Successful e-Government Transformation: Pressure, Support, Capabilities and the Freedom to use Them

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Abstract: E-government initiatives struggle with realizing the transformational objectives defined in the most mature stages in the various e-government maturity models and ambitious e-government programs. Research indicates that, in general, e-government initiatives might have improved the efficiency of the public sector incrementally but failed to realize more transformational changes. This research summarizes t-government challenges and investigates how organizations can successfully overcome them and realize the goals of t-government in terms of citizen centricity and efficiency. The research is based in dynamic capability theory and on data from a Danish public library that has succeeded in transformational changes in line with the goals of efficiency and citizen centricity described in the t-government literature. The primary finding is that the success in this particular organization is based on a combination of environmental and organizational factors and on a long history of successful organizational changes. The context provides both pressure (e.g., competition) and support (e.g., funding) for transformation, and the organization has both the autonomy (e.g., to redesign processes) and the capabilities (e.g., regarding organizational change) needed for transformational change.

Keywords: T-government, Transformational changes, T-government challenges, Local government, Public library

1. Introduction

While public sector organizations have succeeded in providing online services to citizens, more fundamental back-office changes that increase the efficiency of these services have been more challenging (Van Veenstra et al., 2011). Within e-government research, this topic has been studied as transformational government (t-government) (Weerakkody et al., 2011). T-government might be superseded by other kinds of e-government, such as lean government, open government, citizen-sourcing, etc. However, no matter the names and abbreviations, it seems that the problems with realizing the expected transformations remain.

The primary driver behind t-government is the ambition to create citizen-focused, demand-driven public sector organizations and reduce operating costs (Weerakkody et al., 2011) by reaching the e-government stages characterized by a high level of vertical and horizontal integration of processes providing seamless service for citizens (e.g., Lee, 2010). The literature reports that t-government is characterized by the following:

- **Citizen centricity**: T-government "takes the needs of citizens as a starting point for the redesign and transformation of organizations, processes and facilitating infrastructure" (Janssen and Shu, 2008) in order to provide flexible services for citizens and other organizations (Parisopoulos et al., 2009).
- **Single points of contact**: Providing government services through a single point of contact to citizens and organizations so that they don't have to deal with distinct fragments of government (Janssen and Shu, 2008).
- **Flexible service delivery**: Service should be less constrained by the traditional limits of time, space and other physical conditions (Janssen and Shu, 2008), and citizens should have the freedom to choose between multiple channels for service delivery (Parisopoulos et al., 2009).
- **Integration**: Government processes and systems must be integrated across departmental and organizational boundaries (e.g., Irani et al., 2007); public sector organizations must break out of the silos (Parisopoulos et al., 2009).
- **Reengineering and optimization**: Government processes should not only be integrated but also improved, e.g., through the use of business process engineering (e.g., Weerakkody and Dhillon, 2008) and continuous optimization (e.g., Fagan, 2006).

Many countries have established t-government programs (e.g., Parisopoulos et al., 2009), but generally, it has been difficult to realize transformational goals. Balutis (2001) studied 1300 public organizations and found that

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only 4% of the e-government initiatives could be labeled as transformational. West (2004), Kraemer and King (2006), Weerakkody and Dhillon (2008), Montazemi et al. (2010), Norris and Reddick (2013) and Brown (2015) reported similar findings. There are, however, positive results. Foley and Alfonso (2009) studied 28 e-government projects and found positive benefits, and, in particular, a higher level of positive benefits from transformational projects.

Previous t-government research has identified challenges that contribute to our understanding of the difficulties in achieving transformational goals. This research investigates the research question: *How organizations successfully can overcome t-government challenges and realize the goals of t-government in terms of citizen centricity and efficiency?*

To answer the research question, we studied a public sector organization that has transformed itself and realized both increased efficiency and increased citizen centricity.

Section 2 presents t-government challenges from the body of knowledge and relates them to the dynamic capability model used to analyze the case. Section 3 describes the research method, section 4 presents the case, section 5 the analysis and section 6 provides the discussion and conclusion.

2. Overcoming t-government challenges

Dynamic capability theory seems appropriate to investigate how public sector organizations can achieve transformation to e-government maturity because it explains how organizations "*integrate, build, and reconfigure internal and external competencies to address rapidly changing environments*" (Teece et al., 1997). Within e-government research, dynamic capability theory has been used in relatively few papers, such as the paper by Klievink and Janssen (2009), but Piening (2013) suggests a helpful analytic dynamic capability model that is specifically adapted to public sector organizations.

The model provides a framework "for understanding how dynamic capabilities operate in public organizations and affect their performance outcomes" (Piening, 2013). Dynamic capability theory is based on the resource-based view that perceives organizations as bundles of resources (Eisenhardt and Martin, 2000), and a resource (e.g., physical, human or organizational assets such as IT systems) is a starting point for producing a service or a product provided by the organization. A capability is an organization's capacity to exploit resources to achieve a desired outcome, e.g., in terms of providing health care services, eldercare or education in a public sector context. A dynamic capability is the capacity to change capabilities (Piening, 2013). The factors of the model are explained in the remaining part of this section, and the related challenges that we found through reviewing the t-government literature are listed.

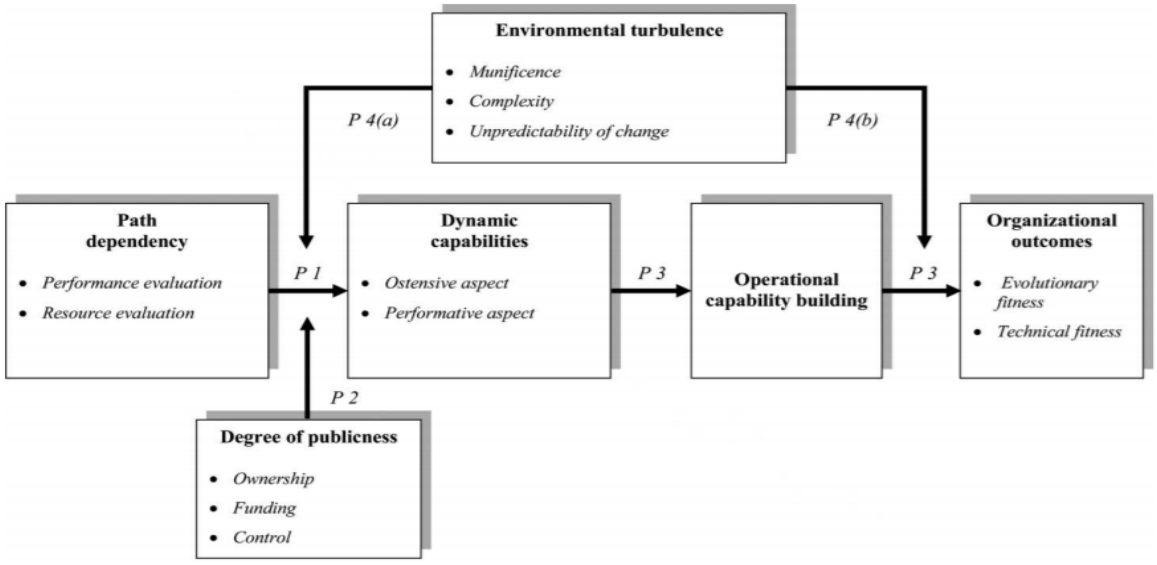

Figure 1: Dynamic capability model from Piening (2013)

2.1 Path dependency

Path dependency is an important antecedent of dynamic capabilities (e.g., Teece et al., 1997). In particular, the historical development of an organization (e.g., Meier et al., 2007), learning barriers such as competency traps (e.g., Salge, 2011) and micro-politics (e.g., Ridder et al., 2007) influence the current performance of dynamic capabilities in organizations.

The decision to overcome path dependency and use dynamic capabilities depends on the perception of the necessity for change (Piening, 2013). The development of new or improved capabilities is initiated when decision-makers find (through performance evaluations) that performance is below the desired level. Dissatisfaction with current performance is not enough, though; evidence suggests that the management's perception of resource availability influences the intensity of innovation efforts (Ridder et al., 2007). Public organizations with high levels of slack are more likely to engage in innovation following a performance decline.

2.1.1 Challenges in relation to path dependency identified in the t-government literature

In an e-government context, a range of path dependency-related factors have been identified, though not overtly mentioned in the model. The outcome of the historical development of organizations has been shown by researchers to make e-government transformations more or less difficult, in particular regarding challenges in terms of organizational structure, culture, processes, technology, the alignment between technology and other factors, and power balances.

Table 1: General path dependency challenges identified in the t-government literature

Challenges related to path dependency	
Structure	Bureaucracy (Montagna, 2005, Kraemer & King, 2005), fragmentation (Van Veenstra et al., 2011), autonomy (Van Veenstra et al., 2011), ill-defined decision-making responsibility (Van Veenstra et al., 2011), insufficient IT governance (Van Veenstra et al., 2011), and conflicting priorities (Weerakkody et al., 2008; Jones, 2012).
Culture	Cultural constrains (e.g. Weerakkody et al., 2008; Ebrahim & Irani, 2005; Irani et al., 2007; Jones, 2012) for example in terms of rigidity (Weerakkody et al., 2008).
Processes	Confusing existing processes and lack of process ownership (Weerakkody et al., 2008), no available descriptions of organizational processes (Van Veenstra et al., 2011).
Technology	Constrains caused by inflexible and incompatible legacy systems (Weerakkody et al., 2007; Weerakkody & Dhillon, 2008; Van Veenstra et al., 2011), increasing costs from legacy systems (Ebrahim & Irani, 2005; Weerakkody et al., 2008), lack of basic infrastructure (Van Veenstra et al., 2011), infrastructure does not support BPR (Weerakkody et al., 2008), lack of system standardization (Van Veenstra et al., 2011), lack of enterprise architectures (Van Veenstra et al., 2011), and dependency on software vendors for system innovation (Van Veenstra et al., 2011)
Alignment	Lack of alignment between information systems, processes and organization (Van Veenstra et al., 2011), between organizational planning and IT planning (Weerakkody et al, 2008) and between front and back office development (Van Veenstra et al., 2011).
Politics	Lack of political support (Weerakkody et al., 2008; Van Veenstra et al., 2011; Fagan, 2007), resistance to change (Weerakkody et al., 2008; Robinson & Griffiths, 2005; Murphy, 2005; Weerakkody et al., 2007; West, 2004; Conklin, 2007), memory of recent failures limits possibilities of new efforts (Van Veenstra et al., 2011)

While the t-government literature consistently mentions a shortage of various resources as a challenge for e-government transformation, we have little knowledge of the relation between performance evaluations, dissatisfaction with current performance and initiation of e-government projects. The literature focuses on resource challenges related to lack of funds, people, time and the specific skills needed for e-government transformation.

Table 1: Resource challenges identified in the e-government literature

Challenges related to resources	
Funds	Limited funds in general (Weerakkody & Dhillon, 2008; West, 2004; Jones, 2012), transformational projects being expensive and difficult to fund (Fagan, 2006), division of costs and funding arrangements (Van Veenstra et al., 2011), and concerns about value for money (Weerakkody et al., 2008; Jones, 2012), inflexible financial budgets (Jurisch et al., 2012).
People	Lack of manpower (Fagan, 2006).
Time	Insufficient time to implement IT systems (Weerakkody & Dhillon, 2008; Tennant & Wu, 2005).
Skills	Lack of skills in general (Montagna, 2005; Jones, 2012), lack of technology skills (Ramaswamy & Selian; 2007; Van Veenstra et al., 2011), lack of business process engineering skills (Weerakkody et al., 2008; Van Veenstra et al., 2011), lack of systems integration skills (Weerakkody et al., 2008), lack of experience in collaboration (Van Veenstra et al., 2011), inability to redesign organizational processes based on the use of IT (Bekkers & Homburg, 2007), and fear of IT general (Weerakkody et al., 2008).

2.2 The degree of publicness

The extent to which a situation is public (called the degree of publicness e.g. by Piening (2013)) influences both the development and use of dynamic capabilities. Three factors determine the extent to which an organization is public or private: the level of collective ownership, the level of state funding and the degree to which managers are controlled by political forces (Andrews et al., 2011). In general, a higher degree of publicness is associated with strategic constraints and innovation barriers such as greater political influence and the absence of market incentives that discourage organizations from taking risks (Andrews et al., 2011). As a consequence of a high degree of publicness, an organization might also lack flexibility in improving its performance because the set of activities that is permissible and the way they have to be performed is defined more narrowly (Piening, 2013). A high degree of publicness may discourage organizations from making long-term investments in dynamic capabilities because there is little local autonomy and few incentives to improve performance (e.g., Piening, 2011).

2.2.1 Challenges in relation to degree of publicness identified in the t-government literature

The t-government literature likewise emphasizes public organizations' lack of incentives for innovation, as illustrated in table 3.

Table 2: Incentive-related challenges identified in the t-government literature

Challenges related to incentives for transformation	
Lack of choice	Citizens generally have no choice but must use the service (Dwivedi et al., 2012; Jurisch et al., 2012).
No competitors	Limited competition limits incentives for innovation, little financial incentives can be gained from innovative ideas, and the use of ICT is no challenge to public organizations' existence (Dwivedi et al., 2012).
Budget behavior	Public organizations do not necessarily aim for further savings once their budget is met (Jurisch et al., 2012).
Risk aversion	Risk aversion makes it difficult for public organizations to engage in radical transformations (Jurisch et al., 2012).

Furthermore, research suggests that e-government transformations might be more difficult in public sector organizations than in some private sector organizations. This is not only due to specific public sector requirements such as transparency and accountability, but also because processes might be heavily based on legislation that provides little local control or freedom to innovate.

Table 3: Public sector requirement challenges identified in the t-government literature

Challenges related to public sector requirements	
Transparency and accountability	Public sector organizations should account for both its actions and inactions (Dwivedi et al., 2012; Jurisch et al., 2012).
Data protection	Data sharing and protection laws (Murphy, 2005), security and privacy not adequately addressed by technology (Van Veenstra et al., 2011), balancing the need for both privacy and information sharing across public sector organizations (Combe, 2009; Joseph & Johnson, 2013).
Volatile public values	Public values are often independent of each other and might also potentially be in conflict (Jørgensen & Bozeman, 2007).
Processes based on legislation	In some areas processes are based on legal regulations, laws and policies which imply that organizations have little control over their processes (Jurisch et al., 2012).

2.3 Dynamic capabilities

Dynamic capabilities influence organizational outcomes through the impact they have on operational capabilities (e.g., Helfat et al., 2007). This impact is achieved through organizational change involving the adoption of new technologies, practices and organizational structures that disrupt existing routines (Piening, 2013). Generally, the change process depends on both the quality of the routines (e.g., the way employees are trained) that guide the change process (e.g., Easterby-Smith et al.) and the way these routines are invoked (Piening, 2011). The outcome might be measured using the concepts of evolutionary and technical fitness. Evolutionary fitness expresses how well the resulting operational capabilities match the requirements of the environment. Technical fitness refers to how efficiently a capability performs its function (Piening, 2011).

2.3.1 Challenges in relation to dynamic capabilities identified in the t-government literature

A broad range of challenges related to the process of performing planned organizational change in the context of e-government transformation has been identified (see table 5).

Table 4: Organizational change challenges identified in the t-government literature

Challenges related to organizational change	
Vision	Lack of, unclear or unrealistic strategy, visions or objectives (Weerakkody et al., 2008; Van Veenstra et al., 2011). Differing quality levels and expectations (Weerakkody et al., 2008).
Leadership	Lack of management buy-in and leadership of change process (Weerakkody et al., 2008; Beynon-Davies & Martin; 2004; Jones, 2012) and failing to plan for organizational resistance (Weerakkody et al., 2008).
Stakeholder management	Large number of stakeholders with complex and interdependent relationships (Van Veenstra et al., 2011), transformation threatens the power base of bureaucrats (Weerakkody & Dhillon, 2008), failing to gain support for process changes (Weerakkody et al., 2008), failing to recognize the significance of people in change efforts (Weerakkody et al., 2008) and resistance from employees (Weerakkody & Dhillon, 2008; Weerakkody et al., 2007; West, 2004; Conklin, 2007).
Change management	A wrong focus in terms of too much focus on new technology (Weerakkody et al., 2008) and a techno-centric approach with little attention paid to the stakeholders that should benefit from the changes, and too little attention paid to public sector values such as equity and fairness in decision-making, and the social and political environment (Sahraoui et al., 2008). Lack of organizational readiness to business process reengineering (Van Veenstra et al., 2011).
Performance	That the impact at most is incremental change (Beynon-Davies & Martin (2004) and doesn't change much in existing work processes (Weerakkody et al., 2008).
The clients	Insufficient understanding of clients (Van Veenstra et al., 2011). Sup-optimization in terms of placing organizational interests before citizens interests (Bekkers & Homburg, 2007). Forgetting that the clients are citizens – not customers (Bekkers & Homburg, 2007).

2.4 Environmental turbulence

This model defines public sector environmental turbulence as a function of three dimensions: munificence, complexity and uncertainty of change (e.g., Boyne and Meier, 2009). Munificence refers to the availability of resources such as revenues from taxes. Munificence is affected by the intensity of competition for these resources and other political and social conditions. Complexity describes the homogeneity or heterogeneity of external circumstances, for example, the degree to which organizations provide services to a heterogeneous group of clients. The degree of turbulence depends on the unpredictability of changes in the munificence and complexity of an organization's environment. Environmental turbulence influences dynamic capabilities in two ways (Piening, 2013). First, a high degree of turbulence is a contingency factor in the decision to use dynamic capabilities. Turbulence makes managers more likely to invest in dynamic capabilities, more proactive and willing to accept more risks. Additionally, turbulence provides an incentive to overcome constraints due to path dependency. Second, turbulence affects what can be achieved by exploiting the dynamic capabilities: The renewal of operational capabilities is more rewarding in high-velocity environments.

2.4.1 Challenges in relation to environmental turbulence identified in the t-government literature

The issue of resources was dealt with earlier. In the t-government literature, factors related to the clients, public sector governance and public sector collaboration are particularly emphasized as increasing the complexity of transformational projects (see tables 6, 7 and 8).

Table 5: Public sector client challenges identified in the t-government literature

Challenges in relation to public sector clients	
The digital divide	Public organizations have to provide equal services to all, also the disabled or socially excluded (Dwivedi et al., 2012; Sipior et al., 2011; Jones, 2012), and must consider the level of IT skills and access among citizens (Weerakkody et al., 2008).
Feedback	The feedback loop between citizens and government is often not a direct one but mediated by political parties, lobbyist etc. (Dwivedi et al., 2012).

Table 6: Public sector governance challenges identified in the t-government literature

Public sector governance	
Changing legislation	Legislation which continually changes determines public sector structure and influence the implementation and execution of service (Dwivedi et al., 2012).
The division of public governance decision-making power	Decision-making power is divided over state, region and local areas. All these levels have their own political systems. This complicate the question about who is responsible for what and a decision at one level might be inconsistent with decisions at another level (Dwivedi et al., 2012).
Decentralization	A decentralized approach to ICT development (Bekkers & Homburg, 2007).
Politicians time perspective	Politicians' timeframe determined by the next election (Dwivedi et al., 2012).

Table 7: Public sector collaboration challenges identified in the t-government literature

Public sector collaboration	
Lack of trust	Lack of trust or willingness to share information, systems or processes (Weerakkody et al., 2008; Fagan, 2006; Ebrahim & Irani, 2005; Bekkers & Homburg, 2007)
Lack of cooperation	Lack of cross-organizational cooperation and collaborative decision making (Van Veenstra et al., 2011). Coordination problems caused by organizational design in terms of an ambiguous distribution of tasks and legally defined competences among the back offices in the organizations (Bekkers & Homburg, 2007). Perceiving coordination and information exchange between back-office function as a purely technical problem (Bekkers & Homburg, 2007). The lack of a common vision or sense of urgency about the necessity to work together (Bekkers & Homburg, 2007). Interorganizational tensions and conflicts (Bekkers & Homburg, 2007).
Lack of infrastructural facilities	Lack of infrastructural facilities and enterprise architectures that support cross organizational processes and integration (Van Veenstra et al., 2011).
Systems integration	The integration of systems between organizations in general (Sarikas & Weerakkody, 2007; Bekkers & Homburg, 2007), and integration problems caused by complexity and incompatibility of systems (Van Veenstra et al., 2011). Lack of standards (Van Veenstra et al., 2011; Bekkers & Homburg, 2007).
Process integration	Difficulties integration processes between organizations (Sarikas & Weerakkody, 2007).

3. Research method

This case study (e.g., Walsham, 1995) of a Danish public library draws upon qualitative data from interviews with employees of the organization and key performance indicators collected by the national authorities within the sector.

Table 8: Interviews

Person	Role
Library manager	Manage the entire library organization including both the central and local libraries in the municipality.
Development manager	Manage all kinds of organizational development initiatives including e.g. IT projects, initiatives related to the physical layout of the buildings, culture change towards more citizenry centricity and leaning projects to increase efficiency.
PMO manager	Responsible for the project management office that support and monitor organizational development projects.
Logistics manager	Manage logistics in terms of receiving, storing and delivering of books and other physical resources.
Six librarians	Working in both back-office and front-office functions.

All were interviewed using semi-structured interviews focusing on factors related to the national, industry and organizational context that had somehow affected the transformation processes of the organization, the outcome and how the changes took place.

In order to understand the impact of the transformation, key performance indicators regarding the costs as well as use of libraries were used. These data are collected by the national authorities within the sector and presented during the description of the case.

Qualitative data has been coded and analyzed using the model presented in section 3 using both the core concepts (e.g. path dependency, the degree of publicness, dynamic capabilities and environmental turbulence) as wells as the individual challenges presented in tables 1 – 8. The findings have been discussed and validated at several meetings with both the interviewed persons and a wider group of managers at the library. Furthermore; the qualitative data has been triangulated with the previously mentioned key performance data.

4. The case: Transformation at the library

Danish public libraries have radically transformed. In the period from 2007 to 2013, the national yearly costs in this area reduced by 14% (369 mill. d.kr.), while the service level has been maintained and even improved in some areas. Satisfaction surveys conducted among citizens confirm these findings (Fagmagasinet, 2016).

The library studied here consists of one main library, 13 local suburban libraries and a number of library buses that provide library service to rural residents. Both the main and the local libraries are open from 8 a.m. to 9 p.m. most days but staffed less, locally down to approximately 13 hours a week.

The library has invested in self-service technologies enabling and demanding citizens to register and return all loans by themselves. Search, reservation and specification of pickup location can be done on the library home page, and notification of availability is by text message or e-mail. Digital resources can be downloaded directly. Almost all the library tasks that librarians are educated to perform and used to do are now fully automated, carried out by citizens or by a few specialists. The librarians estimate that they only employ approximately 10% of the skills and knowledge acquired during their original education.

The logistics of storing and moving books around are almost fully automated, too, using IT systems similar to track and trace transportation systems at airports. Logistic back-office processes are even integrated across the country in the sense that if a citizen orders a book that is not available locally, it is delivered from another library to the local library as specified by the citizen. Front-office services through the Internet are provided both by local staff and by resources shared by all libraries in the country in a seamless way without citizens necessarily being aware of where the service is provided from.

The library changes are mirrored in quantitative measures. The number of employees has been cut by approximately 40% since the library started using digital services and streamlining the back-office processes. From 2009 (where we have the first statistics on a national level) to 2015, staff was reduced by 12%. In the same period, book copies were reduced from 537,739 to 401,099 due to the more efficient back-office process of having one book collection across all libraries, allowing for intelligent material management. Additionally, opening hours have increased substantially based on the self-service technologies. The traditional library service has been reduced in terms of loans of books, but new services are offered to citizens. The number of active users has increased, and satisfaction is consistently very high, also with the self-service technologies.
During this process, the library was reorganized into a centralized back-office function taking care of the acquisition and logistics related to the resources that the library makes available for citizens and a front-office function responsible for the services provided to citizens, both physically in the libraries and on the Internet. While the number of traditional librarians has decreased, other kinds of staff (e.g., engineers and communication specialists) have been hired.

5. Analysis: Overcoming the challenges

In order to understand the successful transformation, the case is interpreted using the dynamic capability model and related challenges presented in section 2.

5.1 Path dependency

> *"Responsibilities are razor sharp. It is about being thorough and doing what you are obliged to do. Nothing is unclear or left in a grey zone" (Logistics manager).*

The library has a positive legacy that provides a strong foundation for future organizational changes. The organizational structure is well defined, there is very little bureaucracy, the culture facilitates change, processes have clear owners and are well understood, and the IT systems are well integrated and delivered by one vendor that the library has collaborated closely with for many years. The support from the political system and from management is strong: The transformation of the library is a management project backed by a general consensus in the library sector and political systems in general that changes in terms of, e.g., self-service libraries and Web-based services being necessary and unavoidable. The unions have raised some concerns about the extended use of self-service and the impact on citizens, but these concerns are not supported by citizens.

The following characteristics stand out:

- For decades, the organization has implemented IT-based and other organizational changes. While these changes have not always been successfully implemented, the organization has now become quite good at changing itself.
- There is a high level of alignment between IT development and organizational development and between IT systems and processes.
- The need for continuous IT-based transformation is widely acknowledged by all key actors, as well as among those that do not like the outcome.

One organizational choice contributes to all three characteristics: the decision not to have an IT department even though IT is extremely important for the organization. IT is the responsibility of general management, like any other issue, and the management of specific IT-related projects and all other organizational change projects is allocated to the manager responsible for organizational development.

> *"IT is an integrated part of our job and our development – it is not something special that only a few understand" (Library manager).*

Process responsibility is also placed in the regular management structure. This way, managers responsible for a specific process (e.g., logistics in terms of receiving books, sorting them and transporting them to the place where they are needed) are also responsible for the supporting IT system. IT projects are not perceived as being different from other projects; they are all perceived as organizational development projects. The focus is always on the organizational benefits that should be achieved, and change management is always prioritized.
This organizational choice is unique, at least in large public sector organizations in Denmark. By considering all projects as organizational development projects, using the same project managers, the same models for managing the projects, the same way of working with stakeholders, etc., the organization is able to accumulate and exploit a large body of experience regarding how to successfully change. By making top management and middle management responsible for IT, misalignment between IT and organizational development, or between work processes and IT systems, is unusual. IT becomes a lever that normal managers think about when forming strategies and dealing with new challenges.

Another factor that contributes to a high level of alignment is a high level of shared understanding between employees and managers across front- and back-office functions. Most of the employees and managers have the same educational background, and employees that predominantly work in back-office functions also take front office shifts where they meet and provide services to citizens and collaborate with the employees that exclusively have front office work. The project management office manager in the organizational development department (with a background in engineering and development of mobile technologies) also had to take front office shifts in order to make sure that she understood how it works. In the same way, employees are rotated between the main library and the local suburban libraries. As a consequence, problems related to lack of alignment between IT and business and organizational fragmentation are reduced.

5.2 Transformational triggers

> *"Every other day I wake up and think that in a few years it is over – then there will only be 10 employees left taking care of the logistics" (Librarian 6).*

The model by Piening (2013) emphasizes dissatisfaction with existing operational capabilities but also the availability of resources as the primary trigger for public sector changes. The national and local level policymakers have determined that all libraries cut a small percentage of their budget each year. Libraries are supposed to become more efficient. Both locally (e.g., through the use of mystery choppers hired by the library) and nationally (e.g., benchmarking against other libraries), various investigations systematically test how satisfied citizens are with the services provided by libraries. At the same time, policymakers provide resources to carry out projects that are needed to deal with the yearly budget cuts.

Aside from the pressure and support from national and local policymakers, the competition from private sector organizations such as Google and Spotify, also provides pressure for transformation.

This organization perceives IT investments as a funding mechanism, contrary to the perspective in the literature, where IT is seen as something that must be funded:

> *"(About IT-related change): Everything that frees time and resources that can be used on the citizens is a benefit" (Library manager).*

Improvement requires slack resources, and the library management has a strategy of being ahead of the budget cuts by continuously improving processes in the organization. In order to reduce the cost of IT development and share experiences, libraries have established cross-organizational networks that interact with vendors. New employees from other professions qualified for participating in IT-based transformation have been hired, and the organizational development department carefully collects quantitative data from past projects to increase the dynamic capability of planning and executing change projects. What stand out here are the following points:

- Policymakers put strong pressure on the organization to continuously transform but also provide the resources needed to do so.
- Policymakers and the local organization transparently evaluate how citizens perceive the service they receive.
- The organization systematically frees resources by implementing improvements that exceed the requirements of politicians. Additionally, the organization lowers costs and exploits experiences by entering into inter-organizational networks. They have also increased the diversity of the resource base by hiring new employees with different competencies.

5.3 The degree of publicness

> *"We are a service organization – if we don't deliver good service people simply don't come; people don't have to use our systems" (OD manager).*

Based on the definition provided by Piening (2013), this organization has a relatively low degree of publicness. Libraries are collectively owned and financed by the state, but they have a large degree of autonomy. There are no specific rules and regulations that specify in detail how processes in the libraries have to be performed or services have to be delivered. However, contrary to most public sector organizations, citizens actually have a choice because there are plenty of competitors. Looking at the challenges described in the t-government literature, the incentives for innovation are high, and the public sector requirements are few. The characteristic elements here are the following:

- Citizens do have a choice. They only use the library if it provides valuable services.
- Libraries have a high degree of autonomy and freedom to innovate.

5.4 The degree of turbulence

> *"Our music department is closing down: We can't compete with online services like Spotify" (Library manager).*

In this case, we found two sources of turbulence: turbulence created by private sector organizations in the environment and turbulence from the public sector itself. The competition from digital services like Google, Spotify, etc., and from books becoming cheaper and increased access to e-books is fierce. Many of the

answers, knowledge and entertainment resources that citizens previously found at the library are now available on the Internet.

The libraries know that for the next many years to come, they are supposed to become more efficient and budgets will be cut, leaving only little uncertainty about munificence. The complexity is low because the local library manager is responsible. The fragmentation, complexity and distributed decision-making across several political systems that characterize some public organizations are absent here. This library defines its strategy, which is subsequently approved by political leadership. It defines its own processes and the supporting IT systems. Social inclusion matters to the library. For example, they balance physical and electronic books in the stock, making sure that everybody is able to use the library without having to be skilled in IT. Also, the suburban departments are preserved if closing down may impact various social groups negatively. Except for social inclusion, the library only needs to meet a few requirements regarding traditional public sector values, such as transparency and accountability, and the level of bureaucracy is low. From a political perspective, libraries are not battlefields for voters, which provides libraries with stability across elections.

Inter-organizational collaboration takes place on three levels. Back-office processes are integrated across libraries in the sense that books are exchanged to serve citizen needs, front-office processes are integrated in the sense that a shared online service is used to support citizens, and organizational development processes are integrated in the sense that the organizations participate in shared innovative projects, e.g., regarding the development of new services for citizens or the development of new systems.

There is a high level of trust and motivation for inter-organizational collaboration. The libraries do not compete against each other, and by sharing resources, all the libraries benefit. Furthermore, funding options defined at the national level encourage cross-organizational collaboration, and inter-organizational structures are in place that can facilitate shared decision-making about cross-organizational issues. The key characteristics here are the following:

- A low complexity public sector environment that highly supports innovation and cross-organizational collaboration.
- Strong competition from private sector services.

5.5 The dynamic capabilities

> *"We are good at reengineering work processes. We train employees in new ways of working and insist on not falling back to the old ways. We are driven by the organizational change. IT is just a tool, and we focus on what has to change to get the benefits" (OD manager).*

The following three dynamic capabilities seem especially important in this case:

- Integrating knowledge from both internal and external knowledge resources.
- Combining various resources such as IT, physical locations, skills, etc. into coherent solutions.
- Implementing the changes.

Integrating knowledge is about establishing shared understanding and collaboration internally between functions and externally toward other organizations, as well as overcoming lack of clarity in governance and decision-making responsibility, fragmentation, conflicting priorities among stakeholders, etc. so that valuable knowledge resources can be exploited. For example, this library has established collaboration with a major amusement park, famous for its first-class guest services, as well as with experts on shelving groceries in supermarkets, and they are being inspired by Ikea to separate stored goods from the displays. Internally, they strive to integrate the knowledge of the newly hired specialists (e.g., from communication, IT, logistics and process management) with classic librarian knowledge.

This integration of knowledge is a foundation for the combination of resources into coherent solutions for citizens. For example, knowledge from various domains is necessary to turn traditional local libraries into self-service libraries that are open from early morning to late evening seven days a week without librarians being present except for a few hours. The change process involves new highly user-friendly IT systems that citizens can use to find, borrow and return books by themselves. It requires modifications of buildings, e.g., providing

light and windows so that citizens feel safe when visiting a library late in the evening, and it requires new skills, e.g., how to display books so that citizens can find books that might interest them. This is where knowledge of shelving groceries comes in handy.

The last capability is to change by implementing the solutions. The related challenges presented in table 5 are actually not specifically related to e-government transformations but have a more general nature, and the library excels in all these classic change management-related issues. An important principle applies for all projects in this organization: Projects are never done just to save money. All projects should somehow be designed to benefit the citizens. Aside from making sure that projects actually create value for citizens, it also makes it difficult for employees to resist projects. Citizens' needs are systematically analyzed, and it is a clear priority that any initial problems that might be caused, e.g., by new IT, must be dealt with backstage without impacting the service. Change management skills are highly needed due to the nature of the changes that are not welcomed by all:

> *"I am getting sick of 'additional sales.' This commercial attitude has entered the library too: 'sell something more.' I think people should be able to come here and get exactly what they came for and not everything else" (Librarian 1).*

There is sufficient time to do projects "by the book," to pay attention to all details, to involve employees, to take care of quality problems, etc. in order to deliver high-quality results. Projects are carefully planned, and realistic estimates are made, and as a result, delays and budget problems are few.

Change processes are characterized by a high degree of management commitment and employee involvement in many ways: direct involvement as project managers and participants, employee meetings and open project meetings, systematic communication, process redesign, requirements analysis and testing of IT systems. However, involvement is decreasing, and management took over during the latest ten years as the necessity for change has grown. The professionals (teams of librarians) have lost power and influence over the changes:

> *"People don't feel that they have been sufficiently involved. There is a very democratic culture where everybody is used to speaking up. We have done a lot to involve people, but some are still offended" (Logistics manager).*

While the early IT-enabled changes did not challenge the essence of library work and the negative effects predominantly impacted the library assistants, the core librarian work is now the target of radical change. Impact is achieved through a mixture of both radical changes and subsequent optimizations. The radical changes are led by top management, while the subsequent optimizations are typically taken care of at a lower level and driven by the experiences of and input from employees.

Management has a very persistent attitude toward changes. When a change has been decided, each manager in the management system has an obligation to address any attempt to work as before on the spot whenever it occurs.

5.6 Organizational outcomes

> *"The core activity is no longer related to the logistics of borrowing and returning books but the meeting and dialogue with the citizen about what they might need. We now have more time for the dialog with the citizen or the guest as we prefer to call them, and more time to provide activities for the guests. Our perception of what was valuable and what was essential for running a library was completely different" (Library manager).*

The organization has excelled in accordance with both the evolutionary and technical fitness perspective. They succeed in delivering new services that citizens request, and loaning out books is far more efficient than before. Even though the transformation is perceived as a success by management, politicians and citizens expressing a high degree of satisfaction, the transformation has not been pleasant. Library staff has been reduced, and the essence of the profession has changed dramatically:

"We have changed from being an elite organization to a service organization. Our professional identity is ripped apart. What I was trained to do is now accomplished by 3-5 persons. Before it was all about the books. Now, it is about the guests" (Librarian 6).

6. Discussion and conclusion

In summary, the main driving force of the transformation of the library was, in this case, without a doubt, external pressure from changing demands, competition and continued resource cutbacks. This combination could have been devastating for the organization had it not been one step ahead and freed resources accordingly, making it possible to meet demand and battle competitors. This was only possible through the environmental support of politicians and management to invest and develop in order to meet challenges. As the legal regulations were unusually few and libraries enjoyed goodwill from the municipalities and political level, they had almost full internal autonomy to decide which directions of development and change processes would be most fitting at any point in time and in any situation. Additionally, they had the necessary internal capabilities as they were open to inspiration and knowledge sharing, and they did master changes and adapt to new ways and IT systems.

To return to the research question – *how organizations can successfully overcome t-government challenges and realize the goals of t-government in terms of citizen centricity and efficiency* – the analysis indicates, as summarized above, that it is through a combination of environmental and organizational factors:

- Environmental
  Pressure and Support
- Organizational
  Internal autonomy
  Internal capabilities
  Edifying path dependency

Without the external pressure, it is unlikely that the organization would have engaged in highly distressing and radical changes that affected the essence of the organization. Without the environmental support, it would have been very difficult. Local innovation and transformation require autonomy, allowing the organization to respond to changes and exploit opportunities in the environment, and doing so requires internal capabilities. Additionally, building the capabilities for transformation happens by learning through long term organizational changes. The specific key findings of each of these factors are summarized in tables 10 and 11.

Table 10: Environmental factors

Environmental factors: External pressure	
Free choice	Citizen's free choice regarding the use of services from the library.
Competition	Competition from digital services like Google, Spotify, e-books and substantial price reductions on physical books.
Technical fitness	Political requirements regarding increased efficiency and lower costs. National studies of the development of costs in libraries.
Evolutionary fitness	Political requirements regarding citizen satisfaction and social inclusion. National and local studies of citizen perceptions of service quality and how much the library services are used by citizens.
Environmental factors: External support	
Resources	Even though policy makers require increased efficiency and cut budgets, they also provide funding for executing improvement projects.
Governance	A low complexity public sector environment that supports innovation and cross organizational collaboration.
Public values	Except social inclusion there are few traditional public sector requirements due to the nature of the services.
Consensus	Policy stability regarding library services across national and local elections.

The external pressure is, despite the low level of legal regulations of the domain, dominated by the political level and the requirements of technical fitness in order to keep costs low and of evolutionary fitness to continuously provide better service. The other source of pressure is the citizen's free choice of service providers from among the competitors in the market. The indispensable external support was mainly resources granted for development projects and the freedom to plan fitting solutions due to consensus among power holders regarding public values that could impact the libraries' practice, as well as due to supportive governance structures.

This situation is unlikely in many other parts of the public sector, where legal regulations are detailed and change rapidly, where resources and standards of service are a matter of debate in election campaigns, and where pressure from the political level remains at least as strong as in the librarian sector. However, in these other cases, citizens may not really have a choice as the service of competitors is much too costly or nonexistent. The environment of this case was exceptional.

Table 11: Organizational factors

Organizational Factors: Internal autonomy	
Strategy	The library defines the overall strategy that is subsequently approved by local government.
Processes &Technology	The library has the freedom to design and change internal processes. The library chooses which technology to use and controls tailoring to the specific organization.
Resources	The organization systematically frees resources by implementing improvements that exceeds the requirements from politicians.
Organizational Factors: Internal capabilities	
Integrating	The library is able to integrating knowledge from both internal and external knowledge resources.
Co-specializing	The library is able to co-specialize assets in a way that enables efficient and citizen centered services.
Changing	The library is able to change the organization and implement the developed processes and services.
Organizational Factors: Positive path dependency	
Learning	The organization has for decades implemented IT based and other organizational changes and has become quite good at changing itself.
Alignment	The high level of alignment between IT-development and organizational development and between IT systems and processes makes future changes easier.
Shared understanding	The need for continuous IT based transformation is widely acknowledged between all key actors, also among those that do not like the outcome.

The driving organizational factor is the autonomy that has been strong all through the years. Being allowed year after year to define the strategy self-directed and freely develop and implement solutions, processes and technology has led to capability-building that supports exactly this. The organization has learned how to be at the forefront by changing successfully. They have kept the equal integration of IT into the organization (full alignment) that came out when librarians introduced the first systems. They have become experts in acquiring and integrating knowledge because they are not experts in anything other than the librarian trade. In all of this, they have been citizen-centric because their trade is to provide service, answers and information to others.

The self-governance that provides the basis for the development of the organizational factors of this case is unfortunately also very rare in other parts of the public sector, even though it has, in this case, displayed appropriate and efficient solutions informed by strong professionalism. The internal factors developed from the environmental conditions are rare.

Therefore, because the environmental conditions were exceptional, and the developed internal capabilities were rare, is there anything to learn from this case for policymakers and managers in this and other parts of the public sector? Focusing on the particular aspects of this case, we may be able to dimly see impediments to

innovation in most of the public sector. Some of these impediments may be inherent, but most can be changed or impacted. Tables 10 and 11 show evidence of successful e-government transformation. We advise policymakers and managers to consider the possibilities for e-government transformations for a specific organization or sector and, based on these results, how they might be improved. They might consider the pressure and support provided from the environment, the level of internal dynamic capabilities and autonomy, as well as whether the previous history makes it likely that a transformation will be successful.

During this research and analysis, theoretical contributions surfaced. The t-government literature (e.g., Janssen and Shu, 2008) reviewed as part of this research does not differentiate between different levels of publicness and the implications these different levels have for e-government transformations and the challenges that organizations face. It is clear that what has worked in this particular organization is impossible in other organizations with a higher degree of publicness. Although there is no legislation that defines how various processes in a library are performed and libraries are relatively free to offer new kinds of services, this is not the case for many other public organizations. Furthermore, the strong pressure for transformation present in this case might be impossible to create in other situations. A Danish local government organization offers a broad variety of services in a variety of domains such as unemployment service, education, childcare, eldercare, infrastructure (roads, water, waste, etc.) and culture. The conditions for e-government transformation in terms of munificence, complexity, uncertainty of change and the more specific t-government challenges such as inter-organizational collaboration are very different across these domains. The level of ambition and the approaches taken must therefore also be different, and dealing with these differences within the same administrative and political leadership constitutes a severe challenge. Approaches that have worked within one domain might fail in another.

The model by Piening (2013) studies capabilities and dynamic capabilities from the perspective of an individual organization. Because some services (e.g., health care) are actually delivered through intra-organizational networks and other services delivered by local governments are heavily impacted by decisions, policies and IT systems at the regional and central government level, the public sector dynamic capabilities and capabilities needed to develop and deliver services are actually distributed across organizations and political systems. In a stable environment where changes are few and predictable, this might not be a big challenge, but in turbulent environments it is. The t-government literature reviewed here does acknowledge the difficulties related to integrating processes and IT systems across public organizations (e.g., horizontal and vertical integration), but we lack insight into how the necessary level of distributed dynamic capabilities is developed and managed to create society-level transformations. The case studied here is characterized by a low complexity governance structure where sufficient resources, autonomy and dynamic capabilities are placed in one organization. One way to increase the possibilities for public sector transformation might be to reduce governance complexity where possible.

The e-government literature provides several e-government maturity models, such as the Layne and Lee model (2001), which defines e-government maturity as a concept that can be measured without considering the degree of evolutionary fitness or how well IT assets are combined with other organizational assets. Taking a dynamic capability perspective, a high level of e-government maturity might imply that an organization, or sector, excels in using IT to renew capabilities and services and to achieve a high degree of both technical and evolutionary fitness. As IT becomes embedded in all kinds of public sector capabilities and services, the question rises of whether it makes sense at all to measure the maturity based on characteristics of the IT artifact itself. E-government lacks theoretical models that can increase our understanding of the relationship between the external environment and e-government investments and how these investments pay off by renewing public sector capabilities. Furthermore, we need models that help us understand the relationship between the long list of individual transformational challenges. Public sector dynamic capability models might provide some of the answers.

The research presented here has clear limitations. It is based on a single case, and further research is needed to investigate the relationship between dynamic capabilities and e-government success.

References

Andrews, R., Boyne, G. A. and Walker, R. M. 2011. Dimensions of publicness and organizational performance: a review of the evidence. *Journal of Public Administration Research and Theory*, 21(Suppl. 3): pp.301–19.

Balutis, Alan P., 2001 "E-Government 2001: Understanding the Challenge and Evolving Strategies." *Public Manager* 30(1), pp. 33-38.

Bekkers, V., and Homburg, V.. 2007. The myths of e-government: Looking beyond the assumptions of a new and better government. *The Information Society*, 23(5) pp.373-382.

Beynon-Davies, P., and Martin, S., 2004. Electronic local government and the modernisation agenda: Progress and prospects for public service improvement. *Local government studies*, *30*(2), pp. 214-229.

Brown, M. M., 2015. Revisiting the IT productivity paradox. *The American Review of Public Administration*, 45(5), pp.565-583.

Combe, C., 2009. Observations on the UK transformational government strategy relative to citizen data sharing and privacy. *Transforming Government: People, Process and Policy*, 3(4), pp. 394-405.

Conklin, W. A., 2007. Barriers to Adoption of e-Government. In *System Sciences, 2007. HICSS 2007. 40th Annual Hawaii International Conference on* (pp. 98-98). IEEE.

Dwivedi, Y. K., Weerakkody, V., and Janssen, M., 2012. Moving towards maturity: challenges to successful e-government implementation and diffusion. ACM SIGMIS Database, 42(4), pp. 11-22.

Ebrahim, Z., and Irani, Z., 2005. E-government adoption: architecture and barriers. *Business Process Management Journal*, *11*(5), pp. 589-611.

Eisenhardt, K. M., and Martin, J. A., 2000. Dynamic capabilities: what are they? *Strategic Management Journal*, pp. 1105-1121.

Easterby-Smith, M., Graça, M., Antonacopoulou, E. and Ferdinand, J., 2008. Absorptive capacity: a process perspective. *Management Learning*, 39(5), pp. 483–501.

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

Fagmagasinet, 2016. [Online]. <http://bf.dk/FagmagasinetPerspektiv/Nyheder/2016/TilfredseBiblioteksbrugere>

Foley, P., and Alfonso, X., 2009. eGovernment and the transformation agenda. *Public Administration*, 87(2), pp. 371-396.

Furlong, S., and Al-Karaghouli, W., 2010. Delivering professional projects: The effectiveness of project management in transformational e-government initiatives. *Transforming Government: People, Process and Policy*, 4(1), pp. 73-94.

Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M. A., Singh, H. and Mass, M., 2007. Dynamic Capabilities: Understanding Strategic Change in Organizations, Malden, MA: Blackwell.

Irani, Z., Elliman, T. and Jackson P., 2007, Electronic transformation of government in the U.K.: A research agenda. *European Journal of Information Systems*, 16, pp. 327-335

Irani, Z., Sahraoui, S., Ozkan, S., Ghoneim, A., and Elliman, T., 2007. T-government for benefit realisation. In Proceedings of European and Mediterranean Conference on Information Systems, pp. 1-11.

Janssen, M., and Shu, W. S., 2008. Transformational government: basics and key issues. In Proceedings of the 2nd international conference on Theory and practice of electronic governance, pp. 117-122, ACM.

Jørgensen, T. B., and Bozeman, B., 2007. Public values an inventory. *Administration & Society*, *39*(3), pp. 354-381.

Joseph, R. C., and Johnson, N. A., 2013. Big data and transformational government. *IT Professional*, 15(6), pp. 43-48.

Jones, S., 2012. Understanding t-government progress and issues: a case study of a United Kingdom local authority. *Journal of Enterprise Information Management*, *25*(6), pp. 605-618.

Jurisch, M. C., Ikas, C., Palka, W., Wolf, P., and Krcmar, H., 2012. A review of success factors and challenges of public sector BPR implementations. In *System Science (HICSS), 2012 45th Hawaii International Conference on,* pp. 2603-2612. IEEE.

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

King, S., and Cotterill, S., 2007. Transformational government? The role of information technology in delivering citizen-centric local public services. *Local Government Studies*, 33(3), pp.333-354.

Kraemer, K., and King, J. L., 2006. Information technology and administrative reform: will e-government be different?. *International Journal of Electronic Government Research*, 2(1), pp. 1-20.

Layne, K., and Lee, J., 2001. Developing fully functional E-government: A four stage model. *Government Information Quarterly*, 18(2), pp. 122-136.

Lee, J., 2010. 10 year retrospect on stage models of e-Government: A qualitative meta-synthesis. *Government Information Quarterly*, 27(3), pp. 220-230.

Meier, K. J., O'Toole, L. J., Boyne, G. A. and Walker, R. M., 2007. Strategic management and the performance of public organizations: testing venerable ideas against recent theories. *Journal of Public Administration Research and Theory*, 17(3), pp. 357–77.

Montagna, J. M., 2005. A framework for the assessment and analysis of electronic government proposals. *Electronic Commerce Research and Applications*, 4(3), pp. 204-219.

Moon, M. J., and Norris, D. F., 2005. Does managerial orientation matter? The adoption of reinventing government and e-government at the municipal level. *Information Systems Journal*, 15(1), pp. 43-60.

Montazemi, A. R., Pittaway, J. J., and Qahri-Saremi, H., 2010. Significance of IT Governance in Transformational Government. In Transformational Government Workshop.

Murphy, J., 2005. Beyond e-government the world's most successful technology-enabled transformations, Executive Summary, INSEAD: the Business School for the World, Fontainbleau, pp. 1-124 [Online]. Available at: <www.localtgov.org.uk>

Norris, D. F., and Reddick, C. G., 2013. Local e-government in the United States: transformation or incremental change?. *Public Administration Review*, 73(1), pp. 165-175.

Parisopoulos, K., Tambouris, E., and Tarabanis, K., 2009. Transformational government in Europe: a survey of national policies, pp. 462-471. Berlin Heidelberg: Springer.

Piening, E. P., 2013. Dynamic capabilities in public organizations: A literature review and research agenda. *Public Management Review*, 15(2), pp. 209-245.

Piening, E. P., 2011. Insights into the process dynamics of innovation implementation: the case of public hospitals in Germany. *Public Management Review*, 13(1), pp. 127–57.

Ramaswamy, M., and Selian, A. N., 2007. e-Government in transition countries: Prospects and challenges. In System Sciences, 2007. HICSS 2007. 40th Annual Hawaii International Conference on, pp. 92-92. IEEE.

Ridder, H.-G., Doege, V. and Martini, S., 2007. Differences in the implementation of DRGs across clinical departments: a German hospital case study. *Health Services Research*, 42(6), pp. 2120–39.

Robinson, O., and Griffiths, A., 2005. Coping with the stress of transformational change in a Government department, *The Journal of Applied Behavioral Science*,41 (2), pp. 204-221 [Online], Available at: <http://jab.sagepub.com>

Salge, T. O., 2011., A behavioral model of innovative search: evidence from public hospital services. *Journal of Public Administration Research and Theory*, 21(1), pp. 181–210

Sahraoui, S., Ghoneim, A., Irani, Z., and Ozkan, S., 2008. T-Government for benefit realisation: a research agenda. *Evaluating information Systems. Public and Private Sector*, pp. 359-373.

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

Sipior, J. C., Ward, B. T., and Connolly, R., 2011. The digital divide and t-government in the United States: using the technology acceptance model to understand usage. *European Journal of Information Systems*, *20*(3), pp. 308-328.

Teece, D. J., Pisano, G., and Shuen, A., 1997. Dynamic capabilities and strategic management. *Strategic management Journal*, pp. 509-533.

Tennant, C., and Wu, Y. C., 2005. The application of business process reengineering in the UK. *The TQM Magazine*, *17*(6), pp. 537-545.

Van Veenstra, A. F., Klievink, B., and Janssen, M., 2011. Barriers and impediments to transformational government: insights from literature and practice. *Electronic Government, An International Journal*, 8(2-3), pp. 226-241.

Walsham, G., 1995. Interpretive case studies in IS research: nature and method. *European Journal of information systems*, *4*(2), p. 74.

Weerakkody, V., Janssen, M., Hjort-Madsen, K., 2007. Realising integrated e-government services: a European perspective, *Journal of Cases in Electronic Commerce, Idea Group*, 3 (2), pp.14-38

Weerakkody, V., and Dhillon, G., 2008. Moving from e-government to t-government: A study of process reengineering challenges in a UK local authority context. *International Journal of Electronic Government Research*,4(4), p. 1.

Weerakkody, V., Dhillon, G., Dwivedi, Y., and Currie, W., 2008. Realising transformational stage e-government: challenges, issues and complexities. AMCIS 2008 Proceedings, p. 181.

Weerakkody, V., Janssen, M., and Dwivedi, Y. K., 2011. Transformational change and business process reengineering (BPR): Lessons from the British and Dutch public sector. *Government Information Quarterly*, 28(3), pp. 320-328.

West, D. M., 2004. E-government and the transformation of service delivery and citizen attitudes. *Public administration review*, 64(1), pp. 15-27.