefore, given the context of the empirical findings at Hillingdon council, it can be argued that the UK has challenges to overcome such as diffusion, awareness, and tailored content when deploying e-government at the local level. Although this research was undertaken upon a small population, from the secondary data that is available it is known that these are factors that the national level of e-government is also facing. With regards to Layne and Lee's (2001) framework, it became evident that the local e-government initiative at the borough of Hillingdon has struggled to move beyond the *cataloguing* stage (figure 2) due to various financial, political, social and resource constraints. While the impeding effects of some of these constraints are minor and can be overcome with proper planning, reengineering and education, some remained a major threat to realising e-government at Hillingdon. To better understand their impact, nature and inimitability, these constraints can be mapped against the e-government literature as outlined in table 3.

Constraint	**According to E-Government Literature**	**According To Empirical Findings in the UK**
The Citizens Perspective	*Literature Source*	*Empirical Source*
Lack of Internet Access	[Darrel, 2002]	Interviews and Survey
Disparities in Computer knowledge	[Sampson, 2002]	Interviews and Survey
Generation Gap	[Fang, 2002]	Interviews and Survey
Lack of Awareness	[Raffat, 2003]	Survey
Language Barrier	[Fang, 2002]	Interviews and Survey
Security Fears	[Harris and Schwatz 2000, Jarvenpaa *et al*., 1999]	Interviews and Survey
Lack of Trust	[Bonham et al., 2003; Navara and Cornford, 2003; Bhattacherjee, 2002]	Interviews and Survey
Un-user-friendly Websites	[Margetts and Dunleavy 2002]	Survey
The Government's Perspective		
Lack of Finances	[Computer Weekly, 2001]	Interviews

(Contd...)

Lack of Skills and Technology	Not Identified	Interviews
Political Pressures	Not Identified	Interviews
Data Protection and Security Laws	[Bonham et al., 2003; Harris and Schwatz 2000]	Interviews
Staff Resistance to Change	[Margetts and Dunleavy 2002]	Interviews

Table 3. Factors Influencing E-Government Implementation in the UK

On a more positive note, the majority of citizens of Hillingdon thought that the services offered through e-government such as e-billing, e-payments, e-voting, and e-forms would benefit them. This is consistent with the literature (Gritzalis, 2002; Gant and Gant, 2001) that identifies these services as popular forms of service in e-government. In this context, it is important that these services are exploited and their benefits emphasised to the citizens of the borough and the UK in general. Therefore, we argue that a more positive and strong marketing campaign is needed in the UK at both the local and national government level to promote e-government. Such a campaign could involve stimulating public awareness of e-government through government sponsored workshops and seminars at both local and national level. Mailing newsletters to citizens, displaying posters and banners in public places, and using public media services to advertise the benefits of e-government could support this.

Although progress has been made in this context by publishing the 'ukonline' web portal, which provides a central point of access to e-government, it is fair to suggest that moving beyond the *cataloguing* stage to *vertical* and *horizontal* integration (figure 2) in the UK will mean extending the government's deadline of realising nationwide e-government by 2005. Besides, empirical research in the UK strongly suggests that succeeding at the *local level* is key for national level e-government success (Hackney and Jones 2002). Also, many local residents hardly interact with central government in comparison to the level of interactions they have with local government (millions for central vs. 3-4 billion for local) (www.kablenet.com). Therefore, we argue that although the central web portal (ukonline) is a helpful resource, it does not encompass the need for good local e-government web portals in the UK that offer efficient and user-friendly services.

From an organisational perspective, the paradigm shift and change of culture that e-government would introduce to government institutions would certainly face resistance as seen in other forms of organisational change such as business process reengineering (Sahay and Walsham, 1997; Avgerou, 1993; Weerakkody and Hinton 1999). Furthermore, moving from cataloguing to the horizontal integration stage in the e-government service delivery structure (see figure 2) will require cross-functional as well as cross-organisational process and IS/IT integration between government institutions in a national context, and between governments in a global context. Realising horizontal

integration therefore will require a major reengineering of the business processes and supporting software applications in government institutions, at both, local and national levels.

Furthermore, the e-government structure will consist of different cross-functional and cross-organisational business processes and information systems. This is quite a contrast to the traditional organisational structures where business processes and IS/IT systems focused on internal operations of the company. Instead, processes span beyond the organisational boundaries and are supported by enterprise applications, which are often web based (Champy, 2002). The main endeavour of these enterprise applications therefore will be to link the citizens, government and business partners (stakeholders) making communication and data sharing possible across organisational boundaries.

Given the above context, it is clear that in e-government the harmonisation and integration of business processes and supporting IS/IT systems between the main stakeholders (citizens, government agencies, employees, and business partners) is imperative in order to deliver services to citizens at *electronic speed*. While the integration between two or more of these entities may allow governments to deliver e-services at the *cataloguing stage*, in order to offer fully integrated e-services, the overall integration and harmonisation of disparate cross organisational business processes and IS/IT systems will be imperative. However, when even successful commercial enterprises are suffering with process and enterprise application integration (EAI) in the context of e-business (Linthicum, 1999; Sutherland and Willem, 2002), government institutions with inefficient processes and outdated legacy systems will find this an even more Herculean task. Yet, the reality of having to reengineer these often inefficient and ineffective business processes and IS/IT systems before e-enabling them for e-government remains encouraging though, as this can promote a degree of standardisation across government institutions which may help ease the above problem.

When examining the level of e-services offered by Hillingdon council in the context of the framework proposed by Layne and Lee, (2001) (see figure 2), it is clear that the council has much to do before realising the full potential of e-government. Sadly, this does not reflect well on other local councils or the overall national e-government implementation plans in the UK, given the fact that Hillingdon is considered a leader in 'local e-government' implementation.

Conclusion

Over the last decade, the Internet, enabled by a new array of ICTs has provided the platform for organisations to venture into new markets and exploit new business opportunities previously deemed unfeasible. While these new opportunities have only been exploited by commercial enterprises up to now, more recently governments and associated organisations have begun to exploit their benefits. This move is identified as e-government, which is seen as a

credible solution to improving the often inefficient and lacking public services. In this context, the UK government has set itself a target of e-enabling all key public services and ensuring that citizens have access to the Internet by 2005. This entails that a diversity of citizens, including the elderly and disabled should obtain easy access to public services.

This paper has reported upon the progress made by one large local authority in their efforts to implement e-government in the UK. The research highlighted a number of challenges faced at local government level and indicated that the actual implementation of e-government is a complex and lengthy task that may proceed well beyond the government's target of 2005. From a citizen's perspective, *social issues* such as lack of awareness, trust, language barriers and lack of access to the Internet were impeding citizens from using e-government services, while from the government's viewpoint financial and political constraints were the key challenges that needed overcoming. These social issues were further compounded by *technical complexities* such as the need to integrate business processes and technology across different government agencies to facilitate the efficient and effective delivery of e-services. This research also highlighted that awareness and demand for e-services is modest in the UK, thus, suggesting that more needs to be done to convince and entice citizens to use e-government. As discussed earlier, the research revealed that currently only a certain category of citizens, such as students and those in employment use the e-services offered by government in the UK. This is worrying, as often the elderly, retired and unemployed people require the services of government more frequently than the previous category (Fang, 2002). Therefore, accessibility and usability of websites are highly significant and need due consideration in the planning, development and implementation process of e-government. What this also means in terms of our research question is, that whilst technology (such as broadband networks) and facilities (such as free Internet access) that support e-government are being made available to citizens, their wider social aspects are still not being felt in the UK, thereby implying that the government still has a lot of ground to cover.

Although this research was undertaken upon a small population, from the secondary data that is available it is known that these are factors that the national level of e-government is also facing. Furthermore, while most of the e-government initiatives are currently focused on providing information and basic public services, we believe that the success of e-government will largely depend on providing value added service to citizens. However, this requires the integration of processes and IS/IT systems in different government agencies, which can be a major obstacle. Therefore, more research is needed to focus on exploring ways to improve interoperability and integration between different government agencies in the context of e-government. In this context, the emerging concepts of Service Oriented Architectures and Web Services are areas that need further exploration.

Whilst this research has provided a beginning to the study of e-government in a local authority, more surveys and interviews are being planned on a

longitudinal basis to follow the progress of Hillingdon council. First, the survey population is to include residents of the whole region and this is going to be achieved by obtaining contact information from the electoral register. Second, the research that will be obtained from the surveys will be used to form hypothesis, which will be verified and tested within the population.

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