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# Barriers to IT-driven Governmental Transformation

Stefan Henningsson

*Copenhagen Business School, sh.caict@cbs.dk*

Anne vanVeenstra

*Delft University of Technology, a.f.e.vanveenstra@tudelft.nl*

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### **Barriers to IT-driven governmental transformation**

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## BARRIERS TO IT-DRIVEN GOVERNMENTAL TRANSFORMATION

Henningsson, Stefan, Center for Applied ICT, Copenhagen Business School, Howitzvej 60, 2000 Frederiksberg, Denmark, sh.caict@cbs.dk

Van Veenstra, Anne Fleur, Faculty of Technology, Policy and Management, Delft University of Technology, Jaffalaan 5, 2628 BX Delft, the Netherlands, a.f.e.vanveenstra@tudelft.nl

### Abstract

*A number of separate studies have concluded that governmental organizations could greatly improve their efficiency as well as their quality of service by embracing state of the art IT. However, in reality few of the potential benefits are actually leveraged. Even those organizations that have succeeded in establishing online service delivery often fail in transformational aspects such as service orientation and a networked organizational structure. This paper adds to the theoretical body of Transformational Government by a longitudinal study of barriers to IT-driven change in a European Customs organization. In a first workshop we identified sixty-two potential barriers, which were later assessed to understand their impact on the transformation process. Our findings show that some of the barriers could not be controlled within the project, thereby framing the 'window of opportunity' and determining the outcome of the transformation process. We also found differences in the importance of overcoming the barriers and in the mechanisms that influenced organizational transformation.*

*Keywords: Transformational government, e-government, e-Customs, barriers.*

## 1 INTRODUCTION

European and international trade is currently facing a challenging paradox. Increased threats of terrorist attacks, diseases such as the bird and swine flues, and fraud have led consumers and governmental agencies to demand increased control and security from producer to end consumer (Tan & Klein & Rukanova et al. 2006). At the same time, traders are already suffering an extensive administrative burden associated with Customs procedures, estimated at about two percent of the total turnover for trading companies (Bjørn-Andersen 2007). Customs authorities are facing the seemingly impossible task of lowering the administrative burden and at the same time increase control and security. In a number of national and pan-European initiatives (e.g. FoodTrace<sup>1</sup>, Traceback<sup>2</sup>) electronic government (e-government) initiatives have been or are currently introduced as the answer to this seemingly impossible demand.

The past decades government organizations have embraced information technology (IT) to realize electronic service delivery to citizens and businesses and to increase their operational effectiveness. These initiatives are believed to enable “a longer-term transformation of government that goes far beyond online service delivery” (OECD 2005, p. 164). Instead of merely digitizing current government processes and activities, this transformation aims at leveraging the value of e-government initiatives (Irani & Elliman & Jackson 2007). Furthermore, objectives of ‘good governance’, such as transparency, participation and accountability, are pursued. Thus, the aim of the paradigm of *Transformational Government* is to radically change the way government organizations operate, and achieve benefits such as a reduction of the administrative burden of businesses (Lenk 2002). Reduction of their administrative tasks is welcomed by businesses that often consider their interaction with the public sector to be a burdensome task (Fountain & Osorio-Urzuza 2001).

However, empirical evidence suggests that in reality little IT-driven organizational transformation can be observed (West 2004; Coursey & Norris 2008). Previous research has started to outline the barriers impeding governmental transformation. Based on a three-dimensional framework and two case studies in Dutch government organizations Van Veenstra & Klievink & Janssen (2009) identified a lack of knowledge about necessary changes, a lack of change in the organization structure and the absence of a transformational mindset as major barriers to leveraging the benefits of IT in government organizations. In this paper we build further upon the framework by Van Veenstra et al. (2009). We use the framework to identify barriers to transformation within the Danish Customs organization and we then assess how the barriers affect the transformation process. The paper is based on a real-time, longitudinal study of the Danish Customs organization that is trying to radically transform into an organization that fully leverages the potential of IT to deliver better services and lower the administrative burden for Danish traders. Our study differs from the previous study on barrier identification by Van Veenstra et al. (2009) as it includes customers and follows the case study real-time, thereby allowing for impact assessment of the barriers.

Next, we discuss issues of IT driven governmental transformation and present the barrier classification framework. Then, we present the case study of organizational transformation in Danish Customs including identification of barriers. Finally, we present conclusions and recommendations.

## 2 GOVERNMENTAL TRANSFORMATION

Government organizations implement IT to improve service delivery for citizens and businesses and at the same time increase their efficiency (Gascó 2003; Kraemer & King 2005; Irani et al. 2007). For

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<sup>1</sup> [www.eufoodtrace.org](http://www.eufoodtrace.org)

<sup>2</sup> [www.traceback-ip.eu](http://www.traceback-ip.eu)

example, as a result of legal obligations and widely available information technology many public agencies aim to decrease administrative costs for businesses. To emphasize and spur the transformational effect of IT implementation in government, this new generation of e-government initiatives is referred to as *Transformational Government*, defined as a driver for generating greater benefits from e-government (Irani et al. 2007). Although the claim is not new (see, for instance, Baum & Di Maio & Caldwell 2000), the transformational aspect of e-government has recently received increased attention (see, e.g. Scholl 2005; Dunleavy & Margetts & Bastow & Tinkler 2005; Irani et al. 2007; Dhillon & Weerakkody & Dwivedi 2008).

## 2.1 Transformation of public administration

Many separate studies claim that IT has the potential to transform the public sector (Fountain 2001; Lenk 2002, Moon 2002; Gascó 2003; Scholl 2005; Irani et al. 2007; Weerakkody & Dhillon 2008). Dunleavy et al. (2005) describe the emergence of digital-era governance, with IT as the main driver for public sector reform. Others, however, state that in reality little transformation of the public sector can be observed (West 2004; Coursey & Norris 2007). Instead, they claim that IT reinforces the current institutional structure of public administration (Kraemer & King 2005). Realization of increased benefits of e-government, therefore, requires changes in multiple directions besides IT implementation. A prominent expectation is that government organizations will become more customer-oriented (Peristeras & Tarabanis 2000), requiring organizations to transform back office processes beyond merely setting up a service delivering front office (Dhillon et al. 2008). A transformation from organizations with a traditional vertical command and control structure will take place by moving away from this siloed structure in which islands of IT perform isolated tasks to performing tasks as part of chains or networks (Castells 2000; Bannister 2001).

Based on literature, the transformation of public agencies will follow some or all of these dimensions: improved client-oriented service delivery (Peristeras & Tarabanis 2000; West 2004; Irani et al. 2007), formation of service delivery chains through previously stove-piped organizations (Janssen & Joha 2006; Dhillon et al. 2008; Kamal & Weerakkody & Jones 2009), business process re-engineering of the back office (Scholl 2005; Weerakkody & Dhillon 2008) and formation of networks in which multiple organizations collaborate (Castells 2000; Kamal et al. 2009). However, within the public sector many different agencies are responsible for their own specific tasks and have a relatively large degree of autonomy. Organizational transformation is, thus, expected to be a cumbersome process with this fragmented structure being a large impediment. Therefore, IT-driven organizational transformation is usually embedded in a reform process that not only included IT-implementation, but also organizational and institutional changes.

## 2.2 Transformational barrier classification

Many studies focus on success factors for public sector reform and the implementation of information systems focuses (e.g. Poon & Wagner 2001; Akkermans & van Helden 2002; Fernandez and Rainey 2006; Rosacker & Olson 2008) instead of on barriers or impeding factors (Ebrahim & Irani 2005; Gil-Garcia & Chengalur-Smith & Duchessi 2007; Janssen & Cresswell 2005). However, considering the ongoing debate on whether IT-driven transformation is actually taking place, research on organizational transformation could benefit from barrier identification. In order to continue a cumulative knowledge creation process we build our study on a recent framework for barrier classification suggested by Van Veenstra et al. (2009). The authors, who sought to identify barriers to leveraging benefits from IT in government organizations, suggested a layer categorization into governance, organizational and managerial, and a technological layer. Although in the previous framework a business process layer was included, following Gil-Garcia & Pardo (2005) the technology and information layers will be grouped into forming the third layer in this paper. Key categories of barriers to transformation of government organizations are summarized in Table 1.

Category	Barrier	Literature
<i>Governance (including political and legal)</i>	Insufficient IT governance Structure of the public sector Political pressure (or lack thereof) Division of costs	Liu & Hwang (2003) Fountain (2001); Janssen & Cresswell (2005) Fountain (2001); Scholl (2005); Gil-Garcia & Pardo (2005); Fernandez & Rainey (2006) Ebrahim & Irani (2005); Janssen & Cresswell (2005)
<i>Organizational and managerial</i>	Lack of IT skills and personnel Lack of coordination Lack of implementation guidelines Lack of organizational readiness to business process re-engineering	Ebrahim & Irani (2005) Dhillon et al. (2008); Ebrahim & Irani (2005); Janssen & Cresswell (2005)  Gil-Garcia et al. (2007) Al-Mashari & Zairi (1999)
<i>Information and technology</i>	System complexity and incompatibility (including the lack of standards) Security threats Lack of enterprise architecture	Al-Mashari & Zairi (1999); Gil-Garcia et al. (2008); Ebrahim & Irani (2005)  Ebrahim & Irani (2005) Janssen & van Veenstra (2005); Kamal et al. (2009)

Table 1. Framework for key categories of barriers impeding the transformation in public administration (Van Veenstra et al., 2009)

On the *governance* layer, multiple studies emphasize the importance of political, legal and governance aspects for transformation of government organizations (e.g. Fountain 2001; Gil-Garcia & Pardo 2005; Janssen & Cresswell 2005; Kraemer & King 2005; Scholl 2005; Fernandez & Rainey 2006). Liu & Huang (2003) identify insufficient IT governance by the central government as a major impeding factor. Fountain (2001), Scholl (2005), Gil-Garcia & Pardo (2005), and Fernandez & Rainey (2006) find political pressure (or the lack thereof) as an important barrier to transformation of the public sector. And also the division of costs is identified as a barrier (Ebrahim & Irani 2005; Janssen & Cresswell 2005).

Some of the *organizational and managerial* impediments identified are the lack of IT skills and personnel (Ebrahim & Irani 2005), the lack of coordination in between departments (Dhillon et al. 2008; Ebrahim & Irani 2005; Janssen & Cresswell 2005), the adoption of a project management approach and the lack of implementation guidelines (Gil-Garcia et al. 2007), and a lack of organizational readiness for business process management (Al-Mashari & Zairi 1999).

Barriers related to *information and technology* include system complexity and incompatibility (Gil-Garcia et al. 2007) and a lack of standards and interoperable systems (Ebrahim & Irani 2005; Al-Mashari & Zairi 1999). Furthermore, the lack of an enterprise architecture (Janssen & van Veenstra 2005; Kamal et al. 2009) and security threats (Ebrahim & Irani 2005) are identified as impediments.

### 3 RESEARCH METHODOLOGY

The transformation of Danish Customs to an organization that fully exploits IT for delivering its services is an ongoing process that started in the 1980s when the first systems for reporting of customs declaration data were set up. In line with the general development of e-government initiatives, until recently development efforts have focused on delivering existing services on-line instead of on paper. In this outset the Danish Customs organization has been very successful. Already by 2004 almost all export declarations were reported electronically. The developments studied in this paper (see section

four), can be categorized under Transformational Government as the IT-implementation enables paradigmatic changes in the approach to customs controls.

### 3.1 The potential barriers generating workshop

The starting point of this research was a two-day workshop in which twenty-nine participants, representing eight different organizations (Table 2) with insight and interest in the Danish Customs organization, generated potential barriers for the transformation. After being introduced to the short and long term transformational objectives of Danish Customs, the participants individually created short lists (three items) of what they thought to be the most significant barriers impeding transformation. In total seventy-nine items were mentioned. Afterwards, three researchers individually categorized the potential barriers according to the three categories of the transformational framework. Upon disagreement of the categorization, the participant behind the proposition was asked to elaborate the meaning and intention behind the barrier and eventually consensus was agreed upon classification. All of the suggested barriers were discussed in a joint session which also addressed proactive measures for overcoming the barriers. The original intention of the workshop was to rank the barriers, thereby determining the most problematic barriers ahead, but this turned out to be impossible. Some barriers were generally regarded as more severe and problematic than others but the output of the workshop was not a list of key barriers to overcome but rather a catalogue of potential barriers and ideas on how they might affect the transformation process.

Organizational belonging	Participants
Customs	5
Other governmental agencies	2
Traders	3
Technology providers	9
Research organizations	10

Table 2. *Participants in the barriers generating workshop*

### 3.2 Longitudinal case study of Danish e-Customs transformation

Based on the framework by Van Veenstra et al. (2009) and the potential barriers generated during the initial workshop we conducted a structured case study to assess to which extent the potential barriers actually caused problems and if so, by which mechanisms they influenced the transformation. The essence of the structured case study approach (Carroll 2000) is to form an iterative research cycle upon a formal theoretical framework. The framework creates a structure that permits collection of relevant field data and in later stages, the case results enables tracing the conclusions and theoretical generalizations (e.g. Yin 1994). The framework in this study was based on the three categories of barriers outlined in Table 1. The value of this longitudinal study is that it extends the previous study on barrier identification by assessing the actual impact of the barriers.

We closely followed the transformation project within the Danish customs for two years. Much information was conveyed by informal conversations, and by taking part in internal mail correspondence exchanging documents. In addition, twelve meetings and workshops on e-Customs were held with representatives from the Danish Customs organization and other organizations involved, such as IT developers, the European Commission (EC) and export companies. These were complemented by ten semi-structured interviews to understand the specific details of the customs processes. Visits to Customs offices took place on a frequent basis.

## 4 TRANSFORMATION OF DANISH CUSTOMS TO E-CUSTOMS

### 4.1 Past, present and future of Danish Customs

Danish Customs introduced its first IT-supported export system in 1988. This pioneering system was solely used internally by employees in the local tax and customs offices to register export statements electronically. From 1990, it became possible for companies to send their export statements to the system through an electronic connection. The possibility to report export statements via Internet using a web-interface or FTP was introduced in 2000, but adoption was sparse.

In 2002 Danish Customs decided to reengineer the e-Export system in collaboration with an industrial advisory board. The objective was to achieve at least 95% electronic export declarations. Two years after implementation, practically all export declarations were reported electronically. As the European Union (EU) has refined and elaborated its demands on national customs authorities, these have been successively implemented in similar but not identical e-Export systems across Europe.

Until now, national customs authorities were responsible for their risks assessments, goods controls and administrative tasks. A pan-European company, thus, had to deal with national Customs organizations individually, complying with different legislation and processes. With the modernized customs code (TAXAUD 2004) and the e-Customs standardization (Regulation (EC) No 648/2005) the EC seeks to harmonize all European export regulations and at the same time increase efficiency by processing all declarations electronically. The initiative to streamline and harmonize European customs is part of a general EU initiative to reduce the administrative burden caused by EU legislation by 25%<sup>3</sup>. The objective is set for all areas influenced by the EU, not just Customs. This would have a significant economic impact on the European economy: an increase in the level of GDP of about 1.4%.

The EC's e-Customs plans are outlined in the Multi-Annual Strategic Plan (MASP) (TAXUD 2008). In a near future the EC wants to allow goods to be declared and the declaration accepted at the place where the economic operator is established, regardless of where goods are physically located and released by another customs office – so called *centralized clearance*. Another important step in the MASP is the establishment of a *single electronic access point* (SEAP) to allow a trader to lodge all his declarations to customs electronically via one single interface of his choice which connects his system with all EU's member states' customs systems. One step further than the SEAP (which is only focusing on data explicitly for customs organizations) is the *single window* approach that allows traders to log all information required under both customs and non-customs legislation for cross-border trade of goods only once; the information will then be shared between all the authorities and agencies involved in the movement of goods. The functional specifications of the SEAP, centralized clearance aspects and Single Window should be prepared by 15 February 2011. Full-scale implementation "is anticipated to be established by the Member States and the Community after 2012" (TAXUD 2008, p. 17). In the following sections we will refer to the transformation of Danish Customs to an organization that fully leverages the capability of IT to improve service delivery described above as the 'transformation to e-Customs'.

### 4.2 Initially identified barriers

The twenty-nine participants of the barriers identification workshop suggested seventy-nine barriers potentially impeding the change of Danish Customs to e-Customs. Some overlap between the barriers existed; in total sixty-two unique items were suggested. The categorization of the barriers is shown in Table. Noteworthy is that one of the categories, organizational and management, represented 50% of

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<sup>3</sup> [http://ec.europa.eu/enterprise/admin-burdens-reduction/home\\_en.htm](http://ec.europa.eu/enterprise/admin-burdens-reduction/home_en.htm)

potential barriers. However, this categorization does not yet say anything of the potential weight of the barriers. It only implies that the flora of anticipated barriers is higher in one of the three categories. The workshop divided the categories into twelve subcategories to facilitate discussion (see Table 3).

Barrier category	Subcategory	Count (percentage)
Governmental		20 (32%)
	<i>Government issues</i>	7
	<i>EU level issues</i>	9
	<i>Regulation</i>	4
Organizational and management		31 (50%)
	<i>People issues</i>	6
	<i>Issues linked to smaller companies</i>	4
	<i>Organizational</i>	5
	<i>Change management issues</i>	8
	<i>Financial aspects</i>	5
	<i>Consequences of change issues</i>	3
Information and technology		11 (18%)
	<i>Limitations of solutions</i>	3
	<i>Standardization</i>	4
	<i>Technical issues</i>	4

Table 3. Barrier categories and subcategories

#### 4.2.1 Governance

The first group of governance barriers is a direct result of the difference in nature between governments and businesses. Business is focused on profit maximization and cost reduction. Governments are focused on the general welfare of citizens. A related issue is the four-year election cycle that drives political decision making. While politicians are driven by concerns of being re-elected, IT developments undertaken have shown that development and adoption requires twelve-year cycles, extending, thus, beyond the ordinary election period. Hence, political changes could become a barrier for IT implementation.

Another issue related to the nature of governmental organizations, put forward in the workshop, is that public organizations are more likely put safety and reliability in favor of potential but unsecure improvements. As expressed explicitly by one of the participants: "The general attitude is that it is better to over-regulate, than to miss income". Governments are very concerned about their tax/Customs income, and are reacting to potential fraud by businesses. Perhaps there is an assumption of low trust of businesses within government. This leads to regulation that is ultimately seen as burdensome, although it is a means for the benefits of all. Most of the time the fraud regulation is event-driven, hence policy-making as well as creating new laws is fragmented and overly complex because resources are not allocated to coordinate and simplify regulation.

The situation in Denmark, where the Danish Customs organization is partly dependent on EU-level decisions for its e-Customs transformation creates another set of potential barriers. For developments on the EU level all member state countries have to agree. As the EU is not a homogenous region, suggested solutions do not fit the member countries equally well, depending on nature of traded goods, trade volumes, risk of fraud, etc. In addition, legislation that is linked to Customs, i.e. regarding financial auditing and privacy, is different in most EU countries.

#### 4.2.2 *Organizational and managerial barriers*

When it comes to organizational and managerial issues the workshop identified five subcategories of potential barriers: Change management issues, Change consequences, People issues, Communication, Financial aspects, and Issues linked to smaller companies.

The transformation to e-Customs is a challenge. Complexity was already mentioned as one of the major barriers. As no-one knows exactly what the organization should look like to leverage IT potential the transformation process needs to be carried out continuously. The transformation also faces the barrier of conflicting interests. As mentioned above, there may be a clash at the super-national level, but there will also be conflicts of interest between national organizations, departments and individuals. Issues related to the ability and willingness of individuals to change was also frequently mentioned as a barrier. e-Customs requires a completely different mindset. Customs has a long tradition that is now challenged by paradigmatic changes. Concerns were raised during the workshop that they cannot be implemented easily. Concerns were also raised regarding the consequences for work processes. A transition to new systems would reshape businesses processes. Major barriers could be that new processes would lead to discontinuation of activities and lay-offs.

Lack of communication was a third subcategory mentioned. e-Customs transformation is a distributed transformation process where changes are required on the EU level, within several national agencies involved in trade (customs, health authorities, certification bodies), within traders' companies and within other commercial organizations (technology suppliers, logistics providers) involved in trade. For example, the concern was raised that no common information point is available for technology providers on the basis of which they build their information systems. In addition, although some channels exist for inter-organizational communication (for example, within the industry or on the EU level), these channels are not working perfectly. The difficulties associated with opening up these communication channels can become a significant barrier for transformation.

Among the financial issues it was emphasized that the potential investment cost for small and medium companies could be a barrier. Among Europe's more than two million traders many are small and medium sized enterprises (SME's), for whom the cost associated with IT investments is likely to be an issue. Many companies have huge sunk costs invested into their existing systems which would need to be modified in order to fully leverage the potential of e-Customs.

#### 4.2.3 *Information and technology*

According to the workshop participants, the most challenging task in the technological category was alignment with the numerous other initiatives to improve conditions for world trade that took place simultaneously to the Danish e-Customs initiative. Since trade means continuous interactions with trading partners and governmental agencies business processes of the actors are tightly connected with mutual dependencies within process networks.

Standardization also plays an important role in the transformation to e-Customs. At the start of the project there was no EU standard for data exchange, although the European e-Customs solutions were supposed to be harmonized and work similarly throughout Europe. Instead, the twenty-seven member states developed twenty-seven different e-Customs solutions that in the future have to be integrated – as well as the systems of two million traders. The barrier foreseen was that no blueprint is available to software providers that would lead to a wide variety of systems unable to communicate with each other.

Apart from the standardization barriers the workshop participants also mentioned that the technological challenges associated with the transformation affecting the internal systems of two million traders and twenty-seven national authorities that have to be implemented simultaneously should not be neglected. The complexity of the required technical development alone could bring the transformation to a halt.

### 4.3 The barriers' effects on the transformation process

During the two years we followed the e-Customs transformation some barriers were overcome without major efforts while others appeared to be real impediments blocking the change process.

#### 4.3.1 Governance

Two of the governmental barriers stood out as particularly problematic, determining the possible scope and pace of transformation. Initially the legal aspect was thought of as being the greatest threat to the project, but during the project the twenty-seven EU member states agreed upon a modernized Customs code that in general terms allowed for radical redesign solutions. The text was written in a way that it opened up for new ways of performing Customs control, but it did not specifically prescribe that these new procedures had to be implemented. What turned out to be a limiting aspect instead was the governmental institution's choice for safety and reliability instead of unsecure but potentially much more successful improvements. Government institutions lack direct competition forcing them to continuously search for efficiency improvements. This limited the willingness to embrace innovation.

The EU's structure of twenty-seven member states having to agree on any changes in the Customs processes in order to achieve change was the other governmental factor forming the scope and pace of the Danish e-Customs transformation. The decision structure per se showed signals of being poorly designed for fast decision making and, additionally, the internal conditions of the member states favored different solutions. For countries with a limited trade sector, e-Customs expenses only had a marginal reward. For others, trade improvements would significantly improve conditions for national companies. These two barriers described above turned out to be deterministic for the Danish e-Customs project and during the two years we followed the project these barriers remained unsolved which led to project adjustment to the scope permitted by EU regulations. Therefore, a significantly less radical redesign than foreseen was developed.

#### 4.3.2 Organizational and managerial

The subcategory within organizational and managerial issues that received most attention in the workshop was people issues, put forward as fear of lay-offs and active opposition towards change for personal reasons. However, this was not a prominent barrier during the implementation project. Although it could have been a result of measures that were taken to overcome this barrier, this was not the case. In fact, very few measures were taken to ensure a positive response from affected people. A more likely explanation was that the people redesigning processes were not the ones being immediately affected by the changes. Change was, instead, implemented by semi-detached development units. Also, changes undertaken at such a slow pace that people were more concerned with other, faster development process taking place simultaneously.

Organizational issues associated with bringing stakeholders together were solved internally but, as explained above, they were not completely solved on the EU level. Danish Customs has a long tradition of developing their services in cooperation with businesses. These established relations were used for the e-Customs transformation. Established relations also included channels to communicate with SME's. These companies were also expected to have problems with the financial investments following the e-Customs transformation. Since, due to the diminished innovation scope on the governmental level, redesign was limited no new corporate system development was required.

#### 4.3.3 Information and technology

Although the desired results have not been achieved, the technological aspect of the project was considered to be successful. Danish customs has been able to cope with standards requirements from the EU, UN, and the World Customs Organization. By September 2009 Danish Customs was able to

upgrade its systems according to the latest EU-wide regulation with the objective to harmonize export systems in the union. However, although Customs' systems are compliant to the same specifications, the desired effects for the traders are still not visible. The Danish e-Customs transformation managed to be compliant with the standards, but the standards were not inclusive enough to cover all aspects that need to be specified in order for the European export systems to be perceived as harmonized to the pan-European exporters. The exporters we investigated in this study all reported that they still had to deal with the European customs organizations in different ways, and that they required distinct interfaces – despite the 'harmonization'.

In general, the project was able to handle the technical difficulties that lay within the project's mandate. However, this took place at large costs and efforts. Still, the project was some months behind schedule when finished. More and more people involved started to question the appropriateness of developing twenty-seven different systems in Europe instead of one common solution in the future.

## **5 DISCUSSION: BARRIER CHARACTERIZATION**

Previous research has listed many potential barriers for governmental transformation, but as far as the authors have been able to identify no one has looked further into the nature of these barriers and how they influence the transformation process. Our case shows a clear distinction between two types of barriers: those that can be solved within the project and those that are outside the project's control span. Foremost, barriers in the governmental layer were outside the control of the project. The project had very little possibilities to influence the process of creating new EU legislation for the Customs area and it was sheer luck that this did not prove to be a problem. However, this luck did not help out when it came to the eagerness of governmental institutions to embrace innovation. Neither did it make a difference for the collaboration structure within the EU that led to long negotiations and very slow transformation. Other barriers out of the control of the project included the poor quality of the international standards that the project was supposed to follow. The standards were implemented, but the intended effects were not achieved due to limitations of the standards.

The findings from the e-Customs case suggest that an important characteristic for understanding transformational barriers and their impact is how easily they can be controlled within the scope of the transformation project. On the one hand of the continuum we discovered a set of barriers completely under project control and on the other hand we found barriers to be completely outside of project control. Internal communication and project members' competence are examples of controllable barriers. International trade legislation is an example of a barrier almost impossible to influence for an individual project. The barriers leaning towards the uncontrollable side of the continuum together create a 'window of opportunity' for transformation projects. Failing to understand the scope of transformation possible determined by barriers outside the project's control is likely to result in project failure. In the case of e-Customs, failing to acknowledging the readiness for radical change could have resulted in the creation of a solution that would not be accepted on EU level.

## **6 CONCLUSION**

In accordance with earlier studies that find IT-driven transformation not being merely a technical issue (Fountain 2001; Irani et al. 2007), we found barriers also at the governance and organizational levels. This leads us to conclude that Transformational Government is not just about adopting the right technologies, acknowledging client's wishes or agreeing on standards, but that it is about the fundamental re-orientation of the role and function of an organization as part of a network that offers services to citizens and businesses. Furthermore, it requires appropriate governance mechanisms supporting transformed organizations. Focusing on one part only – whether improving systems or setting up a service oriented front office – inhibits the comprehensive organizational and process

reform that is needed for transformation. Often, like in the case studies, organizations take too narrow a focus on transformation and neglect the invasive nature of the process on all categories identified.

This research aimed to contribute to the research field of Transformational Government, a research field that studies the transformational effects of e-government implementation supporting enhanced use of ICT for more effective service delivery. In this paper barriers impeding transformation in a Danish e-Customs project were identified and categorized. We believe that identifying these barriers complements the present focus on success factors. Using literature review, a classification of barriers was developed consisting of governance, organizational and managerial, and information and technology. This classification was used to analyze and understand the barriers' potential impact.

By first indentifying a large number (sixty-two) of potential barriers and then assessing their impact on the transformation project we found that some of the barriers identified were completely outside the control of the transformation project. These factors included international legislation, organization of superior authorities and shortcomings in directives and regulations. Together the barriers that cannot be influenced created the project's 'window of opportunity' to which the transformation process had to be adapted. Eventually this led to a less radical redesign than anticipated, but at the same time, following the original outset would have created a solution that would have been misaligned to the factual situation, and would likely have been rejected at the EU level.

The existing research has been good at listing potential barriers for governmental transformation. We suggest that future research should continue in the direction of in this paper to understand the characteristics of the barriers and their influence on the transformation process. Frameworks such as the one applied Van Veenstra et al. (2009) are useful for identifying potential barriers, but say very little on which effect the barriers have (the criticality) or how they can be overcome – if they can.

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