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Business Process Change in E-Government Projects: The Case of the Irish Land Registry

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ABSTRACT

This research investigates one of the first e-Government services launched as part of Ireland's Information Society programme, the Irish Land Registry's implementation of their award winning Electronic Access (EAS) project. In-depth enquiries into how public sector organisations manage IT-enabled transformations have remained relatively limited and this case contributes to this emerging body of literature. The analysis highlights that the implementation of e-Government initiatives beyond basic service levels necessitates business process change in order to reap rewards. This study fulfils an identified need for research in Business Process Change (BPC) in the implementation of e-Government initiatives. In this way the research attempts to add to, and complement, the existing pool of studies exploring e-Government induced change. The conclusions from the research stress the importance of planning for process change and the support of top management in the achievement of the efficiency gains and improved customer experience that are outcomes of e-Government.

Keywords: Business Process Change, E-Government, Ireland, Property Registration

INTRODUCTION

In response to a growing range of demands, the governance process of the public sector is undergoing modernisation (Pärna & von Tunzelmann, 2007). Although organisations in this sector may not operate within competitive environments in the traditional sense, changes in management philosophies are causing these organisations to think and act more like private sector ones (Gulledge & Sommer, 2002, Hughes

et al., 2006). One of the consequences of adopting a private sector mentality has been an increased level of Information Technology (IT) projects, with a concurrent need for organisational transformation (Tan & Pan, 2003). These new technologies have the potential to provide higher levels of efficiency and the ability to reduce costs for government while simultaneously increasing productivity and delivering better quality services for stakeholders in public management (Weerakkody & Dhillon, 2008). Given the pressure on government to deliver services in a more efficient and effective manner,

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the drive to reap the benefits of these changes is intensifying.

Although various perspectives are available for the analysis of e-Government initiatives (Tan & Pan, 2003), a process perspective of e-Government initiatives, examining the areas of government where IT can be effectively utilized to enhance the efficiency of service delivery as well as the redesign of governmental processes and its impact on customers, is adopted in this article. O'Donnell *et al.* (2003) deduce that technology radically affects public organisations not only by reengineering current processes and structures but by also inducing fundamental changes to the strategic role of government. Bellamy & Taylor (1994) agree that IT in public administrations presents opportunities for increased efficiencies but also opportunities to adapt bureaucracy and in this way they suggest that IT is in fact identified as key to the reinvention and the reinvigoration of public administrations.

This research investigates one of the first e-Government services launched as part of Ireland's Information Society programme. The Irish Land Registry office implemented the award winning e-Government Electronic Access (EAS) project, which provides a unified national system of title registration for land administration, between 1999 and April 2005, as part of a strategic initiative to improve the quality of service delivered to customers. The study generates insights into the implementation and management of strategic process change by describing, analysing and explaining how the agency changed their fundamental structures and processes through this project, and the consequent effects on their employees and their customers.

It also highlights the opportunities now available to the organisation having successfully redesigned its fundamental processes. The data used in the case is derived from a variety of sources, both primary and secondary, that combine to generate a comprehensive retrospective picture of e-Government induced change in the public sector in Ireland.

Comprehensive studies of how public sector organisations manage IT-enabled transformation are relatively scarce (Tan *et al.*, 2005). This research contributes to the understanding of Business Process Change (BPC) within the public sector and highlights the key factors observed in process change which may explain its success. The study also highlights the motives for process redesign and the strategic approach taken within the organisation. The case analysis is also useful for business process management researchers as it gives insights into the application of IT and its influence on government processes. This case fulfils an identified need for research in BPC in the implementation of e-Government initiatives (Hughes *et al.*, 2006). In this way the research attempts to add to, and complement, the existing pool of studies exploring e-Government induced change from a BPC perspective. The article proceeds with a review of the relevant literature. The qualitative research methodology is outlined and the case material presented. The case findings are highlighted and discussed. Conclusions are drawn for future e-Government projects of this nature.

E-Government and Public Sector Change

e-Government refers to the use of information and communication technologies to change the structure and processes of government organisations (Beynon-Davies, 2005). In the implementation of e-Government applications governments seek efficiency, effectiveness and data quality improvement gains (Grozniak *et al.*, 2008). Weerakkody & Dhillon (2008) suggest that governments will need to radically transform most public agencies to achieve these benefits. Considering the complexity of business today, and especially in the public sector, all organisations will have to prune outdated procedures and routines in exchange for structures that are malleable to changing environmental conditions (Tan & Pan, 2003).

Public administration service delivery benefits from e-Government initiatives at a number

of levels. At its most basic, e-Government can harness modern technology to enable departments to achieve efficiency improvements in the processing of large volumes of data and other administrative operations (Scholl, 2005). However, Al-Kibsi *et al.* (2001) suggest that the real value of e-Government derives less from simply using IT, or placing public services on line, than from the ability to force an agency to rethink, reorganise, and streamline their delivery before doing so. In this way, through the use of technology, organisations are challenged to redesign their processes in order to achieve the potential benefits of increased efficiencies, cost reductions and improvements in customer service (Hughes *et al.*, 2006).

When introducing transformative government initiatives and their constituent projects, the key problems to be resolved are normally not technological in nature (Gulledge & Sommer, 2004); rather they are in the organisational and process domains (Sundberg & Sandberg, 2006). In this way, e-Government implementation represents not just a technological change but also an organisational one (Beynon-Davies, 2005). It is therefore suggested that business process change methods should be used in the framework of e-services introduction (Stemberger & Jaklic, 2007). Mutula & van Brakel (2006) agree suggesting also that the root of the problems to be solved in introducing e-services has moved from the technological domain into the information and process management domains.

Business Process Change (BPC)

Business process change, also known as Business Process Redesign (BPR), has been accepted as an appropriate conceptual lens with which to assess e-Government induced change within the public sector (McAdam & Donaghy, 1999, Thong *et al.*, 2000, Gulledge & Sommer, 2002, 2004, Groznik *et al.*, 2008, Weerakkody & Dhillon, 2008). It has been instrumental in the redesign of governmental structures (Moon & Bretschneider, 2002, Burn & Robins, 2003) to meet the needs of stakeholders (Ho, 2002). This research focuses on change as a result of

IT-enabled transformation so the term Business Process Change (BPC) is used throughout to emphasise that change is required to reap the benefits of the process.

A significant success factor in process change and improvement is management support (Thong *et al.*, 2000) and sincere commitment of top management is considered as a critical success factor in project implementation (Al-Mashari & Zairi, 1999, Stemberger & Jaklic, 2007). Harnessing the full power of e-Government requires reorganising departmental processes around the needs of the business and clear leadership is essential to make this effort work (Al-Kibsi *et al.*, 2001).

Venkatraman (1994) identified five levels of IT enabled business transformation. The first two evolutionary levels include localised exploitation and internal integration corresponding to a relatively low level of business transformation. These two initial levels suggest that only minor advantages occur when superimposing IT on existing organisation conditions and require only minimal changes to business processes. The next three levels of the framework, business process redesign; business network redesign and business scope redefinition are deemed to be revolutionary in nature and require major changes in existing business processes. To achieve significant results the organisation needs to move to the first revolutionary level and engage in BPC (Hughes *et al.*, 2006).

This principle is reinforced within an OECD (2003) report which suggests that a problem in past implementation of initiatives has been that governments have tended to use technology as a patch to provide a seamless service interface with users to a complex administrative structure with IT overlaid on existing organisational structures without adequate attention to how these structures could be improved. The report suggests that this amounts to information being rearranged without the necessary fundamental shift in processes and/or procedures. Overall, it is generally agreed that e-Government technologies are only capable of potential success if introduced in tandem with business process

change (Gulledge & Sommer, 2002, Murphy, 2002, Groznik *et al.* 2008).

Through empirical research (Thong *et al.*, 2000, Golden *et al.*, 2003), the absence of a clear strategy for process redesign when undertaking an e-Government project, has been shown to be detrimental to the success of the project and indeed higher levels of e-Government adoption in the future. These change initiatives are usually highly complex and challenging not just for the government department but also for the constituent stakeholders of the department. As a result, the need for a coherent strategy not only for the individual projects but also for the organisation as a whole is essential.

Another key issue with BPC is the need to avoid an over emphasis on the technology side of operations which can lead to a redesigned process that becomes obsolete in the extended business process (Stemberger & Jaklic, 2007). In order to avoid such errors BPC should be a deliberately planned effort where the customer is the focus of all efforts (Tan & Pan, 2003). A key factor to achieve this target is to expend sufficient time at the beginning of BPC projects to set clear strategic targets and plan accordingly (Tennant & Wu, 2005). An important enabler of success is the ability to build upon the experience of others. O'Donnell *et al.* (2003) suggest the use of external consultants. Guha *et al.*, (1997) also comment on the importance of external experience in the success of projects of this nature.

In terms of process change outcomes, profitability and market share improvement may not be relevant within public sector operations, however as many firms now acknowledge their dependence on employees in achieving their objectives, employee quality of work life issues are now becoming an important feature of assessments of process change outcomes (Guha *et al.*, 1997). Often with well managed process change employees should experience improved working conditions in redesigned process tasks which should increase job satisfaction ultimately leading to productivity gains and improved customer satisfaction (Guha *et al.*, 1997). Effectively then improved quality of

work life can now be considered as a measurable outcome of organisational process change.

RESEARCH METHODOLOGY

The objective of this research is to explore and investigate the role of business process redesign in creating efficient and seamless service delivery in a citizen centric model of process change and revitalisation within the Irish public sector, specifically the Land Registry. The research presents the business case for e-Government induced process change initiatives which may allow the organisation to achieve economies of scale, reduce duplication and provide seamless service. The research is exploratory in nature and a case study is presented detailing how the Land Registry's strategic approach to process improvement was devised and implemented.

The case study methodology was chosen to provide an understanding of the dynamics present within a single, real-life setting (Yin, 1994). The case study method is recognised as an appropriate method of empirical enquiry when the complex phenomena to be studied cannot easily be separated from their organisational contexts (Langley, 1999). The Land Registry was selected as a case study as it is an exemplar organisation (Yin, 2003) as evidenced by the fact that it won an award at the National Showcase in Public Service Excellence event in 2004 and was the overall winner of the Irish e-Government Awards in 2005 in recognition of its success in utilizing electronic services (Taylor, 2005).

The case study was conducted at the Land Registry over a period of 12 months. The research proceeded in three phases. Kaplan & Duchon (1988) argue that collecting different kinds of data by different methods from different sources provides a wider range of coverage resulting in a fuller picture. Firstly, a documentary analysis of the Land Registry using offline and online sources was undertaken. Secondly, an analysis of internal operational and project documentation was carried out. Finally in-depth interviews, considered by some as being

“the best” method of data collection (Yeung, 1995) were conducted with senior management directly responsible for the implementation process within the Land Registry.

The focal contact was a senior level manager in the organisation who was directly responsible for, and integrally involved with, the project from the beginning. In this instance this manager was a process champion, capable of discussing strategy and process implementation, organisational culture, learning and effectiveness. With over thirty years experience within the public sector he also provided valuable insights into the management teams’ perspective on e-Government, their project vision and the organisational challenges encountered pre and post implementation. He was also able to situate the EAS project within the overall strategy of the agency, and the other government organisations it interacts with.

The second interviewee was a senior team member who was intimately involved with the development and implementation of all stages of the initiative and who had an objective knowledgeable view of the entire project (Burn & Robins, 2003). He also had detailed technical expertise relating to system implementation challenges and the business process changes mandated by the system. This interviewee was also actively involved in working with other government agencies who were implementing initiatives which would in turn be linked to the EAS project. Both interviewees provided copies of internal documentation on the project from inception to final roll out to complement the externally available material available to the researchers.

A team approach to interviewing was taken (Eisenhardt & Bourgeois, 1988) which improved the reliability of the study and built confidence in the findings (Eisenhardt, 1989). The two participants were interviewed twice and generated over six hours of dialogue. The theme sheet for conducting the interviews focused on the background of the initiative and the organisational processes and structures prior to commencement; the drivers and the rollout and implementation of the project; the

planning process including change management procedures; and the benefits delivered to the organisation and to the customer in terms of efficiency and productivity. The issues of organisational change and the managerial and financial implications of the initiative were investigated as well as challenges encountered and future development plans. Each interview was recorded and subsequently transcribed and coded in NVivo. An a-priori coding framework developed by the authors was used to analyse each transcript.

The research methodology acknowledges the limitations inherent within qualitative research, such as arguments against validity and generalisation of findings. Validity concerns the integrity or credibility of results derived from qualitative research (Saunders *et al.*, 2000). However carefully conducted interviews can yield high levels of validity. Data triangulation was also used to compare and contrast the outcomes of the interviews with the external and internal documentary analysis to further validate and verify the findings (Saunders *et al.*, 2000). This aimed to ensure that bias from either the participants or the researchers was not an issue in the conclusions of the research (Yin, 2003) The inherent limitations of a single case study notwithstanding, this study has offered an analytical account of experiences of process redesign of the Land Registry.

THE LAND REGISTRY PROJECT

Throughout the developed world, there are a variety of systems for the recording of the ownership (title) to land. In Ireland, the Land Registry is the State agency responsible for the registration of property transactions and operates under the aegis of the Minister for Justice, Equality and Law Reform. Its role is to provide a system of registration of title (ownership) to land, which is comprehensive and readily accessible. The principal aims of the Registry are to maintain and develop a uniform and efficient land registration system; to guarantee legal

title on behalf of the State to interests in land; to provide ready access to accurate land information and to achieve continuously improving levels of service delivery to customers. The core business of the organisation involves examining legal documents and related maps and recording their legal impact on the registers and maps. It includes the registration of title for the first time, the registration of subsequent transactions, the recording of deeds and the supply of evidence of title and a comprehensive range of associated services. The principal customers of the agency are the legal profession and associated commercial communities within the State.

The Paper Chase

Since its inception in 1707, the Land Registry has maintained a significant repository of paper documents to carry out its functions. Approximately eight million pages of title records and over two million pages of map records were held on file prior to the implementation of the e-Government initiative. Duplicates of all title records (but not the maps) were held in the local office for each county (of which there are 26). Over 200,000 records were categorised as active at any time, with over 5,000 records accessed each day. A library type system for recording the movement and whereabouts of documents was also maintained. Over two million named index records were held in 4,000 loose leaf books. 4,000 duplicate books were also held in the local offices. Over 100 large ledgers were created each year to record applications for title and their whereabouts. Circa 10 million active historical files - the collection of documents presented for registration since the foundation of the organisation were permanently stored. Over 36,000 large-scale map sheets – A0 size were also maintained.

The Business Imperative

The Electronic Access (EAS) Project sought to provide a comprehensive record that was clear, readily accessible, minimised risk of fraud and was responsive to customer needs. The

demand for the services of the Land Registry grew steadily over the past decade, consistent with the growth in the economy and with the expanding property and mortgage markets. Through various government initiatives in the e-Government domain, the organisation has been actively seeking innovative ways of making that information available in the most efficient, convenient and effective manner while fulfilling its key strategic business objective to improve the quality of service delivered to customers. Analysis undertaken concluded that the organisation could not continue to provide the levels of service demanded by customers in a paper environment. This approach caused the organisation to focus on projects that would decrease the reliance on paper records, reduce turnaround times on services and increase the quantity and quality of information that could be provided on-line. Three separate but integrated projects, namely the Integrated Title Registration Information Systems (ITRIS), the Electronic Access (EAS) project and the Document Imaging Project (DIS) were implemented to achieve these strategic objectives.

Integrated Title Registration Information System (ITRIS)

In July 1999, the Land Registry launched a new computerised system known as the Integrated Title Registration Information System (ITRIS), which was developed by EDS Ireland Limited. This was the culmination of a project, which had commenced in 1990 as a result of a major study linking the organisations IT strategy with the organisation's business requirement to move from a paper register to a system of electronic registration. ITRIS provides direct support for internal staff members across the registry.

Electronic Access Services (EAS)

Paragraph A.42 of *Implementing the Information Society: A Framework for Action* (December 1998) mandated the Land Registry to undertake a 'flagship project' to provide 'an electronic service for folio access'. This was

achieved through the successful implementation in August 1999 of the *Land Registry Electronic Access Service* (EAS), the first e-Government project to 'go live' in the Irish Civil Service, which provided on-line access to the organisation's then existing computerised database of folios and related indices. The EAS has particular benefits for the legal profession, professional law searching firms, commercial property companies, government departments and the law departments of public and private corporations. The on-line EAS service is the public access element of ITRIS. It supports several key Land Registry functions including: electronic storage and retrieval of folios; the tracking and processing of cases and applications submitted to the Land Registry by its customers and generation and electronic transmission of case-related correspondence and provision of key statistics. Authorised users of the EAS can conduct on-line searches by referencing to the name of registered owner; view and print folios and filed plans in their office. All folios are now available for inspection online in addition to the 'Dealings Pending' on a particular folio.

Document Imaging Project

With the early success of the EAS, a critical task facing the Land Registry was the conversion of over 110 years of historical paper records into electronic format. Having undertaken a detailed situational analysis with the assistance of expert external advice, a number of options were considered. The solution chosen, in addition to providing a mechanism to have all folio records available at a much earlier date, allowed for the provision of the filed plan map as well as the folio thereby providing a complete set of information for customers. The Land Registry undertook a major project to implement document-imaging technology accompanied by a programme to have all its paper folios and filed plans systematically converted into electronic records and to make these available on-line to customers through the EAS. This project has also won a national award in 2007,

and is due to be completed for all land parcels in the state by end 2010.

DISCUSSION

The EAS system has introduced significant modifications to the underlying business processes of the Land Registry. Process change has occurred with respect to complete digitization of information; customer services; acceptance of electronic submissions; online transactions and data quality, security and storage. By using IT as a catalyst for, and enabler of, organisational process redesign, the Land Registry has effectively reinvented itself from an inflexible, slow, labour intensive service to an efficient, speedy and customer centric one.

In this way the reality reflects the suggestion put forward by Bellamy & Taylor (1994) that IT can in fact be identified as the key to reinvention and reinvigoration of public administrations. However this project illustrates that these IT projects are not implemented within a vacuum and must be fused with business process change to increase the chances of successful implementation (Venkatraman, 1994, Hughes *et al.*, 2006, Sundberg & Sandberg, 2006).

The key themes underlying the success of this project implementation are strategic leadership and commitment; customer satisfaction and service achievements via operational efficiencies and astute human resources strategies. The key organisational benefits achieved include increased efficiencies, productivity gains and reputational benefits for the entire organisation. The findings are presented and discussed in the context of the actions of top management, their impact on employees and their combined impacts on the end customer.

Strategic Approach, Leadership & Commitment

Process change usually begins with strategic initiatives enabled by the senior management team. The reasons can be reactive or in the case of the Land Registry they can be due to a proactive

push to leverage potential opportunities (Guha *et al.*, 1997). The Land Registry initiative was enabled by change agents such as the Strategic Management Initiative and the Delivering Better Government programmes, both of which were wider Irish government initiatives across the public sector. These resulted in the organisation actively seeking innovative ways of improving the information and the services available to all stakeholders. It also ensured the funding to support the project.

In the case of the Land Registry this e-Government initiative was driven by local management who made a strong business case for the initial project. Senior management concede that the Land Registry “*probably would not be able to function today if it had not gone this route and this was recognized at an early stage*”. As suggested by Bellamy & Taylor (1994) the economic and business logic of the information age gradually drives all service organisations, including those from the public sector, towards public sector transformations in the design of their processes and structures.

Any significant business process change requires a strategic initiative where top managers act as leaders in defining and communicating a vision of change (Guha *et al.*, 1997). Within the Registry the CEO and her senior management team were fully committed to the project implementation and led from the top in terms of providing leadership and vision. Given that change initiatives are usually highly complex and challenging, strategic leadership, management support and the obvious commitment of top management is considered as a critical success factor in project implementation (Al-Mashari & Zairi 1999, Thong *et al.*, 2000, Stemberger & Jaklic, 2007). Such levels of support and commitment have also proven to be essential enablers of additional projects and higher levels of e-Government adoption in the future. Internal documentation showed that this project enjoyed an exceptionally high level of management support, and interviewees also commented on this factor as a key issue in the success of the project.

These strategic initiatives involve delineation of a specific plan of action and then motivation of the entire organisation towards achievement of this goal. As suggested by Tennant & Wu (2005) the key is to expend sufficient time at the beginning of BPC projects to set clear strategic targets and plan accordingly. This is clearly reflected in the Land Registry operations. A cross-functional steering committee was created and the team teased out at a very early stage the essential enablers to the successful introduction of new technologies including issues related to people and process, “no stone was left unturned” and no last minute surprises appeared.

Such planning and attention to detail are vital ingredients in ensuring the smooth introduction of new systems and associated work practices. This is reinforced by the view of senior management where the suggestion is that the Land Registry

had a very enthusiastic and strongly focused approach at both a top and middle management level. There was a strong contribution from people at all levels, so this went right through the organisation.

In this case, clear strategic leadership, commitment from the team and ongoing planning and consultation have been key elements in sustaining this project. This has also benefited the organisation for the future development of their services and has been instrumental in the Registry being a flagship for e-Government initiatives across the public sector.

Human Resource Strategies

From a human resources (HR) perspective, the Land Registry faced challenges at the time of implementation as:

this (project implementation) was a dramatic change and the fact that we (Land Registry) were the first to do it in the public service did in itself cause some difficulties; also the fact that

we are such an old organisation, over 300 years old, there is a lot of historical baggage.

The Land Registry used astute HR policies in two regards; firstly in the utilisation of external consultants and secondly in gaining increased productivity from staff through creating the possibility of redeploying staff to core functions and roles within the organisation.

O'Donnell *et al.*, (2003) suggest that one of the key factors facilitating transformational aspects of e-Government implementation is the development and use of private sector companies when insufficient in-house expertise or resources are identified as project constraints. In the case of the Digital Imaging project the contract was awarded to a consortium headed by EDS Ireland Limited in September 2001. EDS established a 36-month program of work to cover the development of a document imaging system, the implementation of the hardware and software infrastructure and the provision of a bureau service to capture images of the documents and converting them to electronic format. The EDS team integrated EAS and ITRIS to enhance the capabilities that the Land Registry could provide to its customers and staff online.

It has been argued that the success of consultants in BPC is determined by their level of experience in implementing similar projects (Al-Mashari & Zairi, 1999). Their understanding of the organisations operations is also vital and EDS had previous experience of working with the Registry. Guha *et al.*, (1997) suggest that the more successful process change projects tend to be enabled in organisations that leverage external information and experts while also learning from best practice and customer needs. All of these elements are in evidence within the Land Registry where best practice internationally informed their decision to use an external company for the Digital Imaging project to create a customer centric organisation.

Productivity gains have been a key outcome for Land Registry operations. For example, the preparation and issuing of certified copy folios

and filed plan maps was formerly a very labour intensive activity. Also in terms of the work load involved, it is estimated that by the time the computerised system went live for the entire country over 500,000 changes were made to the register each year. An estimated 40 to 50 staff was required for this purpose. These functions have now been effectively automated. Now, once an entry is made on the central register, it is automatically available at all 24 offices and significant productivity gains have accrued. This in turn has allowed the Land Registry to

redeploy staff away from manual work into registration. There is still a need for staff to certify documents but this is now undertaken by five or six people compared to approximately 40 previously, who have now been redeployed.

The Land Registry has invested somewhere in the region of €20 million in the initiative to date and feels that the cost has been well justified as the operation *"makes more than sufficient money to run this organisation, largely because of greater efficiencies within the office now"*.

Process change within organisations directly affects the employee's quality of work life (Guha *et al.*, 1997) and within the Land Registry this change has had a positive impact. Since the EAS solution is self-service-based, the re-organisation has now enhanced job satisfaction for staff by reducing or eliminating many of the routine processing duties which previously demanded time and also releasing staff for more rewarding and satisfying work. This also reflects the fact that public services are being reconfigured to steer away from traditional book keeping functions (Tan & Pan 2003). The EAS solution has also provided for greater flexibility in staff assignments, for example, allowing employees in the Southern region to process cases for the Eastern region online. This has helped in the removal of cross-functional boundaries, a problem noted by Gulledge & Sommer (2002). In this way well managed process change has led to job satisfaction and productivity gains (Guha *et al.*, 1997). These internal efficiencies

Table 1. Annual customer transactions

Year	2000	2002	2004	2006	2007
No of subscribers	1,700	4,400	7,500	10,900	12,741
No. of business transactions through EAS per annum	0.2 million	1.2 million	1.7 million	2 million	3 million

have in turn impacted customer satisfaction in a positive manner, thus meeting the core aim of the organisation more effectively.

Customer Satisfaction

This project implementation has moved the organisation in the direction of a customer based organisational model where business processes are seamlessly integrated for the benefit of the customer (Tan & Pan, 2003) thus generating increased levels of customer satisfaction. The real test of the success of an e-Government initiative is the level of customer usage. As can be seen from Table 1, which presents a snapshot of some of the key performance indicators, uptake and usage continues to grow and this trend is likely to continue.

Since the project launch, over three million fee-paying transactions had been conducted, with over 90% of services conducted on a self-service basis making it one of the busiest e-Government services available in Ireland. The Land Registry initiative has been all about giving customers access to the information they need in a timely and convenient manner. As the size of the electronic database increases, the Registry expects to see the current upward usage levels for its on-line services to continue.

It has been suggested that the outcomes of process change should be monitored through the measurement of performance variables such as quality, cycle time, costs and ultimately customer satisfaction (Guha *et al.*, 1997). In terms of quality, as well as enhanced levels of customer service, the Land Registry can now also offer a better quality product. All certified copy folios and maps are now issued in colour whereas previously they were issued in black and white only. Data quality gains are a highly

desired outcome of e-Government applications (Groznik *et al.*, 2008), and feedback from customers available through internal documentation has shown a greater level of satisfaction with the improved service.

The Registry has been able to reduce turnaround times for services dramatically which also impact on overall customer satisfaction levels. Delays in, for example, inspections of folios and filed plans and provision of name index searches, have been eliminated. Customers and employees can now access title information online using a variety of search criteria, with access document times reduced from days to minutes. Customers can apply for certified copies of records and track the progress of their applications throughout their life cycle in the Registry.

Other waiting times have also been significantly reduced. Previously for a postal application the average turnaround time was 5 to 6 weeks. Now with the availability of the EAS and the completion of imaging, where an application is made electronically, over 80% of such applications (over 1,000 each day) are completed inside 24 hours (when the filed plan is available). In this way the benefit of e-Government in integrating underlying processes (Layne & Lee, 2001) is clearly demonstrated in this case, and is an example of how information technology can transform government for the better (Weerakkody & Dhillon, 2008).

Al-Kibsi *et al.*, (2001) suggest that a benefit of e-Government is a reduction in error rates. In the case of the Land Registry, some of the main sources of error were the incorrect folio numbers, the non-lodgement of the Land Certificate, omission of documents and the calculation of fees. Such potential errors have

been eliminated by the design of the electronic system, which automatically matches the folio number to registered owner details, shows the status of the Land Certificate and automatically calculates fees payable.

Improvements in customer access to the service have also been dramatic. Historically in order to avail of services, customers had to attend at the public offices, in Dublin and Waterford, and spend considerable periods working within the paper environment. By August 2004, all folios, names indices and filed plan maps became accessible via the EAS thereby removing the need for personal attendance in offices. An additional advantage has been that, now that data is maintained on servers, much less office space is needed and all paper records are kept in permanent deep storage. Three public offices in Waterford have been merged into one, and two Dublin offices have been reduced to one. Bearing in mind the BPC stages proposed by Venkatraman (1994), it is clear that this project has achieved Business Network Redesign with the closure of surplus offices and the redeployment of staff. The final stage of Business Scope Redefinition was not within the remit of the project.

The case clearly demonstrates that customer focus is now emphasised more within the public sector, and customer friendliness and simplification of procedures is the imperative of the administration, in keeping with the stated aim of the organisation. Often this is the main motive for business process change within the public sector (Stemberger & Jaklic, 2007). This motivation is particularly interesting given that the goal in most cases is not to attract new customers as customers are often obligated to use the service, as is the case with Land Registry services (Stemberger & Jaklic, 2007). This reinforces the idea that the motive for process change is a genuine interest in improving service provision for customers.

CONCLUSION

This research has closely scrutinized the implementation of an e-Government initiative within a public agency through the conceptual lens of BPC. Specifically the study traces the evolution of the initiative from 1999 to 2005. The case study has explored issues in the implementation of the initiative with the aim of contributing to the theoretical and managerial knowledge in the area of e-Government induced business process change. This research supplements current knowledge on the strategic factors that public sector organisations are pre-occupied with in the transformation from paper-based government to e-Government. It highlights that fundamental process change is required in order to get the full benefit from technological interventions. It also illustrates how IT projects have a resonance throughout the organisation and are catalysts for process change (Al-Kibsi *et al.*, 2001).

Due to the extent of changes needed and complexities of implementation of e-Government applications practitioners are challenged to strategically manage such initiatives, often with little experience of the issues involved. The case analysis attempts to leverage the organisational experiences observed to generate actionable guidelines for future projects of this kind. It does so by analysing the managerial perspective of the implementation process to the exclusion of other employees involved. Though beyond the scope of this particular study an interesting avenue for further research would be the employee's perceptions of, and perspectives on, the business process changes implemented in a vein similar to the work of McAdam and Donaghy (1999). Also further public sector cross-case analysis would also be useful in validating the themes which have emerged from this research.

The Registries focus on improving customer service through technological exploitation has been a lead project within the public service and the outputs have benefited individual customers, the legal profession, financial institu-

tions, and both public and private corporations. The change in the organisation itself has been phenomenal and is evidence of the modernisation suggested by Pärna and von Tunzelmann (2007). The Land Registry has been to the forefront of e-Government in Ireland and is now strategically well placed to move forward with further e-Government initiatives in the areas of e-registration and e-conveyancing. The optimisation of the business process through the e-Government project (Fagan, 2006) has yielded not only efficiency gains but a real transformation of government activities (Weerakkody & Dhillon, 2008).

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