

University of Galway Research Repository

Implementing successful e-government in Ireland: the importance of business process redesign

| | |
|-----------------------------|---|
| Title | Implementing successful e-government in Ireland: the importance of business process redesign |
| Author(s) | Hughes, Martin;Scott, Murray;Golden, William |
| Publication Date | 2005 |
| Publication information | Hughes, M., Scott, M., & Golden, W. (2005). Implementing successful e-government in Ireland: the importance of business process redesign. In A.-V. Anttiroiko (Ed.), Encyclopedia of Digital Government New York: IGI Global. |
| Publisher | IGI Global |
| Link to publisher's version | http://www.igi-global.com/Bookstore/Chapter.aspx?TitleId=11496 |
| Item record | http://hdl.handle.net/10379/1561 |

Implementing Successful E-Government in Ireland: the Importance of Business Process Redesign

Martin Hughes
Dept. of Accountancy and Finance,
NUI, Galway
martin.hughes@nuigalway.ie

Murray Scott
Dept. of Accountancy and Finance,
NUI, Galway
murray.scott@nuigalway.ie

Willie Golden
Dept. of Accountancy and Finance,
NUI, Galway
willie.golden@nuigalway.ie

INTRODUCTION

Competitive pressures and improvements in information technology constantly force organizations to re-evaluate their business strategies (Porter, 2001; Venkatraman, 1994).

Although public sector organizations may not operate in a competitive environment, changes in management philosophies are causing public sector organizations to think and act more like private sector organizations (Gulledge & Sommers, 2002). Electronic government is one means by which governments can offer more effective and efficient services (Layne & Lee, 2001).

This paper investigates the evolution of e-Government in Ireland. A case study is presented detailing how the Irish Government's e-government strategy was devised and implemented. The success of this implementation yields valuable insights into the identification and management of critical concerns during the evolution and attainment of business process redesign in e-

government. Cumulatively, these lessons provide a roadmap for the successful attainment of citizen centric e-government.

ELECTRONIC GOVERNMENT

Electronic government consists of using technology, particularly the Internet, as a means to deliver services to citizens, businesses and other entities (Tambouris, 2001; Watson & Mundy, 2001). E-government has the potential to transform not only the way in which most public services are delivered but also the fundamental relationship between government and citizen (Burn & Robbins, 2001; Watson & Mundy, 2001). Operational benefits of e-government, include continuous availability of service, a reduction in response time and a reduction in error rate (Al-Kibisi, de Boer, Mourshed, & Rea, 2001). These factors contribute to an increase in the efficiency of government (Coulthard & Castleman, 2001; Dearstyne, 2001; Lagroue, 2002). Through the use of information systems, organisations are challenged to redesign their processes in order to achieve the benefits of increased efficiencies, cost reductions, and better customer service (Glasse, 2001; Warkentin, Gefen, Pavlou, & Rose, 2002). Governments can also use technology to improve core business processes (Coulthard & Castleman, 2001; McAdam & Donaghy, 1999).

Business Process Redesign

Organizations are required to produce at a low cost, with high quality and with fast and flexible responsiveness to customer needs (Venkatraman, 1994). This puts pressure on organizations to redesign the way in which they conduct their business and build information systems to support new processes (Venkatraman, 1994). Out of such pressures was born the idea of Business Process Re-engineering (BPR) (Davenport & Short, 1990; Hammer, 1990). The key aspect of BPR is the fundamental and radical redesign of business processes to achieve dramatic

improvements (Hammer & Champy, 1993). The lessons learnt from the BPR era served to inform management that less radical, more holistic and more incremental changes to business processes were required (Guha & Grover, 1997).

Venkatraman (1994) identified five levels of IT-enabled business transformation. The central thesis of Venkatraman’s (1994) work is that only marginal benefits will accrue from superimposing IT on existing organisational conditions (Venkatraman, 1994). This is illustrated by the first two levels of Venkatraman’s (1994) model (figure 1. These levels, according to Venkatraman (1994), are evolutionary, as they require only minimal changes to business processes.

The top three levels are revolutionary, as these levels require radical change to existing business processes. An organisation could redesign its processes and then go on to redesign its network stretching beyond the organisation and ultimately redefine the scope of the organisation.

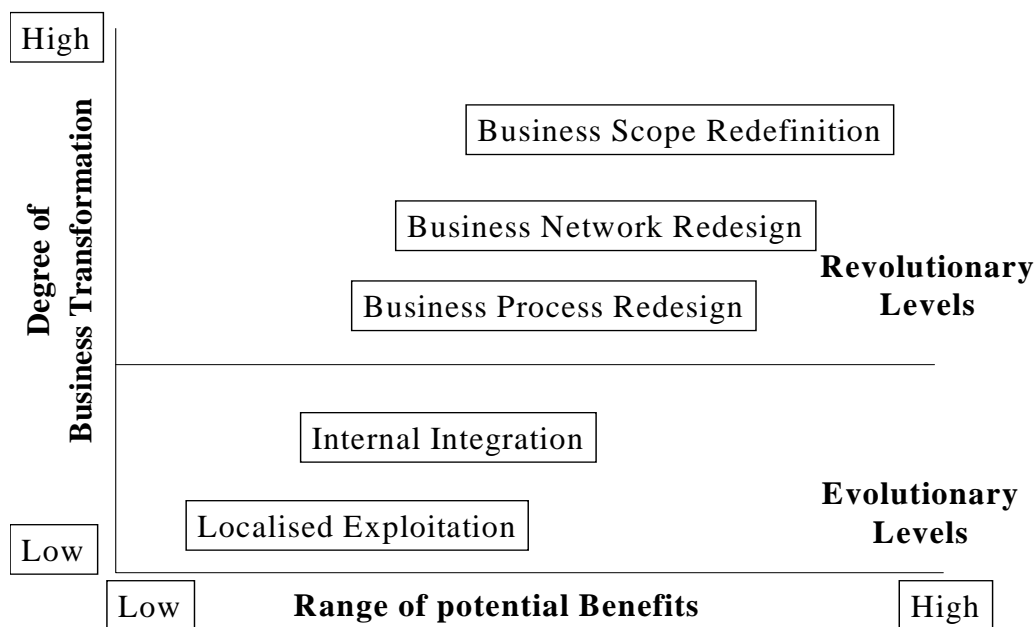


Figure 1 Alternative Approaches to BPR (Source: Venkatraman 1994)

The organisation moving up the framework is seeking efficiency. Initially, this begins with localised exploitation and then moves up to internal integration. As the organisation moves up

each level the range of potential benefits increases. However, each higher stage requires a greater degree of organisational change. Eventually, in order to achieve more dramatic results, it will need to move up to the first revolutionary level and engage in Business Process Reengineering.

RESEARCH METHODOLOGY

This research is exploratory in nature and seeks to investigate the extent to which Business Process Redesign was instrumental in the movement to e-government in Ireland. The Venkatraman (1994) model of IT enabled change was adopted as a framework for the research. Five in depth interviews were conducted with three government agencies involved in the e-government project. An in depth interview was conducted with one senior civil servant from the Department of An Taoiseach (Prime Minister); the governmental department providing strategic leadership to e-Government initiatives in Ireland. Two in depth interviews were conducted with members of REACH - the executive body created specifically to implement the e-government strategy. In addition, further interviews were conducted with two senior members of the Local Government Computer Supply Board (LGCSB), a public sector company providing IS services to local government.

These interviews were conducted onsite in April 2002. All interviews were semi-structured and lasted approximately two hours. The interviews conducted with all participants were supplemented by access to internal documentation. Records were kept of the content of all interviews. Further clarifications and updates were obtained by email and telephone contact.

E-GOVERNMENT IN IRELAND

Government in Ireland is conducted at two tiers: national and local levels as depicted in figure 2. Central government consists of 17 government departments and 35 agencies, while local

government consists of local authorities, with 46 currently in operation, who are responsible for the provision of a variety of government services at a local level and 10 Health Boards who are responsible for administering health services.

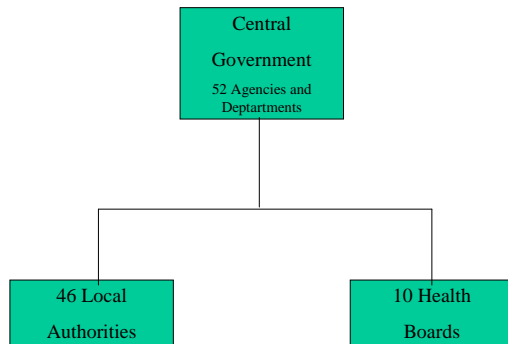


Figure 2: Structure of Government in Ireland

IS Support for Government

IS support at both central and local level is provided through a combination of in house expertise, outsourcing to the private sector and LGCSB. LGCSB is a public sector company whose objective is to provide local authorities with IS systems and expertise on an individual basis.

In response to local authority requests, LGCSB developed electronic forms (e-forms) for use on local authority web sites. These forms were web versions of the traditional paper based form. Users could register with their local authority but there was no online system in place either to process the form electronically or to authenticate the individual. These initial e-forms served only to promote the accessibility of public service forms through an electronic medium.

Road Map for E-Government

In January 1999, the Irish Government released its first action plan on the Information Society. The plan outlined a three-strand approach to online delivery of public services: information

services, interactive services and integrated services. Government departments were required to implement web sites and the OASIS (online access to services information and support) and BASIS (business access to state information and support) projects were initiated. These web sites were to be designed to meet the entire informational needs of a client regardless of the source of the information.

Towards the end of 2000 the REACH agency was officially established, its name reflecting the concept of government reaching out to its customers. REACH is an executive body with the responsibility of coordinating the central agencies responsible for implementing the e-government strategy and to provide management of the overall e-government initiative.

Initially REACH was composed of 11 civil servants drawn from a variety of departments, and was established as an independent unit within the Department of Social and Family Affairs. The concept of a portal based Public Service Broker (PSB) was adopted by REACH as the central mechanism for delivering the e-government agenda.

The framework for the PSB, as depicted in figure 3, consists of three features: integration, multiple access channels and data security. Firstly, the PSB will provide a single point of access to all services of both central and local government. The revolutionary aspect of the PSB is that service is to be provided from the customer's perspective. That is, the customer interacts with the broker and not the actual service provider. Secondly, the PSB will make services available through many access channels; these include online self-service, telephone contact centers and one-stop shops. Finally, the PSB will provide a customer data vault which will store data relevant to their interaction with the Government. This data will be used to facilitate online transactions, provide personalization of the user interface and various other aids in form completion.

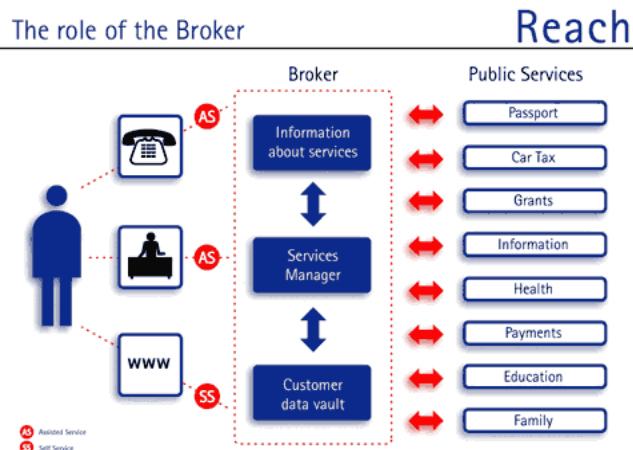


Figure 3: The Public Service Broker, Source: REACH internal documentation

Implementing e-Government

In November 2000, the OASIS (www.oasis.gov.ie) and BASIS (www.basis.ie) web sites were launched. These web sites provide detailed information on government services to citizens and businesses respectively. With a focus on customer requirements these sites broke the long-standing tradition of distributing government information along functional lines.

During 2001, REACH, in partnership with LGCSB, developed an interim level PSB. LGCSB was identified as a technical partner for two reasons; first LGCSB had gained significant expertise through the implementation of e-forms and second local authorities had a tried and trusted relationship established with LGCSB.

This interim service became known as Reachservices and was officially launched in April 2002.

Also in April 2002, the second government action plan entitled ‘New Connections’ was published. The main objectives of the e-government strategy were outlined as: a radical improvement in quality of service to customers; major improvements in administrative efficiencies and enhanced control of publicly funded services. The government also made a commitment to have all public services capable of electronic delivery available through a single point of contact by 2005. By 2006 the PSB had progressed through a procurement process and has been outsourced to a private sector firm where it is currently under construction.

Meeting the Challenge of Delivery

The main challenge in the development of Reachservices was to have every local authority paper based form available online for electronic download and submission. Each of the 46 local authorities had at least 133 forms that they required to be individually customisable. This resulted in a total requirement of in excess of 6,000 forms, excluding the health boards. To meet this requirement, LGCSB developed a centrally administered system that would allow each local authority access to an electronic form builder.

The form builder tool has a graphical user interface and is based on the idea that a generic form can accommodate any organisation for any citizen and cover any question (Figure 4). The form builder is based on three basic entities: the organisation, the individual and the question. It enables the local authority to create their customised form that is then uploaded onto the Reachservices site.

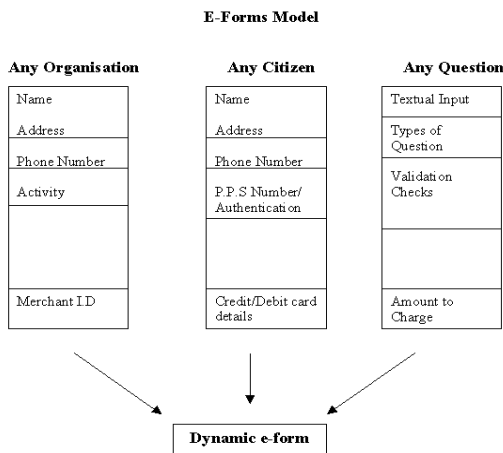


Figure 4: Representation of Form Builder Application; Source LGCSB internal documentation

Process Redesign

The implementation of Reachservices necessitated changes to traditional processes. These changes occurred in three areas: publication and distribution of forms, citizen identification and data security, and completion and submission of forms by citizens.

Central to the progression of the online service provision achieved by REACH was the redevelopment of e-forms into the form builder tool accessible to the local authority through the portal Reachservices. The local authorities are allocated a username and password allowing them access to the form builder. Each local authority administrator can then select which e-forms are to be made available for their authority and can customise those forms online. From a template form the administrator creates the questions, defines what type of response the user will give and can add whatever validation checks or mandatory fields that are required.

Another significant advance achieved by Reachservices is citizen identification. Before using the system, the individual must register with Reachservices. Part of this registration is an authentication process that is managed by the Department of Social and Family Affairs. The individual may then access the Reachservices site using their Personal Public Service (Social Security) number and password. This is an essential feature of the process, as it provides the authority with proof of the individual's identity and enables features like intelligent form filling. Personal data is then stored in a data vault. All authorities have access to the data vault however the citizen retains the right to determine which authorities have access to their individual information. Thus, the system complies with current data protection and privacy legislation as the individual citizen decides what information, beyond the statutory minimum, is shared with whom.

With respect to form completion by the citizen, intelligent form filling allows certain fields to be populated automatically based on the information stored on each citizen. It also allows for certain questions to be deactivated when they are not necessary. The user is also provided with the capability to save a partially completed form for completion at a later date. When the user submits the form it is automatically routed to the relevant authority in XML format. At present the front-end interface is fully automated while the back end system still relies on human interaction.

FINDINGS

E-government strategy was devised and ratified by the highest possible level of central government. REACH identified and exploited the technological expertise of LGCSB and successfully procured a partnership with the Department of Social and Family Affairs in order to provide an authentication service. The effective management and coordination of otherwise autonomous stakeholders, combined with the right technical infrastructure provided the ingredients for the provision of a successful public e-service.

Process changes occurred within local authorities and health boards with respect to form publication and distribution and in the acceptance of electronic submissions. Responsibility for citizen identification was shifted from the service provider to the Department of Social and Family Affairs. This also facilitated the introduction of a single repository for citizen data. The immediate impact to citizens can be judged in terms of ease of access, ease of use and efficiency. Providing a multitude of forms from individual authorities in one location gives citizens ease of access resulting in timesavings. The completion of a form is greatly simplified through intelligent form filling. The Reachservices web site went live in mid April 2002 and was launched without the use of advertising in order to prevent an initial surge of activity.

Nonetheless, the initial uptake rate was approximately 500-600 registrations per month during its first few months of operation and the total number of registered users currently stands at 1500. This volume of traffic was regarded as successful due to the subdued launch and the fact that the site only offered a fraction of the functionality ultimately intended.

Reachservices has had a 100% uptake rate by local authorities, albeit some authorities are implementing at different levels. There has also been a very high percentage take up rate amongst the health boards although not 100%. The case also highlights a more subtle yet profound observation. The Reachservices infrastructure and the future PSB are to be developed

around the existing government structures. In other words due to political considerations a full and complete process redesign will never be possible as the existing authorities must remain in place. Thus a complete understanding of the intricate and sometimes bureaucratic processes that combine to form citizen services is necessary so that it is possible to identify the process or elements of processes that can be redesigned, automated or left unchanged.

However, this interim portal highlights the transformation stages that need to be managed in order to deliver any level of e-government. Table 1 compares the e-Government achievements in this case with the Venkatraman (1994) framework.

| Venkatraman Stage | E-Government Initiative |
|------------------------------|--|
| Localised Exploitation | Development of local authority web sites with pdf forms. |
| Internal Integration | Launch of OASIS and BASIS web portals, availability of e-Forms on local authority sites and the establishment of REACH |
| Business Process Redesign | Partial process redesign through the use of Reachservices form builder application, citizen identification and online access |
| Business Network Redesign | Establishment of interim Public Service Broker Reachservices. |
| Business Scope Re-definition | Strategic thrust from agency centric to citizen centric services |

Table 1 E-government Initiative Compared to Venkatraman Framework

The development of local authority web sites represents the occurrence of Localised Exploitation that is the implementation of IT within a business typically at a functional level requiring little process change. However, the subsequent move to restructure information from a user perspective through the OASIS and BASIS web portals represents Internal Integration as this is characterised by a systematic attempt to leverage IT capabilities. The establishment of REACH

also illustrates the commitment of senior government officials to the attainment of an integrated and co-ordinated approach to e-government.

Participation in the Reachservices portal required local authorities to make significant changes to specific elements of their service delivery process: the publication, distribution and electronic acceptance of forms and the storage of citizen information. Participation also introduced a new process of citizen identification to which the local authority was a passive participant. Finally, participation also enabled electronic access to services, although this required almost no process change as the actual service itself was still conducted in a traditional manner with the citizen receiving electronic or physical notification of service completion.

Government by its nature is a collection of businesses (agencies and department) and the development of the Reachservices platform represents the attainment of Business Network Redesign as the platform radically impacts on the nature of the exchange among multiple participants through new IT capabilities. Individual authorities that traditionally operated independently began to participate in a centralised mechanism. The Reachservices platform instigated the move towards electronic information sharing that was capable of supporting seamless interconnectivity, process linkage and knowledge management.

Finally Business Scope Redefinition was manifested by the strategic shift in Government policy toward citizen centric services that are enabled by a Public Service Broker. Thus the Government was redefining its business role from authoritative re-distributor to service provider.

CONCLUSION AND FUTURE TRENDS

This case provides valuable insights into how citizen centred e-government can be attained and highlights the central importance of managing processes and process change in the implementation of e-government. The Reachservices business network connects local and central systems through the use of a centralised database that maintains the authenticated data of the

individual citizen. However, Reachservices does not provide sufficient functionality to facilitate the provision of a comprehensive set of services and thus while serving as a successful example of a move to e-government it falls far short of a true citizen centric e-government platform.

While the case provides strong evidence that the infrastructure for the PSB will be developed there is a marked absence of focus on the core process. Almost the entire effort of the REACH agency has been on the provision of the technical infrastructure. While REACH have proven that the local authorities are willing to participate in such a network they have not proven that these authorities are willing or capable of implementing more radical process change.

Business process redesign has been limited and as such this case provides evidence of the existence of the gap identified by Venkatraman (1994) between the evolutionary and revolutionary means of business transformation. The model of business transformation proposed by Venkatraman (1994) represents very well the process as it actually occurred in this case. In order to move from an evolutionary to revolutionary business transformation a requirement to abandon existing systems in favour of new systems has been identified. The ability to identify and scope these new systems was in large part facilitated by the learning that occurred while developing the initial e-government initiatives – the evolutionary stages. In addition, the establishment of a specific government entity - REACH - whose sole purpose is to oversee and implement the e-government strategy has contributed greatly to the success achieved to date. REACH was in a position to both identify and manage the critical success factors involved in delivering e-government. First, the most appropriate model and technical infrastructure were identified and implemented by outsourcing to leverage expertise that already existed. This use of existing expertise proved highly successful in terms of developing a robust infrastructure within a limited timeframe. Second, critical concerns of local authorities were managed by using familiar actors. Third, the interactions necessary between otherwise independent agencies was successfully coordinated to ensure the delivery of a quality service. Fourth, the maintenance of a

customer focus by providing a quality service through a single portal in with the citizen has control over their personal data contributed to a successful uptake of the system.

The case illustrates that e-government initiatives that fit within the evolutionary classification can be achieved in a timely and successful manner. The case also illustrates that more revolutionary initiatives are achievable but that the development of these initiatives beyond basic services requires sophisticated business network and business process redesign.

Thus an important area for further research is to investigate the unique nature of processes within the public sector so that IS platforms can be developed that accommodate less efficient processes rather than platforms that require unobtainable process redesign.

REFERENCES

- Al-Kibisi, G., de Boer, K., Mourshed, M., & Rea, N. (2001). Putting citizens on-line, not inline. *The McKinsey Quarterly, Special Edition*(2), 64.
- Burn, J. M., & Robbins, G. (2001). Strategic Planning for E-Government. *In the Proceedings of the Seventh Americas Conference on Information Systems*.
- Coulthard, D., & Castleman, T. (2001). Electronic Procurement in Government: More Complicated Than Just Good Business. *In the Proceedings of the Ninth European Conference on Information Systems*.
- Davenport, T., & Short, J. E. (1990). The new industrial engineering: information technology and business process redesign. *Sloan Management Review, 31*(4), 11-27.
- Dearstyne, B. W. (2001). E-Business, e-Government & Information Proficiency. *Information Management Journal, 34*(4), 16.
- Glasse, O. (2001). Model and Architecture for a virtual one stop Public Administration. *In the Proceedings of the Ninth European Conference on Information Systems*.
- Guha, S., & Grover, V. (1997). Business process change and organizational performance: Exploring an antecedent model. *Journal of Management Information Systems, 14*(1), 119-155.
- Gulledge, T. R., & Sommers, R. A. (2002). Business process management: public sector implications. *Business Process Management Journal, 8*(4), 364-376.
- Hammer, M. (1990). Reengineering Work: Don't Automate, Obliterate. *Harvard Business Review, 68*(4), 104-112.
- Hammer, M., & Champy, J. (1993). *Re-engineering the Corporation: A Manifesto for Business Revolution*. London: Nicholas Brealey Publishing.
- Lagroue, H. J. (2002). The impact of e-government initiatives: Louisiana's 'express lane' license and vehicle registration system. *In the Proceedings of the Eighth Americas Conference on Information Systems*.
- Layne, K., & Lee, J. (2001). Developing fully functional E-government: A four stage model. *Government Information Quarterly, 18*(2), 122.

- McAdam, R., & Donaghy, J. (1999). Business process re-engineering in the public sector: A study of staff perceptions and critical success factors. *Business Process Management Journal*, 5(1), 33-49.
- OECD. (2001). *Understanding the Digital Divide*. Paris: OECD Publications.
- Porter, M. (2001). Strategy and the Internet. *Harvard Business Review*, 79(3), 63.
- Tambouris. (2001). European cities platform for online transaction services: The euro city project. *In the Proceedings of the First European Conference on E-Government*.
- Venkatraman, V. (1994). IT - Enabled business transformation: from automation to business scope redefinition. *Sloan Management Review*, 35(2), 73.
- Warkentin, M., Gefen, D., Pavlou, P., & Rose, G., M. (2002). Encouraging Citizen Adoption of e-Government by Building Trust. *Electronic Markets*, 12(3), 157.
- Watson, R. T., & Mundy, B. (2001). A strategic perspective of electronic democracy. *Communications of the ACM*, 44(1), 27.

TERMS AND DEFINITIONS

E-government: Electronic government consists of using technology, particularly the Internet, as a means to deliver services to citizens, businesses and other entities.

Citizen-centred e-government: the development of a client based approach focussing less on traditional bureaucracies and more on customer attitudes, with the objective of providing services to citizens based on their needs accessible from a single point of contact.

Business Process Redesign: IT-enabled business transformation; the fundamental and radical redesign of business processes to achieve dramatic improvements.

Integrated Services: Integration is required on two levels, first the services that are presented to citizens should be offered in a citizen centric manner whereby the orientation of information is focussed on the customer and not on the service. Second, the underlying processes require functional integration, where services in one department will support or trigger the provision of service in another area.

Portal: the provision of integrated services, combining personalisation features, via the Internet. The portal would act as the single point of contact for the delivery of citizen-centric services.

Electronic Service Delivery: the provision of services with the assistance of telecommunications and of telecommunications-based tools. A range of access methods would be available to service users e.g. Internet, phone and walk-in counters.

Digital Divide: the digital divide is defined by the “gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities” (OECD, 2001).