Transformational change and business process reengineering (BPR): Lessons from the British and Dutch public sector

Vishanth Weerakkody [a], Marijn Janssen [b,*], Yogesh K. Dwivedi [c]

[a] Business School, Brunel University, Uxbridge, Middlesex, UK
[b] Delft University of Technology, Faculty of Technology, Policy and Management, The Netherlands
[c] School of Business and Economics, Swansea University, Wales, UK

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ABSTRACT

Facilitated by electronic government, public agencies are looking for transformational change by making a radical improvement. At first glance, this development is similar to the business process re-engineering (BPR) movement in the private sector. While policy makers and practitioners in the public sector have branded their recent improvements as BPR, the academic and research community have thus far eluded from making any comparisons. This has left a vacuum in terms of understanding the complexity of the challenges facing e-Government re-engineering and resultant change in public agencies. The aim of this paper is to translate the BPR movement findings to the field of e-Government induced change in the public sector. BPR characteristics and challenges are derived using normative literature and compared with two cases of public sector transformation in the UK and Netherlands. The results of these cases show that e-Government-induced change requires a plan for a radical improvement which, in contrast to BPR, is obtained by incremental steps and has a high level of participation. The findings offer policy makers valuable insights into the complexities and possible strategies that may need to be followed in order to succeed in e-Government implementation.

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1. Introduction

Traditional public administration practiced in government agencies dates back many decades. The public services offered were highly bureaucratic and siloed where the public has no choice of a service provider. Information and communication technologies (ICTs) were overlaid onto existing organizational structures and processes without any consideration to how they can be improved. In this context, changing the behavior of government organizations and establishing co-operation between government agencies is fraught with difficulty. Usually, it is easier for governments to create (national) web portals to assert their e-Government presence, but this has merely amounted to information being reorganized without any fundamental change to existing back office processes or information systems and technology (IS/IT). Given these issues, like many other Western European nations, the UK and Dutch governments are striving towards a vision for government-wide transformation. While the early stages of e-Government focused on e-enabling customer-facing services in both these countries, the latter stages of e-Government are focused towards more transformational change in public sector agencies. This second stage of e-Government are often referred to as the transformational stage of e-Government or as the UK brands it, transformational government (t-Government) (Chief Information Officer Council, 2006).

In both the UK and Netherlands public agencies are struggling to successfully achieve the levels of radical change that is required to realize fully integrated 'one-stop' e-Government due to various social, organizational and technological challenges at both governmental and individual citizen levels (Gascó, 2003; Irani, Elliman, & Jackson, 2007; Irani, Love, & Jones, 2008; Klievink & Janssen, 2009; Weerakkody & Dhillon, 2008). Moreover, both researchers and practitioners have suggested that if e-Government is to be used to successfully transform the public sector (i.e. reduce cost and eliminate waste, improve efficiency, accountability, transparency and quality of service), public agencies will need radical changes in core processes across organizational boundaries, in a manner that has not been seen before in the public sector (Kim, Pan, & Pan, 2007; Murphy, 2005; Weerakkody & Dhillon, 2008). The challenge ahead, therefore, is similar to what was seen in the private sector in the early 1990s with BPR where a radical redesign of business processes was needed to achieve dramatic improvements (Hammer & Champy, 1993). As we are now well aware, BPR was infectious in the 1990s with many medium and large organizations embracing the movement (O'Neill & Sohal, 1999; Willcocks, 1995). However, the mixed results experienced in the private sector meant that many in the practitioner community became skeptics of the concept while at the same time the academic and research community became severe critics of BPR (for example O'Neill & Sohal, 1999; Weerakkody & Dhillon, 2008).

* Corresponding author.
E-mail addresses: vishanth.weerakkody@Brunel.ac.uk (V. Weerakkody), M.F.W.H.A.Janssen@tudelft.nl (M. Janssen), Y.K.Dwivedi@Swansea.ac.uk (Y.K. Dwivedi).

The aforesaid context has created a taboo where few e-Government researchers dare to delve into the topic of BPR or look at learning from prior studies of the BPR movement. In particular, few studies have made direct comparisons of the ICT-enabled change (or e-Government) in public agencies to BPR. It is fair to argue that this is due to some of the negative publicity BPR received during its heyday in the early 1990's. Yet, the premise of this paper is that many lessons can be learned from the BPR era in relation to e-Government/IT implementation. Since e-Government needs structural and procedural changes in public agencies to improve service delivery, e-Government champions and project managers have started to apply BPR techniques in e-Government.

When drawing likenesses to BPR in the private sector, recent work identifies a large number of challenges facing transformational type radical change in the public sector (Irani et al., 2007; Weerakkody & Dhillon, 2008), which are multi-faceted and complex. A significant challenge is for government agencies to carefully consider and address the key change barriers and challenges before embarking on change initiatives that are introduced as part of e-Government programs. The lack of identity for e-Government led public sector change initiatives and the tarnished image of BPR have all prevented many researchers from drawing from BPR literature and experiences to study e-Government induced change. Herein lays the reasoning for this research: the authors are motivated to indentify and understand the socio-cultural, organizational, process, and technology challenges that public agencies face in designing and implementing e-Government. Most significantly, this research contributes to e-Government knowledge by capturing and mapping these barriers against e-Government and BPR literature, which would help policy-makers to improve their change strategies.

Two European nations, Britain and the Netherlands, which are at the forefront of e-Government implementation, provide the empirical context for this research. This research is timely as both the British and Dutch policy-makers are looking for transformational change and are looking at the BPR movement to learn from this. In particular, experts from the private sector era have been appointed as consultants to help reengineer business processes and e-enable Information Systems (IS) in public agencies in both countries. Nevertheless, as stated before, the BPR movement has been criticized and cannot likely be translated to the public sector on a one-to-one basis; this paper aims to improve the understanding of BPR in the public sector and examine the similarities and differences in the translation of private sectors efforts to the public sector.

In the UK, the e-Government influenced transformational government policy aims to place technology at the heart of the transformation agenda to improve public service delivery over a six-year period (from 2005 to 2011) (Chief Information Officer Council, 2006). Transformational government is seen in the UK as the second phase of e-Government, which focuses upon cost savings and service improvement through back-office process and IS/IT change (Murphy, 2005; Weerakkody & Dhillon, 2008). In the Netherlands, the ambitions of transformational government are primarily focused towards reducing the administrative burden of back office processes in public agencies and only thereafter at improving service provisioning to citizens. In this context, the Dutch government utilizes a strategy of collaboration and partnerships which are aimed at sharing services and work with the focus on delivering more joined-up, citizen centric online services (Janssen, Joha, & Weerakkody, 2007). Now that online presence and online transaction services are in place in the context of e-Government, both countries are looking for more fundamental ways to achieve demand-driven government; thus the need for radical change and the concept of 'transformational government' is pushed forward.

Since there is limited literature on the concept of 'transformational government' (Kim et al., 2007) and transformational government seems to resembles similar characteristics to BPR (i.e. radical change), the objective of this paper is to investigate whether the 'implementation of change' in the public sector can learn from the vast amount of available BPR literature. This should help policy makers and practitioners to leverage the lessons from BPR and not simply copy and paste them into an implementation of t-Government.

To achieve this aim, this paper is structured as follows. The next section offers a brief review of literature on the research theme, transformational government and BPR. This is followed by an outline of the research approach adopted and the presentation of two case studies of transformational change in the UK and Netherlands. Thereafter, the literature and empirical findings are synthesized. Finally, the paper concludes by highlighting the key research findings, identifying the limitations and proposing areas for future research.

2. Transformational government and BPR: a literature perspective

This section includes a discussion of the evolvement and nature of t-Government and a definition of t-Government. This is followed by an in-depth review of the literature regarding the characteristics of BPR. By combining these insights a framework for analyzing transformational efforts is developed.

2.1. t-Government

In most Western European countries, including the UK and Netherlands, transformational government or t-Government has naturally evolved from e-Government. Yet, there still remains considerable confusion about t-Government. The definitions offered for e-Government differ according to the varying e-Government focus and are usually centered on technology (Zhiyuan, 2002), business (Wassenaar, 2000), process (Bonham et al., 2001), citizen (Burn & Robins, 2003), or a functional perspective (Seifert & Petersen, 2002). These different schools of thought show there is no universally accepted definition of the e-Government concept (Yildiz, 2007). However, we can distinguish between transformational government and e-Government, which covers broader organizational, and socio-technical dimensions which involve fundamentally changing the structures, operations and most importantly, the culture of government (Irani et al., 2007; O'Donnell, B., R., & Timonen, 2003; Ramaswamy & Selian, 2007). t-Government encapsulates a wider perspective of change than e-Government and focus on achieving changes in comparison with the current structure. In the view of t-Government, the early stages of e-Government utilized the current structures and way of working and were aimed at making information and services online. Given this context and our research objective, we introduce the following definition for t-Government:

> t-Government is the ICT-enabled and organization-led transformation of government operations, internal and external processes and structures to enable the realization of services that meet public-sector objectives such as efficiency, transparency, accountability and citizen centricity.

In this definition we propose that the creation of citizen-centric services requires considerable changes at all levels which might need radical changes, rather than incremental improvement.

Lee, Tan, and Trimi (2005) and Norris and Moon (2006) found that local e-Government efforts remain primarily informational (i.e. offering basic online services) and seldom are they achieving changes like joined up service delivery or the potential positive impacts claimed by its most dedicated advocates. Given this context, authors such as Kraemer and King (2005) argued that e-Government is not transformational, but is incremental (for instance as suggested by Carr & Johansson, 1995; Davenport, 1993; Harrington, 1991). Kraemer and King (2005) further predict that the path of local e-Government efforts that have been observed to date (i.e. incremental change) is likely to continue into the foreseeable future. Even though many governmental entities have built single point of access to key public

services by introducing web portals to streamline the efficiency of services, the basic paper-based forms are continuing to rule the day (Conklin, 2007).

It is arguable that many government agencies are focusing on incremental improvements that are wrongly being branded as transformational. Moreover, some argue that more than 70% of e-Government initiatives have failed to meet the initial transformation objectives set by governments in the early stages of implementation (Beynon-Davies & Martin, 2004; Di Maio, 2006; Gandhi, 2001). Most of these failures can be attributed to the inability of governments to change business processes in response to the e-Government model (Davison, Wagner, & Ma, 2005; Ferlie, Hartley, & Martin, 2003; Joia, 2004). Therefore, these early failures have resulted in an even more pressing need to integrate the front-end and back-end systems and processes (Jas & Skelcher, 2005; Kim et al., 2007; West, 2004).

2.2. Business process re-engineering

Given the aforementioned context, analysis of a range of e-Government efforts suggests that incorporating lessons learned from the BPR era can provide an insight into what is needed to achieve change (Fagan, 2006). Also, significant social, organizational and technical challenges will need to be considered and overcome in those efforts that strive towards achieving governmental transformation (Affisco & Soliman, 2006; Horton & Wood-Harper, 2006). Consequently, success will require the ability to rethink processes in a cross-functional way as championed by BPR approaches; while this has proven difficult in the private sector, research suggests that government entities face even greater challenges (Fagan, 2006; Tan & Pan, 2003).

Many researchers have suggested that governments should be willing to change their business processes in order to reap the full potential of an e-Government initiative (Kim et al., 2007; O'Donnell et al., 2003; Swedberg & Douglas, 2003). In particular, to achieve t-Government and the associated benefits, government departments and agencies need to actively co-ordinate and align with one another through integration of processes and IS/IT systems (Murphy, 2005; Weerakkody & Dhillon, 2008). T-Government aims to enable government services to be fully integrated (vertically and horizontally) and citizens to have access to a variety of services through a single portal (one-stop-shop) (Gil-Garcia & Martinez-Moyano, 2007).

However, governments find it difficult to reach mature stages of e-Government and a superior customer-focus as joined up service delivery will require a considerable level of integration of back-end information systems such as electoral registers, land and property systems, council tax systems and benefits systems (Beynon-Davies & Martin, 2004; Holmes, 2001; Sarikas & Weerakkody, 2007). Therefore, it is often argued (e.g. Fagan, 2006) that ultimately, transformational government requires the ability to rethink processes in a cross-functional way as championed by BPR approaches (e.g. Champy, 2002; Hammer & Champy, 1993). While BPR has proven difficult in the private sector, research suggests that local authorities will face even more severe challenges in the bureaucratic, functionally-oriented, legacy system driven environment of the government (Fagan, 2006; MacIntosh, 2003; Weerakkody, Janssen, & Hjort-Madsen, 2007).

The BPR movement is driven by the diversification of customers, intensive competition, and acceleration of changes (O'Neill & Sohal, 1999). The idea of the BPR movement is that, while improvements can be made to catch up to or maintain best practices, to get ahead of competitors, organizations require a radical breakthrough (Earl, 1994). Although there is no consensus as to what constitutes BPR, there is general agreement that IT is a powerful enabler and can result in a radical improvement by causing people to rethink business processes, which in turn can lead to organizational changes in which a new strategic vision is central, rather than technology (Hammer & Champy, 1993; O'Neill & Sohal, 1999). The BPR movement is driven by a focus on customer-driven processes and processes should be

redesigned and evaluated from a customer-centric view. The focus of BPR is on the organization's core competencies and processes. Although BPR can be initiated at the bottom of the organization, BPR has a top-down approach requiring top-management support (Hammer & Champy, 1993; Weerakkody & Hinton, 1999). BPR focus is not on understanding today's processes, but rather on shaping tomorrow's processes.

Success of BPR projects is crucially dependent on BPR techniques and tools (Kettinger, Teng, & Guha, 1997; O'Neill & Sohal, 1999; Wastell, White, & Kawalek, 1994). Kettinger et al. (1997) identified 72 techniques which are commonly associated with BPR. These techniques are related to Quality Function Deployment (QFD), process modeling, simulation, rule specification, database techniques, and process measurement. They relate these to five areas of BPR: technology, management, business processes, structure, and people. In BPR projects a battery of tools and techniques is to be deployed based on the conditions and circumstances (Wastell et al., 1994).

Initial BPR projects had a high failure rate and BPR is therefore often criticized for taking a radical approach. In this sense, BPR is often contrasted to Total Quality Management (TQM), which focused on incremental improvements based on business process improvement on a small scale (Carr & Johansson, 1995; Davenport, 1993; O'Neill & Sohal, 1999). Often it is argued that BPR and TQM co-exist (O'Neill & Sohal, 1999). Both approaches place the customer as the focal point of operations and are aimed at improving business processes. TQM involves bottom-up implementation by employing continuous improvement activities and having an understanding of the process. Hammer (1990) suggests that both continuous and radical improvements are complimentary and fit under the broader umbrella of process management. Moreover, change management is an important part of BPR efforts. BPR should be viewed as a strategic, cross-functional change which should be integrated with other aspects of management if it is to succeed. BPR change is driven by the vision and not by understanding of the current situation. Management should facilitate the fundamental change by committing, training, facilitating and empowering staff (Weerakkody & Currie, 2003; Weerakkody & Hinton, 1999).

The above literature review shows that the BPR movement concerns a range of activities that are driven by a number of characteristics including the following: radical change, taking a process perspective, outlining a new structure, core competence and customer focus, catch up or maintain best practices, top-down approach requiring top-management support, changing culture and focus on core competences. In essence, many of the advocates of BPR have agreed that in order to maintain breakthroughs or transformational type change, organizations require taking a radical approach when tackling change (e.g. Champy, 2002; Hammer & Champy, 1993). Public sector agencies epitomize these sentiments given their hierarchical and bureaucratic nature. Yet, BPR scholars (Carr & Johansson, 1995; Davenport, 1993; O'Neill & Sohal, 1999) have suggested that too many radical changes disrupts customer service and destabilizes the organization and thus need to be complemented with incremental and continues change to sustain the radical breakthrough realized through BPR type change. In contrast, an environment where incremental/continuous improvements are not used with BPR, sustaining the radical improvements achieved from re-engineering will be difficult while the ongoing performance begins to deteriorate with time.

2.3. Framing transformation change

Transformational change is driven by a combination of opportunities provided by new ICT and visions, policies, and strategies aimed at taking advantage of these new opportunities. While the change approach or strategy for transformation can combine radical and incremental changes, the process of transformation involves moving from one state (i.e. that is identified as needing improvement) to another state (i.e. that demonstrates improvement from the original state) referred to

in BPR terms as moving from an 'as is' to a 'to be' situation (Davenport, 1993; Harrington, 1991; Meel & Sol, 1996). While there are many change tools and methods to facilitate this process, the 'to be' situation should demonstrate fundamental breakthroughs in performance and radical change in the organizational structure, its culture, and business processes driven by the introduction of new ICT in order to realize real business transformation (Hammer & Champy, 1993). The process of moving from the current (as is) to the desired (to be) state is illustrated in Fig. 1 which presents our framework for analyzing transformational efforts. In addition, the framework can be used to guide and direct new transformational efforts.

3. Research design

In order to confront the BPR characteristics from literature with practical experiences of government agencies, this research used a multiple-case-study-based, qualitative research approach using semi-structured interviews (Creswell, 2003; Ruyter & Scholl, 1998; Walsham, 1995; Yin, 2003). The case studies concern a local authority in London, UK and a municipality in the Netherlands; these institutions were selected on the basis of their achievement of radical changes in the content of t-Government in each country. The research protocol used is as follows. Formal interviews were conducted with senior and middle level staff lasting approximately one and a half to 2 h and were undertaken in a meeting room at the local authority buildings. This allowed the researchers and respondents to build the necessary rapport and sensitivity for the specific questions. The interviews were audio recorded with the consent of participants as this enabled an easier analysis of the information and allowed the participants to be quoted when writing the results of the research (Crane, 2005). Further, to validate and verify that the results were a true and accurate reflection of the interviews, the transcripts were sent back to the respondents and followed up with brief telephone and email exchanges.

The data analysis was done by transcribing the information onto a document which was later analyzed using a thematic analysis process (Boyatzis, 1998). Furthermore, data triangulation was used by comparing and contrasting the interview findings with observation results and document reviews. In this way the findings of the primary data were verified and validated with secondary information (Mingers, 2001; Saunders, Lewis, & Thornhill, 2002). This ensured that no bias emerged from either the participants or the researcher. Thus the findings and conclusion made from the cases are well-substantiated (Yin, 2003).

4. Change in practice: an empirical analysis

This section discusses the results of two case studies on the practical experiences of a large local authority in London (referred to LA1 to ensure anonymity) and a large municipality in the Netherlands (referred to as MA1 to ensure anonymity), each in the process of implementing what they label as 'transformational change' (or t-Government as we have referred in this research).

4.1. Case study 1: UK

The transformational government strategy in the UK aims to place technology at the heart of the agenda to change public service delivery and sets out a six-year improvement journey for public services in the UK (Chief Information Officer Council, 2006). The t-Government phrase describes the process of improving services by leveraging the benefits from technological investment through business process re-engineering and re-designs (www.improvementnetwork.gov.uk; Caldwell, 2005).

Therefore, it is arguable that t-Government is seen by many in the UK as the second phase of e-Government, which focuses upon cost savings and service improvement through back-office process and IS/IT change. The t-Government vision will require three key transformations, which firstly includes services enabled by ICT that are designed around the citizen and not the provider. Secondly, governments must move towards a shared services culture, thus eliminating data duplication and integrating and re-engineering back-office processes (Janssen et al., 2007). Thirdly, there must be broadening and deepening of government's professionalism in terms of planning delivery, management and governance of IT-enabled change (www.cio.gov.uk; Palanisamy, 2004). In this context, the UK government is attempting to fundamentally change the way in which IT is used in order to achieve joined up working between different parts of government and providing new, efficient and convenient ways for citizens and businesses to interact with government and to receive services (Beynon-Davies & Martin, 2004; McIvor, McHugh, & Cadden, 2002). Furthermore, the UK government has set an ambitious target for implementing t-Government across all public agencies by the end of 2011 (Chief Information Officer Council, 2006).

LA1 is situated in North London and is home to a vast population of 221,600 comprising of a wide range of cultures and nationalities. LA1 has been ranked a three star local authority amongst other local authorities in London by the Audit Commission performance scorecard. LA1 has a collection of e-Government services including online council
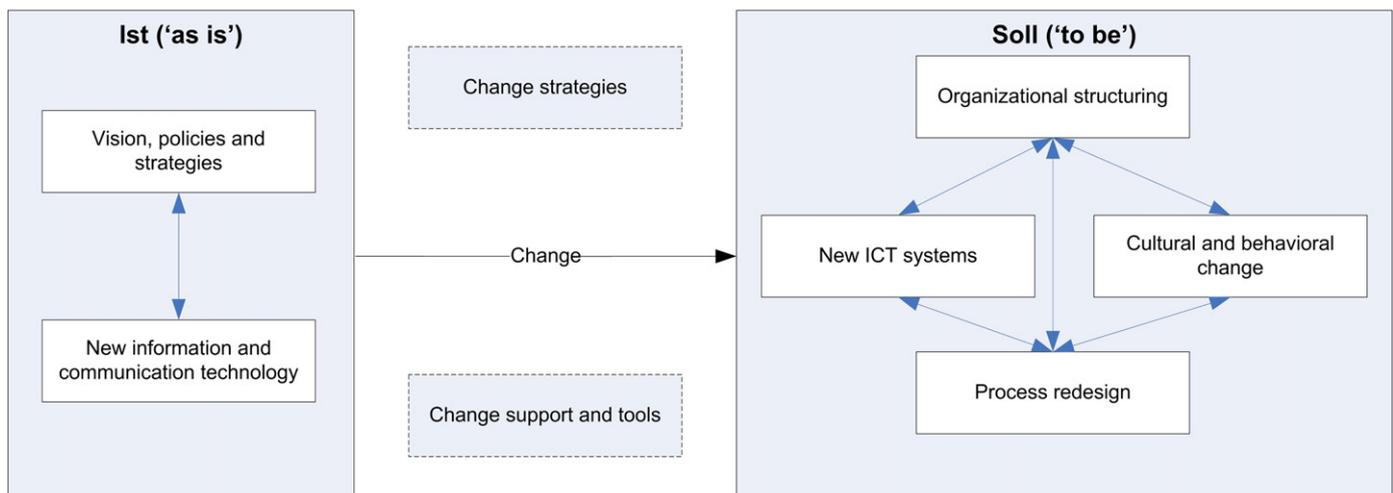

Fig. 1. Transformational change framework.

tax payments, payments of housing benefits, request for pest control, planning permission applications and licenses to name a few.

In terms of e-Government development, LA1 is seen as a leader and good practice implementer in London. LA1 went live with e-Government services in 2001 and since then it has made rapid progress in the 'National Use of Resources' league table, moving from 137th to 27th place nationwide and 4th position within London in 2007. Furthermore, LA1 has agreed upon an office accommodation strategy that will bring together back-office services of each directorate in a single site and create up to four first stop shops and joint service centers to provide front-office services. In terms of IS/IT, LA1 has implemented an enterprise resource planning (ERP) system as its corporate information system, in order to collaborate with its finance, human resources and payroll and procurement departments.

Interviews were conducted in LA1 with its CIO (Chief Information Officer) and Head of Information and Customer Services (ICS), e-Government Officer (EO) and the Corporate Services Manager (CSM). The key findings from these interviewees are summarized next.

Participation and the involvement of key stakeholders in IS/IT and process transformation was a key element in the transformation efforts. The head of ICS suggests that LA1 is using a "*service-oriented architecture approach for its transformational government agenda and he also highlights that it is an ideal approach to use*". On the other hand, the corporate services manager highlights that "*some key services are integrated with other services, however most services were re-modeled from scratch like for example HR, payroll and procurement*". In order to do this LA1 involved key stakeholders in the process of re-modeling functions from scratch and the use of a SAP ERP system to integrate the various functions.

IS/IT was an enabler for citizen-centric services. The EO highlighted that "*a one-stop-shop concept is mainly up to the citizen to decide if they wish to use one channel for all public services*". IS/IT must be used as an enabler so that when a citizen wants to, he/she can access services through the channels they prefer. Otherwise you go back to the old approaches of local government where there are restrictions on how citizens can request services. So ultimately citizens should have a choice of what channel of communication they best prefer to communicate with the council.

Cross-organizational collaboration and integration was viewed as necessary to accomplish the objectives. The head of ICS suggests that he is interested in the partnership and sharing of information between local authorities and external voluntary agencies and private sector agencies. 'LA1 Direct' is the first point of contact for citizens online. Currently, the EO is "*working on finding what citizens' want out of the e-Government concept and services are being designed around the citizens' needs, in order to support the transformational government agenda*".

In terms of realizing transformational government, cultural change took place throughout the organization even with management. According to the CSM, now people are more accountable and motivated towards their work and the front line people are working differently. Conversely, "*the trust issue is a challenge because when you start sharing; some people have a 'me and my' mentality; however the culture has changed to 'this belongs to us' as a whole and not individual departments*". As a result, this is what is "*opening up departments towards sharing*" (CSM). It was clear that culture is a big change barrier in the transformational government agenda. The head of ICS states that "*it's about changing people's attitudes towards change and breaking the silo mentality they have; it is about seeing transformation as a positive advantage for the organization as a whole… we are now beginning to break down the silos of cross departmental sharing.*"

Although radical changes were aimed for staff was heavily involved in change using training and incentives. The head of ICS pointed out that

> we have had problems in the past with our CRM system but we know where the barriers are and we are dealing with them... We are

coming closer to understanding and building upon the relationship of collaboration in the context of t-Government. However, we still have a long way to go… In terms of getting people within the organization involved in the change initiative we offer training and support. We explain why we are making the changes to people in the organization so that we can get them on side. LA1 was a poor performing council and this practice of involving people and training them actually helped in changing work practices.

Conversely, the CIO also pointed out that part of the change initiative in LA1 called for restructuring "*and in some cases even dismissals and redundancies were unavoidable*". No formal tools and techniques were employed in LAI to manage their change initiative; rather the council relied on participatory methods such as brainstorming sessions and team meetings to perform process evaluation exercises and implement change. This approach was backed up with strong education and training sessions for staff to encourage participation and reduce resistance to change.

A key aspect that was clear in LA1's vision for change revolved around understanding citizens' needs in relation to the changes needed. "*LA1 left behind all mainframe legacy systems in 2002*" (CIO). Part of the strategy at LA1 is to replace computer hardware every three years and by collaborating with voluntary agencies the council shares information and recycles old systems so that people in the community such as elderly people that haven't got access to computers and the internet can benefit from e-Government services. As the CIO pointed out, "*ultimately, as a council we must offer a range of methods of interaction for citizens to engage with the council. We have to measure the take up of what we propose to change in the organization, in order to be successful*". In terms of best practice, "*local authorities need to understand their population and see what people want out of e-Government services and design services around them, thus this is the key to achieving transformed services in our experience*" (CIO).

4.2. Case study 2: The Netherlands

In the Netherlands, the ambitions of t-Government are focused towards reducing the administrative burden of public organizations by transforming back-end processes and of citizens by improving service provisioning. The political ambition was to make 65% of the services online and reduce the administrative burden by 25% by 2007 (MinBZK, 2004). A large number of services have been made online and in 2007 a reduction of 17% of the administration was achieved (www.advies.overheid.nl). According to the World Bank (2006), this progress has been reported as a worldwide best practice. In the next four years the Dutch government hopes to achieve a further reduction of 25%. Furthermore, central government level facilities are developed to support transformation and a government enterprise architecture (GEA) has been developed (www.ictu.nl) to facilitate process and IS/IT integration at a vertical and horizontal level across government agencies (as suggested by Layne & Lee, 2001). Although the adoption of these facilities is not mandatory and government agencies are free to develop their own initiatives, many t-Government implementations and related projects are initiated by governmental agencies, often in collaboration with each other. There is several collaboration partnerships aimed at shared working towards t-Government with the focus on delivering more joined-up, citizen centric services. In addition, implementation teams have been introduced consisting of professionals who help local governments to develop a transformation plan.

The municipality studied in the Dutch context is viewed as an innovative leader and was one of the first local authorities to transform its organization from a functional, internally focused into a customer-centric form. The MA1 website has been ranked in the top-10 of best Dutch governmental websites over the last few years

(http://www.advies.overheid.nl). The medium-sized municipality is located in the western part of the Netherlands, in the middle of many economic activities. The population of 100,000 inhabitants is dominated by well-skilled and educated people. The municipality's ambition is to be a frontrunner in the field of knowledge and ICT and the focus of their service provisioning is on equal access, just, fair and transparent decision-making, and at the same time improving efficiency. Representatives from municipalities from all over the country visit MA1 as it is seen as a best practice concerning organizational change and the creation of a one-stop shop.

Interviews with senior government officials and project managers at MA1 suggests that the main transformation agenda of MA1 is approached from a three dimensional focus. Firstly, MA1 focuses on *organizational change* to arrange MA1 around functions that are focused towards customer-centric structures. This required not only a shift of knowledge from back office departments towards front office departments, but also a shift of persons having the right knowledge. This created resistance as front office activities were perceived as lower in ranking than back office activities. This organizational transformation had high levels of participation and also focused on the staff to change their mental models. The need for this was questioned at the beginning, but ultimately was seen to deliver value. A manager formulated this as "*we started with changing the organization and educating and training the staff… this provided us a head start to those who did not. Our organization was ready for transformation before we had the technology in place*".

Secondly, MA1 concentrates on *business process change* where they work towards decoupling front and back office processes. In doing so, as many back office activities as possible were shifted to the front office to increase transparency and improve collaboration and service efficiency. As it was pointed out during interviews with MA1 officials,

> *Over time, more and more activities could be pushed to the front office. Initially only a few very simple questions could be answered by front office employees, but after some time more and more questions could be answered and services provided immediately… Now, the back office is very happy that they are not bored with these questions.*

Another important element was that all questions could be tracked and the status is monitored. This makes the progress to citizens' queries transparent and it is clear when an answer can be expected.

Thirdly, *IS/IT transformation* is aimed for where MA1 hopes to integrate across vertical and horizontal processes using an orchestrated broker architecture which connects the various legacy systems with the MA1 website and other new applications that support t-Government. This facilitates availability of information in real-time and helps MA1 offer more joined-up services to citizens. This was the last step that was taken and one of the managers pointed out "*This broker facility fitted well in our vision and really brought the advantages of the organizational changes*". However, it was revealed that the realization of this systems architecture proved to be more difficult, as the software vendors had difficulties to enable the broker to facilitate the business processes. Although, at first, only a limited number of services were made available online, over time the number of services has and the MA1 website is continuously updated with new features.

MA1's focus of BPR techniques and tools has largely been on process modeling to understand the existing situation, then drawing the ideal situation and defining steps in between to enable an incremental change process. Other tools employed are related to participation and include the organization of brainstorming sessions, process model assessment, and evaluation. Finally, training and education received a lot of attention to ensure that public servants would have an understanding of the new situation, and the right level of knowledge and capabilities to fulfill their tasks.

The need for the transformation resulted in the remodeling of the service provisioning processes by taking the citizens need as the focal point. "*Citizens should be able to choose their preferred way of interacting to fulfill their needs*". Although detailed user requirements were not elicited and no tools were used for this purpose, regular meetings that involved discussion of improvements and training were key elements in the transformational efforts. This was aimed at creating a customer-centric culture in which the customer is the pivotal instead of the areas of expertise as was pointed out

> *we should get rid of the siloed mentality. Collaboration, answering customer question, going beyond what is expected should be in the mind of all people… Cultural change can only be accomplished on the long run. Ensuring that all people participate by having regular meetings, discussing customer interactions, providing training and continuous improvements helps in this.*

5. BPR and transformation government

The aforementioned findings indicate that there were a number of similarities in the implementation of process and IS/IT change (that was referred to as t-Government) between the UK and Netherlands. The main reasons for starting this transformation is creating a demand-driven organization and reducing costs in the public sector. In both cases the transformation was dominated by changing the organizational structure and business processes; technology facilitated the changes. Comparing the case study results and literature shows a number of differences and similarities. The key propositions of the BPR movement that offer lessons for public sector transformation are summarized as follows in Table 1.

Both organizations created major changes initiated by changing the organizational structure and redesigning their business processes. The starting point of both organizations was the siloed, functional organization structure dominated by hierarchies. LA1 started concentrating the back-office services of each directorate in a single site and created up to four first stop shops and joint service centers to provide front-office services. MA1 started by creating a customer-centric organizational structure where the back office departments provide services to several front office shops. Both organizations took a similar approach; they started with taking a big leap resulting in persistent changes and then used this new organizational structure to create incremental improvements in a participative manner. The big leap and incremental steps together created citizen-centric services and efficiency improvements. The former hierarchy and silos were changed into customer-centric business processes where the customers were placed in the central role instead of the functional hierarchy. The need for radical changes did not exclude the understanding of current ways of working. In both case studies the current practices were included to understand why it was done in a certain way and to avoid that tacit knowledge would be neglected. Furthermore this way of working ensured involvement and understanding of the need to transform. This major change had a high impact on the organizations and put the foundations for realizing t-Government. The changes facilitated the match between citizens' demand and organizational arrangement. As such, this explorative research suggests that t-Government should start with radical change, as suggested by the BPR movement, to enable a demand-driven organization.

While improvements can be made to catch up or maintain best practices, the two case studies in this research show that to reach transformation stage e-Government (or t-Government), public agencies require more radical approaches led by the change of functional hierarchy. In both cases, these improvements were enabled by ICT (i.e. service-oriented architecture and web technologies were used in both cases). This enables the concentration of back-office processes in one site to provide front office services to a number of

Table 1
A comparative analysis of the key propositions of BPR for t-Government.

Propositions of the BPR movement	Empirical lessons
Organizational strategies and goals to be aligned with the goals and objectives of BPR	The overall strategy is defined at central government level and related strategies are customized to and interpreted at a local level, taking into account local needs and contexts, which generate additional complexities and the need to cope with a broad range of influences.
Fundamental breakthroughs and radical change	The scope for fundamental breakthroughs is more challenging to achieve and there is no clear-cut difference between re-engineering and continuous improvement. Accomplishing radical change requires understanding the current situation and involvement of a diverse group of stakeholders.
Top-down approach to change	Public sector change takes a bottom up participative approach to achieve step wise growth. This needs to be facilitated by a high level of senior management support.
Remove functional barriers	Evidence from the case studies show that public agencies have now accepted the need to remove some of the rigid departmental barriers that were preventing efficient service delivery in the past. Yet, there is much more to achieve in terms of information exchange and harmonization of workflow between departments.
Focus on customer to ensure superior customer service	With the introduction of e-Government, the focus has gradually moved towards developing and delivering citizen centric services where customer needs are placed before individual department or public agency needs.
Focus on producing/delivering high quality products and services at the lowest possible cost	Although cost savings play an important role in designing and delivering public services, the focus on the public sector is more on ensuring a broader range of objectives (public values).
Focus on the process and tools that enable the redesign of the process	As discovered in the case studies, there was limited focus on actual tools that facilitate BPR, rather the focus was more on techniques such as brainstorming and discussion sessions to generate ideas for change.
Focus on ICT enabled transformational change	The case studies showed that the public sector was very much reliant on ICT to help drive transformation by changing front and back office systems and processes.
Saving costs and increase profits	While the focus on cost savings was evident in both case studies, the issue of profit does not impact the public sector. The public sector takes a broader focus on efficiency by looking at reducing the administrative burden for governments, businesses and citizens.
Focus on seamless information flow across business functions and between organizations in the same supply chain to improve efficiency and speed of service	Both case studies were focusing on improving information flow internally between departments and externally between government agencies through the use of various enterprise systems and application integration methods.

outlets. Although the technology supporting the BPR movement in the nineties was different, the IT-enabled transformation concept is similar. The level of improvement can be easily subject to discussion, as there is no clear-cut difference between re-engineering and continuous improvement and both can be viewed as an end on a continuum. Nevertheless, from the empirical evidence in this research, it becomes clear that e-Government is closely associated with continuous improvement and t-Government with radical change. The accumulation of continuous improvements alone did not result in the changes observed in our case studies. Rather, transformation required a fundamental and radical initial step.

Although the transformations were radical, the change process did not follow the top-down approach guided by top-management support. A mix of bottom-up and top-down guided by high levels of participation from all layers in the organizations characterized both case studies. The emphasis was on involvement, learning from each other, understanding what customer-orientation requires. From a change management perspective, t-Government looks more like TQM by employing a bottom-up approach and focusing on understanding the process well. Nevertheless, the radical change was initiated in a top-down manner, but the remodeling was left to the other organizational layers. This approach enabled a change in culture to break down the siloed behavior to ensure a culture of fostering collaboration towards serving the customer. Participation, training and education were used as the major instruments in achieving this.

The aforementioned confirms that ultimately t-Government will only be achieved when the participating government agencies collaborate and streamline business processes and integrate systems that have been traditionally fragmented (Hu et al., 2006). Furthermore, realizing t-Government requires not only highly integrated IS/IT systems but also a substantial cultural leap in business practices, organizational structures and business processes (Affisco & Soliman, 2006; Holden et al., 2002; Weerakkody & Dhillon, 2008). Further, t-Government involves both vertical and horizontal integration of business processes across government agencies (see Layne & Lee, 2001). To achieve this aim, governments will need to develop an internal integration initiative to re-engineer existing business processes by reducing bottlenecks and intermediaries (Layne & Lee, 2001; Siau & Long, 2005), as well as harmonizing processes and IS/IT systems between collaborating agencies (Champy, 2002).

As BPR studies indicate a high failure rate, questions remain as to why the transformational government efforts were perceived as successful in the two case studies. One answer can be found in the BPR literature which argues that simultaneous achievement of streamlining and control over current processes often prepares the organization for transformational change (O'Neill & Sohal, 1999). Therefore, as evident in the two cases BPR should achieve transformational changes by gaining organizational support without damaging core values and competencies, and principles of continuous improvement. This argument can be used to explain why t-Government has gained the right momentum in the two case studies, as the improvements made in the e-Government arena prepared the path for more transformational change in LA1 and MA1.

The research carried out at LA1 and MA1 shows some local governments are taking an active step towards the transformational government agenda. In particular, LA1 and MA1 have both re-modeled and integrated some key services around the citizens' needs and achieved radical changes. In terms of challenges faced in reaching the t-Government agenda, local authorities have had difficulties dealing with organizational level culture, people, structure and IS/IT systems issues. In particular, LA1 overcame the resistance to change by getting employees within the organization involved in the change initiative by offering them training and support and justifying to the employees the rationale for making the change. Conversely, LA1 has redesigned their business processes to support a newly implemented ERP system, thereby aligning their business processes with IS/IT. Overall, findings from LA1 suggest that understanding the citizen's needs in relation to t-Government and designing services around these needs is the key to achieving transformed services.

On the other hand, MA1 focused on a three dimensional approach combining change management with process re-engineering and IS/IT integration to enable the amalgamation of back office and front office processes as well as external integration between collaborating agencies to deliver joined-up, citizen-centric services. Both organizations achieved progress by creating radical changes, i.e. concentrating back-office services of each directorate in a single site and the creation of e-customer-centric

organizational structure. Then these new organizational structure and accompanying business processes were incrementally improved to enable customer-centric service provisioning. This scenario suggests that t-Government begins with the introduction of radical change that is then followed by incremental improvements to service provisioning. Given this context, more research is needed into t-Government, particularly focusing on the lessons that have been learned from the BPR movement.

Many BPR challenges were common to and encountered in the t-Government case studies conducted in the UK and the Netherlands. The question remains whether some challenges are more important than others. Although during our interviews we requested the interviewees to prioritize the challenges, the interviewees found it very hard to do this. Most of them indicated that all challenges should be addressed simultaneously. However, some interviewees pointed out *leadership*, *resistance to change*, and *culture* as significant challenges that need to be addressed in the context of t-Government. Yet, these challenges are not unique to t-Government, and are common in almost every change process.

6. Conclusion and future directions

This research shows that reaching the transformational stage (or t-Government) is viewed as the next stage of e-Government. T-Government encapsulates a wider perspective of change than e-Government and focus on achieving major changes in comparison with the current situation. To capture the varying focus of e-Government from the literature and empirically, the authors propose a new definition for t-Government in this research: "*t-Government is the ICT-enabled and organization-led transformation of government operations, internal and external processes and structures to enable the realization of citizen-centric services that are cost effective and efficient*". This definition captures the various elements that are given attention and focuses on service delivery.

The starting point of this research was that t-Government needs more radical change and could learn from the BPR movement. The literature review shows that BPR can be characterized by radical change, taking a process perspective, outlining a new structure, customer focus, catch up or maintain best practices, top-down approach requiring top-management support, changing culture and focus on core competences.

The two case studies confirmed the need for radical changes, as opposed to incremental improvement. Both organizations achieved progress by radically changing the organizational structure (i.e. concentrating back-office services and creating a customer-centric organizational structure) and by redesigning their business processes. In contrast to BPR efforts, the changes were not implemented in a top-down manner using a big-bang approach. Instead, the empirical evidence in this paper showed that change in t-Government should focus on a broader context involving diverse stakeholders and creating incremental changes within the scope of a radical change plan. Major factors in achieving the change are central support, leadership, resistance to change and culture. For policy makers this implies that t-Government begins with the introduction of radical change that is then followed by incremental improvements to service provisioning.

The key lessons for policy-makers and designers that emerge from this study can be summarized as follows:

• The lessons learned from the private sector BPR movement offers valuable insights (taking a process perspective, customers as focal point, outlining a new structure, process orientation and aiming at achieving radical changes) into transformational change in the public sector and should not be ignored;
• The change of culture has a similar emphasis. Yet in BPR this is realized in a top-down fashion supported by top-management support. Practitioners and policy-makers must not try to copy these ideas of BPR as experienced in the private sector on a one-to-one basis for the public sector, but should include aspects such as a high-level of bottom-up participation and step-wise growth or a series of incremental change that would have a cumulative transformational effect;
• The literature review shows that the practical challenges faced in t-Government are similar to BPR implementations in the private sector, yet the culture and environment is different and the stakeholders are many and varied; therefore the approach to change should be cautious and should be guided by high-levels of participation, the accomplishment of incremental steps and training activities.
• In BPR, both the focus on core competencies and 'catch up' to maintain best practices are a key element, whilst this was not found in the case studies.

From the vast majority of BPR techniques and tools used, those focused on business processes and people are dominating. Techniques like brainstorming, discussion sessions, process assessment, risk analysis, impact assessment (including cost–benefit), education, and training received a lot of attention. Other BPR tools and techniques as used in BPR might be suitable, but were hardly used in the case studies and need further consideration. Especially techniques to elicit user requirements are lacking. Therefore, more public agencies need to be exposed to the specific tools and techniques that are widely available for process modeling and re-engineering.

The main limitation of this research is the lack of consensus about what constitutes definitions of transformational government and the shortage of empirical studies. This research explored only two cases and therefore any generalization of the findings will require further studies in different public agencies, initially in the two countries (UK and Netherlands) considered in the paper, and thereafter in other countries to validate the findings. In addition, public sector transformation often concerns not only organizational change, but requires the transformation of organizational networks. The inter-organizational scope should be addressed in further research. Nonetheless, this research offers academics and practitioners further opportunities to investigate the use of BPR techniques, tools and methods for t-Government that will enable more radical transformation; this aspect has been relatively overlooked since the advent of e-Government in the late 1990's. The change barriers and challenges identified in this research can be used as a starting point for developing BPR approaches for t-Government. In addition, future research can be conducted to exhaustively satisfy all key challenges affecting t-Government by incorporating more case studies and practical experiences particularly at an inter organizational level. Furthermore, the researchers believe that a greater share of quantitative research methods could be used in the future in combination with qualitative techniques to rank and measure the impact of the t-Government drivers, benefits and barriers identified in this research.

References

Affisco, J., & Soliman, K. (2006). e-Government: A strategic operations management framework for service delivery. *Business Process Management Journal*, *12*(1), 13–21.
Beynon-Davies, P., & Martin, S. (2004). Electronic local government and the modernisation agenda: Progress and prospects for public service improvement. *Local government studies*, *30*(2), 214–229.
Bonham, G., Seifert, J., & Thorson, S. (2001). The transformational potential of e-Government: The role of political leadership. Paper presented at the 4th Pan European International Relations Conference of the European Consortium for Political Research.
Boyatzis, R. (1998). *Transforming qualitative information.* Thousand Oaks, CA: Sage Publications.
Burn, J., & Robins, G. (2003). Moving towards e-Government: A case study of organisational change processes. *Logistics Information Management*, *16*(1), 25–35.
Caldwell, T. (2005). Government set to transform info. *Information World Review*, *219* Retrieved from. www.iwr.co.uk
Carr, D., & Johansson, H. (1995). *Best practices in re-engineering: What works and what doesn't in the re-engineering process.* New York: McGraw-Hill.
Champy, J. (2002). *X-engineering the corporation: Reinventing your business in the digital age.* New York: Warner Business Books.
Chief Information Officer Council (2006). Cabinet Office Report. Retrieved 29th May 2007, from. http://www.cio.gov.uk/documents/annual_report2006/trans_gov2006.doc
Conklin, A. (2007). Barriers to adoption of e-Government. Paper presented at the Proceedings of the 40th Hawaii international conference on systems sciences, IEEE.

Crane, J. (2005). Qualitative research methods. Retrieved 28th May 2007, from. http://web.isp.cz

Creswell, J. (2003). *Research design, qualitative, quantitative and mixed methods approach.* Thousand Oaks, CA: Sage publications.

Davenport, T. H. (1993). *Process innovation: Re-engineering work through information technology.* Boston: Harvard Business School Press.

Davison, R. M., Wagner, C., & Ma, L. C. K. (2005). From government to e-Government: A transition model. *Information Technology and People*, 18(3), 280–299.

Di Maio, A. (2006). Moving from e-Government to government transformation. *Business Issues*, 1–3.

Earl, M. J. (1994). The new and old of business process redesign. *Journal of Strategic Information Systems*, 3(1), 5–22.

Fagan, M. (2006). Exploring city, county and state e-Government initiatives: An East Texas perspective. *Business Process Management Journal*, 12(1), 101–112.

Ferlie, E., Hartley, J., & Martin, S. (2003). Changing public service organizations: Current perspectives and future prospects. *British Journal of Management*, 14, 1–14.

Gandhi, S. C., C. (2001). e-Government initiative at city of Orlando: Current trends and future directions. Paper presented at *URISA*, Long Beach, California.

Gascó, M. (2003). New technologies and institutional change in public administration. *Social Science Computer Review*, 21(1), 6–14.

Gil-Garcia, J., & Martinez-Moyano, I. (2007). Understanding the evolution of e-Government: The influence of systems of rules on public sector dynamics. *Government Information Quarterly*, 24, 266–290.

Hammer, M. (1990). Reengineering work: Don't automate, obliterate. *Harvard Business Review*, 68(4), 104–112.

Hammer, M., & Champy, J. (1993). *Re-engineering the cooperation: A manifesto for business revolutions.* New York: Harper Business.

Harrington, H. (1991). *Business process improvement: The breakthrough strategy for total quality, productivity and competitiveness.* New York: McGraw-Hill.

Holden, S., Norris, D., & Fletcher, P. (2002). Electronic government at the grass roots: Contemporary evidence and future trend. Paper presented at the Proceedings of the 36th Hawaii International Conference on System Sciences.

Holmes, D. (2001). *e-Gov e-business strategies for government.* London: Nicholas Brealey Publishing.

Horton, K., & Wood-Harper, T. (2006). The shaping of I.T. trajectories: Evidence from the UK public sector. *European Journal of Information Systems*, 15, 214–224.

Hu, P., Cui, D., & Sherwood, A. C. (2006). Examining cross-agency collaborations in e-Government initiatives. Paper presented at the Proceedings of the 39th Hawaii International Conference on System Sciences (HICSS'06).

Irani, Z., Elliman, T., & Jackson, P. (2007). Electronic transformation of government in the U.K.: A research agenda. *European Journal of Information Systems*, 16(4), 327–335.

Irani, Z., Love, P. E. D., & Jones, S. (2008). Learning lessons from evaluating eGovernment: Reflective case experiences that support transformational government. *The Journal of Strategic Information Systems*, 17(2), 155–164.

Janssen, M., Joha, A., & Weerakkody, V. (2007). Shared service arrangements in the public sector: An exploratory study. *Transforming Government: People, Process and Policy*, 1(3), 271–284.

Jas, P., & Skelcher, C. (2005). Performance decline and turnaround in public organizations: A theoretical and empirical analysis. *British Journal of Management*, 16, 195–210.

Joia, L. (2004). Developing government-to-government enterprises in Brazil: A heuristic model drawn from multiple case studies. *International Journal of Information Management*, 24, 147–166.

Kettinger, W. J., Teng, J. T. C., & Guha, S. (1997). Business process change: A study of methodologies, techniques, and tools. *MIS Quarterly*, 21(1), 55–79.

Kim, H., Pan, G., & Pan, S. (2007). Managing IT-enabled transformation in the public sector: A case study on e-Government in South Korea. *Government Information Quarterly*, 24, 338–352.

Klievink, B., & Janssen, M. (2009). Realizing joined-up government. Dynamic capabilities and stage models for transformation. *Government Information Quarterly*, 26(2), 275–284.

Kraemer, K., & King, J. (2005). Information technology and administrative reform: Will e-Government be different? *International Journal of Electronic Government Research*, 1, 1–18.

Layne, K., & Lee, J. (2001). Developing fully functional e-Government: A four-stage model. *Government Information Quarterly*, 18(2), 122–136.

Lee, S., Tan, X., & Trimi, S. (2005). Current practices of leading e-Government countries. *Communications of the ACM*, 48(10), 99–104.

MacIntosh, R. (2003). BPR: Alive and well in the public sector. *International Jouranl of Operations and Production Management*, 23(3), 327–344.

McIvor, R., McHugh, M., & Cadden, C. (2002). Internet technologies: Supporting transparency in the public sector. *The International Journal of Public Sector Management*, 15(3), 170–187.

Meel, J. V., & Sol, H. G. (1996). Business engineering: Dynamic modeling instruments for a dynamic world. *Simulation & Gaming*, 27(4), 440–461.

MinBZK (2004). *Publiek dienstverlening 65% elektronisch.* Den Haag, The Netherlands: Dutch Ministry of Interior and Kingdom Relations.

Mingers, J. (2001). Combining IS research methods: Towards a pluralist methodology. *Information Systems Research*, 12(3), 240–259.

Murphy, J. (2005). *Beyond e-Government the world's most successful technology-enabled transformations, executive summary, INSEAD the business school for the world.* .

Norris, D., & Moon, M. (2006). Advancing e-Government at the grassroots: Tortoise or hare? *Public Administration Review*, 65(1), 253–272.

O'Donnell, O., B., R., & Timonen, V. (2003). Transformational aspects of e-Government in Ireland: Issues to be addressed. *Electronic Journal of e-Government*, 1, 23–32.

O'Neill, P., & Sohal, A. S. (1999). Business process re-engineering A review of recent literature. *Technovation*, 19(9), 571–581.

Palanisamy, R. (2004). Issues and challenges in e-Governance planning. *Electronic government*, 1(3), 253–272.

Ramaswamy, M., & Selian, A. (2007). e-Government in transition countries: Prospects and challenges. Paper presented at the Proceedings of the 40th Hawaii International Conference on System Sciences, IEEE.

Ruyter, K. D., & Scholl, N. (1998). Positioning qualitative market research: Reflections from theory and practice. *Qualitative Market Research: An International Journal*, 1(1), 7–14.

Sarikas, O. D., & Weerakkody, V. (2007). Realising integrated e-Government services: A UK local government perspectives. *Transforming Government: People, Process and Policy*, 1(2), 153–173.

Saunders, M., Lewis, P., & Thornhill, A. (2002). *Research methods for business students* (3rd ed.). London: Prentice Hall.

Seifert, J., & Petersen, E. (2002). The promise of all things E? Expectations and challenges of emergent e-Government. *Perspectives on Global Development and Technology*, 1(2), 193–213.

Siau, K., & Long, Y. (2005). Synthesizing e-Government stage models — A meta synthesis based on meta-ethnography approach. *Industrial Management & Data Systems*, 105(4), 443–458.

Swedberg, D., & Douglas, J. (2003). Transformation by design: An innovative approach to implementation of e-Government. *Electronic Journal of e-Government*, 1(1), 51–56.

Tan, C., & Pan, S. (2003). Managing e-transformation in the public sector: An e-Government study of the Inland Revenue Authority of Singapore (IRAS). *European Journal of Information Systems*, 12, 269–281.

Walsham, G. (1995). Interpretive case studies in IS research: Nature and method. *European Journal of Information Systems*, 4(2), 74–81.

Wassenaar, A. (2000). e-Governmental value chain models. *Dexa*, 289–293.

Wastell, D. G., White, P., & Kawalek, P. (1994). A methodology for business process redesign: Experiences and issues. *Journal of Strategic Information Systems*, 3(1), 23–40.

Weerakkody, V., & Currie, W. (2003). Integrating business process re-engineering with information systems development: Issues and implications. *Lecture Notes in Computer Science*, 302–320.

Weerakkody, V., & Dhillon, G. (2008). Moving from e-Government to t-Government: A study of process re-engineering challenges in a UK local authority perspective. *International Journal of Electronic Government Research*, 4(4), 1–16.

Weerakkody, V. J. P., & Hinton, C. M. (1999). *Exploiting information systems and technology through business process improvement, Vol. 6*, London: John Wiley & Sons, Ltd.

Weerakkody, V., Janssen, M., & Hjort-Madsen, K. (2007). Realising integrated e-Government services: A European perspective. *Journal of Cases in Electronic Commerce*, 3(2), 14–38.

West, D. (2004). e-Government and the transformation of service delivery and citizen attitudes. *Public Administration Review*, 64(1), 15–27.

Willcocks, L. (1995). The evaluation of business process re-engineering projects in South Africa. Paper presented at the Proceedings of the Second European Conference on Information Technology Investment Evaluation, UK.

World Bank (2006). *Group review of the Dutch Administrative Burden Reduction Program.* Washington: World Bank.

Yildiz, M. (2007). e-Government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly*, 24(3), 646–665.

Yin, R. K. (2003). *Case study research: Design and methods* (3 rd ed.). London: Sage Publications.

Zhiyuan, F. (2002). e-Government in the digital era: Concepts, practice and development. *International Journal Of The Computer, The Internet and Management*, 10(2), 1–22.

Dr. Vishanth Weerakkody is a full time faculty member in the Business School at Brunel University, UK. His current research interests include public sector process transformation and change in the public sector, technology adoption and diffusion in the public sector and electronic government. He is the editor-in-chief of the International Journal of e-Government Research (IJEGR) and has published over 100 peer reviewed articles and guest-edited special issues of leading journals on these themes. He is currently co-investigator in two large EU projects in the public sector service delivery.

Dr. Marijn Janssen is Director of the interdisciplinary SEPAM Master program, manages the 'IT and business Architecture' Toptech executive program and is an Associate Professor within the Information and Communication Technology section of the Technology, Policy and Management Faculty of Delft University of Technology. He is associate editor of the International Journal of e-Government (IJEG), Electronic Journal of e-Government (EJEG), International Journal of e-Business Research (IJEBR) and editor of Government Information Quarterly (GIQ), co-chair of the e-Government infrastructure and interoperability minitrack at the HICSS conference, e-Government track chair at AMCIS2010 and conference chair of the IFIP EGOV2010 conference. He published over 170 conference papers, book chapters, and journals and was ranked as one of the leading researchers in e-Government in a survey (2009). More information: www.tbm.tudelft.nl/marijnj.

Yogesh K. Dwivedi is a lecturer at the School of Business and Economics at Swansea University in the UK. He was awarded his MSc and PhD by Brunel University in the UK, receiving a highly commended award for his doctoral work by the European Foundation for Management and Development. His research focuses on the adoption and diffusion of ICT in organizations and in addition to authoring a book and numerous conference papers, has co-authored papers accepted for publication by journals such as *Communications of the ACM*, the *Information Systems Journal*, the *European Journal of Information Systems*, and the *Journal of the Operational Research Society*. He is Senior Editor of *DATABASE for Advances in Information Systems*, Managing Editor of *Journal of Electronic Commerce Research*, Assistant Editor of *Transforming Government: People, Process and Policy* and a member of the editorial board/review board of a number of other journals, and is a member of the Association of Information Systems, IFIP WG8.6 and the Global Institute of Flexible Systems Management, New Delhi.