

DIGITAL DIVIDE AND QUALITY OF ELECTRONIC SERVICE DELIVERY IN LOCAL GOVERNMENT

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Abstract

This study examined the relationship between the quality of electronic service delivery (ESD) and the levels of Internet access across the 12 official regions of the UK. A random sample of 236 local government websites was assessed for the quality of ESD. The results indicated that in contrast to regions of high household Internet access, the quality of local government websites in regions of low household Internet access was significantly poorer in terms of information content and relatively limited in terms of the range of e-enabled services.

Key words: digital divide; electronic service delivery; content and service quality.

1.1 Introduction

In UK, the central government is using the electronic service delivery (ESD) as a flagship IT project to drive forward citizen participation in local, regional and national government (Cabinet Office 2000), and has set 2005 as the deadline for delivering all electronic services to citizens. The latest information indicates among the 520 government services identified, 256 (51%) services are currently electronically enabled and it is predicted that by the end of 2002, 386 (74%) of services will be available. In terms of the national uptake of Internet access, 51% of British adults have now accessed the Internet at some time, and 37% of households now have access to the Internet, three times the number two years earlier (National Statistics 2001). In terms of national and regional differences, the levels of access still vary greatly between different parts of the UK. Access is lowest in Northern Ireland (20%) and highest in London (40%).

The 2005 ESD deadline has put an intense demand on public service agencies to change. The devolution of government authority from the central to the regional and local levels implicates that the local authorities will remain as the key drivers for the

development and implementation of ESD. A key challenge for the local authorities is to generate sufficient interest both locally and within local government. How local authorities rise to that challenge suggests an urgent need for scholarly inquiries on several important issues: How ready are local authorities and their citizenries to embrace and effectively use ESD? Do the local authorities and public agencies have the required resources and expertise in the development and implementation of ESD? What roles do the local communities (including the voluntary organizations) and the private sector play in ESD? What are the primary determinants of the success of ESD? Is it possible to group local authorities into distinct segments on the basis of the quality of ESD, and if so, do they differ meaningfully on regional development, wealth, and other criteria? This paper seeks to address some of these questions by examining the relationship between digital divide and the quality of ESD in local government.

1.1 Digital Divide: Nature and scope

Whilst there has been a considerable increase in the number of households (risen from 2.2 million to 9.4 million between 1999 and 2001) able to access the Internet from home (National Statistics 2001), inequality in access to personal computers and to the Internet still varies greatly between different regions of the UK. In the past three years, this regional difference is slowly beginning to narrow. However, the gap between those who have technological access and those who don't is still widening. The existing evidence suggests that income, education and age are important social determinants of Internet access, and that older people and those on low incomes are much less likely to use the Internet (Bucy 2000; UK online annual report 2001). It is estimated that the gap at its extreme is a greater than 60% difference in the adoption rate between the lowest and highest income groups.

1.2 Barriers to ESD adoption

Digital divide exists on a continuum of connectivity. Technological access resides on one end of this continuum, and is only the tip of an iceberg of the so-called digital divide. Other barriers include social access pertaining to whether the potential users have the mix of knowledge, economic resources and technical skills required for effective use of ICT (Bucy 2000), and significantly, apathy among those non-users who have decided not to use the Internet. Social access addresses a perennial problem as in other earlier projects such as social inclusion, urban and rural renewals. The problem addresses what central and local government can do to raise living standards and to build local competency. In relation to digital divide, people living in poor communities their awareness of the IT benefits generally remain low. High unemployment levels mean only a very few can access Internet through the workplace. Low-income levels mean that few people have the resources to buy computers and use them on a regular basis. ESD can provide part of the solution if it is used strategically to improve access to services such as health, education, leisure, shopping and job information. To tackle social access, the government has put additional resources in the development of a network of over 6000 UK online centres, providing community-based access and learning points.

Another perennial barrier is apathy in Internet adoption. Contrary to the assumption that there is a mass and genuine demand for ESD, most citizenry in the Western world has expressed no interest in Internet access. So whether there exist electronic options of service provision bears little relevance if any to the non-users. According to figures

from the April 2001 National Statistics Omnibus Survey (National Statistics 2001), among the 49% of British adults who had never assessed the Internet, 64% indicated that they were not interested and/or considered that they had no need to use the Internet, and only 20% non-users attributed the underlying causes to no means of assessing the Internet. In the States, a similar survey also indicated that half the adults had never used the Internet, and 57% of those non-users were not interested in Internet access (Lenhart *et al.* 2000). National apathy associated with already low adoption and use rate can present a major barrier for all governments to realize the potential values of Information and communication technologies (ICT). Reaching the economies of scale is not only necessary to pay for the technology but it serves to stimulate the production of high quality content to drive up Internet access and use.

1.3 Content and Service Quality

In tackling apathy, the government's current strategy is to co-operate the local voluntary and community sector to co-produce local and more relevant content. However, there is a lack of ICT infrastructure and capabilities in this sector to enable any radical and innovative changes (DfES 2001). In this regard, local government has to lead the way in the creation of high quality content and services. The key issue here is not so much about the technology and what it can do. Local government has to develop solutions that are right for the local context, and deploy ESD to meet the needs of the communities. In doing so, local government has effectively become the content providers, and inherited the responsibility of ensuring that the presentation and content is suited to local preferences and languages.

1.4 Research Hypotheses

Much of the research in e-government has focused on the standards for evaluating web-enabled services (Layne & Lee 2001). Website usability and navigability remain the key factors in determining the e-government readiness and maturity. Research in e-commerce and technology adoption suggests that a user-friendly website with rich, interesting and searchable contents will ultimately win customers' approval, and encourage use and revisit (Kuk & Yeung 2002). Whereas a website with poor content and design, specifically when the services are difficult to use will likely to harbour negative feelings (Mick & Fournier 1998). So in addition to the localization of contents, how usability is engineered to make the content more easy-to-read and the services more easy-to-use can have a significant impact on the uptake of ESD.

Taken together, high levels of content and service quality provided through ESD will encourage a higher level of usage. From the consumption perspective, low levels of ESD adoption and usage will slow down the development and production of local content, and will restrict the range of e-enabled services. **Against this**, we hypothesize the following.

In contrast to regions of high Internet access, in regions with low Internet access,

H₁: The quality of content provided by local government websites will be relatively poor; and

H₂: The range of e-enabled services provided through ESD will be limited.

2 Method

A random sample of 236 (out of 467) local government websites from across all the English regions including Scotland, Northern Ireland and Wales were assessed for the quality of ESD in terms of content and service quality

2.1 Measures

2.1.1 Content and service quality. Nine questions were adopted from Cullen and Houghton (2000) to assess the content and service quality of each local government web site. There were 5 questions on information content standards (e.g. content is organised around user needs not organizational structure; user is directed to related sites for specific information) and 4 questions on service quality including service breadth (e.g. services are fully operational; services can be purchased online; clients can be provided with necessary information online) and the ease of use of the services (e.g. information is timely and current; links are robust and logical; easy to navigate and so forth). Each question was assessed on a 5-point Likert-type scale ranging from 1 = meet none of the criteria to 5 = meet all criteria in exemplary manner). In terms of reliability, the respective Cronbach's alphas for information content and service quality were .78 and .71, which were within the recommended range between 0.7 and 0.9 (Hair 1988). The assessment was carried out between September and November 2001.

2.1.2 Digital divide. The data was taken from the annual report of National Statistics (2001). The data for each region was essentially the average for the twelve months April 2000 to March 2001. It represented the household access to the Internet (including using PC and Digital iTV) by the 12 official regions of the UK. It was used here as a proxy of the maximum level of ESD uptake for each region.

3. Results

Table 1 displays the descriptive statistics, and the correlations between regional Internet access and local government website content and service quality. First, the results suggest that the quality of website content and website service was mediocre with means ranging from 2.51 to 2.55. That is, the content was essentially organized around the organizational structure, and not around the needs of local citizens and communities. And the services were essentially providing information rather than offering any searchable contents and database, and hardly any online transactions including booking and payment.

Table 1. Descriptive Statistics, Correlations Between Regional Internet Access and Content and Service Quality

	M	SD	1	2	3	4
1. Regional Internet Access	30.42	6.52				
2. Website Content	2.55	0.42	0.56*	(0.78)		
3. Website Service	2.51	0.35	0.47 ⁺	0.69***	(0.71)	
4. Website Quality	2.53	0.37	0.57*	0.97***	0.84***	(0.85)

Note. N = 12 regions; Cronbach's alpha in parenthesis; + $p < .065$, * $p < .05$, *** $p < .001$.

Website quality is a composite of measures of website content and service quality.

In terms of correlation, there was a positive and significant relationship between regional Internet access and the quality of website content. This supports H_1 , suggesting that in comparison with regions of high Internet access, the content of local government websites in regions of low Internet access was significantly poorer. It is also true for the overall quality of the local government website. The findings partially support H_2 as the relationship between website service quality and Internet access was marginally significant ($p < .065$).

4. Discussion

Local government is supposed to lead the way in ESD. The present study suggests that information content standards and the service quality of local government websites still remain low, and in some cases unsatisfactory. In part the poor performance may be due to the fact that unitary authorities are currently delivering over 750 separate services to the public, which far exceeds the 520 services that are currently delivered by central government. Here we argued that this might be due to low adoption and use rate of Internet at specific regions. Although it makes a lot of sense for local government in regions of low Internet access to prioritise services and to choose traditional over electronic channel for service delivery, this regional strategy of rationalizing resources can present a huge problem to the national strategy.

To address this disconnect in strategy and to bridge the existing regional divide, the government in 2001 has required local authorities to produce Implementing Electronic Government (IEG) statements to apply for funding for implementing ESD. These statements outline the priorities of each council, and their action plans for how they will implement ESD and how this will meet the 2005 deadline. This top down strategy might not work if it is simply concerned with migrating traditionally paper-based and face-to-face services to the Internet. A true ESD strategy requires local champions to drive up ESD adoption and most important, local knowledge of how to join up services around the needs of citizens and businesses, and how to build new value-added relationships and alliances with the private, the local community and the voluntary sectors.

The knowledge barrier is a major obstacle in maximizing the potential values of any ICT initiatives (Chircu & Kauffman 2000). It will limit the capacity of local government in fully adsorbing and utilizing innovative technologies (Cohen & Levinthal 1990). Hence, when it comes to choose suitable partners, local government has to make a strategic choice. If the emphasis is about cost minimization, local government has to shop around for the lowest price and use many vendors. This arrangement is the least formalised and committed arrangement. A more formalized arrangement is through the use of application service providers (Chen & Grant 2001). The arrangement will temporarily fill the knowledge gap. But a long-term strategy is to invest in the development of human capital within the local authorities through training and effective human resources management. From a resource-based perspective, local authorities should cooperate and make strategic alliances to aggregate demands and resources so that they can afford to experiment new technologies, absorb any failures, bear the cost of implementing innovative technologies, and develop core competencies and internal resources in ICT capabilities.

In terms of methodology, there are many ways to gauge ESD quality and e-government readiness (Accenture 2001; Caldow 2001; Layne & Lee 2001; Sachs 2001). Here we used the most basic approach to assess the preliminary stage of ESD. Any follow-up studies should consider the stage of ESD and e-government development, and deploy suitable measures and time frame. One of the shortcomings of the present study was using home Internet access as a proxy of the potential adoption of ESD. Future research can validate the present findings when actual adoption and use rate of ESD is made available. Also the data based on regions was too macro. The level of aggregation may hide the variability observed within each region. Future research can consider a more case based approach to address issues related to regional diversity.

5. Conclusion

How change can be driven down the local agencies has always been a mammoth task for all the democratic governments. Ultimately, the goal of ESD is to deliver value added services to citizens. The main barrier is how to drive up adoption and use rate. Some of the pressing challenges include: (1) building strategic partnerships to deliver joined up services and high information contents; (2) investing in the development of human capital within local agencies; (3) aggregating demands to increase the local government capacity of experimenting new technologies and service delivery methods. The evaluation of the current ESD status at local government suggests there is still a lot to be done to meet the 2005 service delivery deadline. Though the government is positive about the prospect, it is hard to see how ESD can bridge the gap between information haves and have-nots.

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