

Project no. 027829  
Project acronym: ITAIDE  
Project title: Information Technology for Adoption and Intelligent Design for E-Government

Integrated project  
FP6: Thematic Priority 2- Information Society Technologies

## Working Paper 1

# 40 years of multi-faceted change in the Dutch Tax and Customs Administration

Submitted to the Journal of Strategic Information Systems and under review.  
September 22<sup>nd</sup>, 2006  
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# 40 years of multi-faceted change in the Dutch Tax and Customs Administration

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## Abstract

A major challenge for European governments is solving the dilemma of increasing security and control of international trade, while at the same time reducing the administrative overhead carried by commercial and public administration organizations. Process redesign and use of ICT are widely perceived as key components of a solution. Thus, we see that many ICT-driven change efforts have taken and continue to take place under the header of eGovernment. These changes are not always successful, however, and not yet well-understood. In this article, we provide an interpretive longitudinal account of the strategic IS efforts at the Dutch Tax and Customs Administration (DTCA). Instead of focusing on IS that supports the government itself or the relations between governments and citizens, we seek to contribute to the sparse literature that is specifically directed at the interactions between EU initiatives in eGovernment, national governments, and businesses.

By providing a narrative of DTCA that spans multiple levels and multiple time frames, we seek to explore eGovernment developments from the 1960s to now. We discuss our findings by examining the changes at DTCA building primarily on Van de Ven & Poole's (1995)

work “Explaining development and change in organizations” in which they describe four “motors of change” – life cycle, teleology, dialectics, and evolution – and we combine it with some of Pettigrew’s ideas on change. This combinatory theory offers a way of thinking about the occurrence of change in a dynamic context, both for researchers and practitioners. A key implication is that the theory is not only useful retrospectively, but can also be used to identify “running motors” and as such, awareness of the complexities and dynamics of these change processes can provide an impetus for managers and action researchers to identify challenges and opportunities to influence change.

**Keywords:** eGovernment, eCustoms, regulation, organizational change, longitudinal, historical, interpretive

## 1. Introduction

Globalization is widely acknowledged to be an important contemporary phenomenon and globalization and technology are mutually reinforcing drivers of change (Hanseth and Braa, 2000; Walsham, 2001). In such a global environment, cross-border trade is a key driver for economic developments. Key players in the arena of cross-border trade are governments, mainly the customs and taxation offices, which are mostly concerned with defining the requirements towards the businesses, controlling the flow of goods and collecting duties.

In the context of European Union, one of the key objectives is to improve the competitiveness of European businesses in international trade. At the same time, EU governments are concerned with issues of health, safety and security, and fraud prevention. Constantly, new customs procedures and documents are introduced, a latest example being the strict security requirements as a result of 9/11, which pose a tremendous administrative burden for companies. This reflects one of the major challenges that the European governments are facing at the moment, i.e. how to deal with the dilemma of reducing the administrative overhead carried by commercial and public administration organizations, while at the same time preserving the control and security requirements.

Process redesign and use of ICT are widely perceived as key components of a solution for public sector institutions (Andersen, 2004). Thus, we see that many ICT-driven change efforts have taken and continue to take place under the header of eGovernment and more specifically eCustoms. These changes are not always successful, often do not bring significant simplification and are not yet well-understood. Furthermore, such change processes are often multi-facet and the outcomes are not easily predefined.

IT-driven change is not well understood. It is even less so in the specific area of eGovernment and eCustoms (operating a business-to-government context), where we have interactions between government and business, which differ in nature and often have conflicting goals (Thompson and Rust, 2005) and where businesses often consider interaction with the public sector as an administrative burden (Fountain and Osorio-Urzuu, 2001).

To be able to understand such change processes in eCustoms, we need to go as close as possible to the phenomena and study how they reveal in their natural settings. There is a sense of urgency for getting a better understanding how such change processes emerge, as the administrative burden for companies is constantly increasing to a level that may hinder the very existence of some economic activities.

To study the ICT-related change in eGovernment in cross-border trade we consider change as a combination of organizational and IS change and that change needs to be studied in its historical context. We make a historical overview of the Dutch Tax and Customs Administration (DTCA), we follow how DTCA changed their relationship with the business in attempts to reduce the administrative burden and provide trade simplifications. We consider the specific example of the Netherlands is interesting, as trade is in the heart of the economic activities there. This puts environmental pressure on both governments and businesses to improve. We further study how the different systems in DTCA evolved as an attempt to improve both the internal processes of DTCA, as well as to bring further simplification to businesses.

By analyzing those, we may be able to gain insights into real-life experiences of what kind of strategic choices governments have made, to reflect upon to what extent they were successful to bring improvements and to provide discussion on future implications and lessons learned. These real-life experiences can be used to better understand how to analyze such change processes as they occur and can be used as a basis for further theorizing about the strategic choices of governments in their attempts to reduce the administrative burden, while at the same time preserving the desired level of control and security.

We analyze our findings at DTCA building primarily on Van de Ven & Poole's (1995) work "Explaining development and change in organizations" in which they describe four "motors of change" – life cycle, teleology, dialectics, and evolution and combining it with the Pettigrew's ideas of the vertical and horizontal dimensions for analyzing change. This combinatory theory offers a way of thinking about the occurrence of change in a dynamic context, both for researchers and practitioners. A key implication is that the theory is not only useful retrospectively, but can also be used to identify "running motors" and as such, awareness of the complexities and dynamics of these change processes can provide an impetus for managers and action researchers to identify challenges and opportunities to influence change.

The remainder of this article is organized as follows. Part two presents a literature review discussing existing research on eGovernment and change, the more fundamental literature on change and the processual work on change in the IS field. Furthermore, we zoom in the motor of change of Van de Ven and Poole (1995) and some of the ideas of Pettigrew on change, which we will use as a basis to interpret the findings from the case. In part three we propose to use a historical, interpretative case study to gain insights into the process of change in a specific eCustoms context. Part four presents a historical overview of some of the key developments in DTCA, by looking at the change in processes and the evolution of the IS systems, we discuss the external influences from EU and an example of an emerging initiative (the Beer Living Lab pilot) which is going on at the moment and may have influence on DTCA in the long run. Part five presents an attempt to explain the change processes discussed in the case by combining the motor of change of Van de Ven and Poole

(1995) with the ideas of Pettigrew on the vertical and horizontal dimensions of change. The article ends with conclusions and recommendations for further research.

## **2. Literature review**

### **E-government and change**

At this stage much e-government research has focused on the sophistication of e-government offerings (Holden et al., 2003; Layne and Lee, 2001; Moon, 2002) and the interaction with the end-users rather than the impact on government internally when e-government is implemented (Scholl, 2005). However, the one-stop-shop for interaction provided by the public sector has proven not to be as straightforward as expected by policy makers outlining e-government agendas (Henriksen and Andersen, 2004). There is a big difference in if public sector institutions maintain a web-site or if it let citizens or businesses complete transactions on-line as it is the intention in the eCustoms systems provided by DTCA. Furthermore, the benefit for businesses does also vary depending on type of interaction (Thompson and Rust, 2005).

Taking into account that e-government is about making use of IT in public sectors operations (Koh and Prybutok, 2003; Moon, 2002; Norris and Moon, 2005) it is worth asking if e-government is a new concept? Implementation of IT in private and public organizations has taken place since decades. What is new is that technology development and diffusion has made it possible for government to involve its customers in operations in new ways (Andersen, 2004).

In some cases e-government is an option (self service for citizens) in other cases it is an imperative (self service for businesses). Due to the public sectors' maxim of accessibility, accountability, predictability, and transparency offering services on-line exclusively challenges the maxim. The grounds for interaction between the public sector and businesses are fundamentally different to the relation between government and citizens. Businesses are obliged to submit statements, reports etc. at a frequent basis as part of their operations. Prominent examples are taxation-statements related to duty and excise which are reported at a regular basis. The regular basis is in itself a distinct difference compared to the citizen-

government interaction which – fortunately – for most people happen at a very infrequent basis, hence for the individual citizen not much is gained by being able to perform transactions on-line. Submission of data to the public sector is on the other hand a part of the regular routines in businesses.

During the last decades businesses have implemented ERP-systems and their data is therefore already available in a digital format. Any reduction in administrative tasks is welcomed by businesses which often consider their interaction with the public sector to be a burdensome task (Fountain and Osorio-Urzua, 2001). The offering of e-government solutions to businesses is therefore seen as advantageous for businesses given that they are already confident with the use of ICT in their business practice.

The driver for operations and change in the private is primarily profit maximization whereas the driver in the public sector is much less well defined. The public sector has traditionally has been governed based on the ratio decidendi of monopoly and procedures rather than competition and results. However, with the re-invention of government (Osborne and Gaebler, 1992) and the introduction of the New Public Management in the 1980s there has been a shift where the public sector has adopted more of the characteristics of the private sector (Hood, 1991) but still operating within the maxim of accessibility, accountability, predictability, and transparency. As the DTCA case will demonstrate efforts have been made to meet these requirements.

### **Organizational and IS literature on change**

Indeed, eGovernment change can be seen as a sophisticated mixture of both organizational and IS-related change. In the past decades, research has become increasingly oriented towards changes associated with the introduction of information technology in organizations. Illustrative examples are the contributions of Walsham (1993) and Orlikowski (1992). In their recent work Van de Ven & Poole's (2005) offer a typology of approaches that are common in the study of organizational change. Rather than putting one above the others by focusing on how these perspectives would be mutually exclusive, they argue that it is through a holistic, pluralist approach where the different perspectives are used in a complementary fashion, that advances in our understanding of change can be made.

Whereas most researchers will agree on the importance of understanding change in organizational settings, Van de Ven and Poole (2005) state that there is no agreement on the content of change. They powerfully phrase the question: "...is the organization represented as a thing or a verb?". Furthermore, they state that there is not any common agreement on the epistemological ways in which to investigate change e.g. through variance methods or process narratives (Markus and Robey, 1988). The variance approach has often been applied in the study of organizational change. However no prevalent unifying variables explaining organizational change have yet been discovered (Wolfe, 1994). Weick and Quinn (1999) have concluded that a shift in vocabulary from change to changing will make theorists and practitioners more attentive to the dynamic, change-full character of organizational life. This suggests a move from the object of change and thereby also from a more static approach where explanatory variables are identified as catalyzers for change to the process of changing where processes and the whole setting is analyzed in order to understand change. In the present study of the Dutch Tax and Customs Administration we argue that both are important for the holistic approach which is pursued in this article.

Based on a comprehensive review of the literature on change Pettigrew (1985a, b) concludes that most of the research on organizational change is a-historical, a-processual, and a-contextual in character. Almost two decades later Pettigrew revisits the state-of-the-art of the change literature and reaches the same conclusion (Pettigrew and Cameron, 2001). Meanwhile, it should be stressed that there are eminent examples of reported research which take the historical, processual and contextual attributes into account. Examples from IS literature where the longitudinal, processual approach to studying IT-based change have been applied include (Iversen, et al. 2004; Klein & Myers 1999; Orlikowski 1993). Another recent example is Avgerou (2001) who elaborates on Pettigrew's approach to longitudinal research, discussing the need to consider the broader context of organizational change. Other examples where research take into account the complexities of change, as it occurs at different analytical levels and interconnects different times are reported using theoretical strands such as Actor Network Theory (for a recent contribution on the multi-faceted and evolutionary theory see Law and Hassard, 1999) and structuration theory (Giddens, 1984).



Tsoukas & Chia (2002) build on and extend the insights of Orlikowski (1996), Weick (1998), Feldman (2000) (as well as others who share similar concerns e.g. Brown and Eisenhardt, 1997; Van de Ven and Poole, 1995). They start with the assumption that to properly understand the organizational change, we need to stop giving priority to organization, thereby make change an exceptional effect and that one should rather start from the premise that change is pervasive and invisible and of continuous character. The authors argue that although organizational change is often viewed as stages and cycles, and presented as a synoptic account for organizational change, such account does not quite capture the distinguishing features of change- its fluidity, pervasiveness, open-endedness, and indivisibility. This latter account is referred to as “performative” account of organizational change (Feldman, 2000). Tsoukas & Chia (2002) further argue, making the analogy with an acrobat, that although at some level of analysis one may be able to distinguish phases that remain stable over a period of time, on a lower level the processes of continuous change occur, to keep the balance in place.

Investigations of change have often been build around the underpinning assumption that change is exceptional, something that is achieved through the instrumental use of strategic planning and subsequent implementation of these changes. That implies that developments in eGovernment and other organizational and technological settings tend to be presented as the outcome of planning, deliberate actions (from individuals) and re-actions (to the environment). We concur with research that demonstrates how change could be viewed not as from the outside or inside, but rather, as innate to organizational life. That also opens the way for discussing the emergent nature of changes that we see occurring, when change is unintended, indivisible, and sometimes even hidden. This is not a novel observation, but one that is still counter-intuitive to the espoused rationales of many eGovernment initiatives.

Building on the overarching theoretical notion of change discussed above, it is found prudent to consider the following two issues. First, the multi-faceted nature of change; that is, there are many developments taking place simultaneously, with different forms and shapes, in varying directions, across different interacting contexts. To build a rich understanding of the technological-oriented eGovernment developments at the Dutch Tax and Customs Administration means that we need to appreciate these multiple facets. We

understand these facets here in an interpretive fashion where we offer a holistic description and analysis of the changes that took place. Second, it is necessary to deal with the temporal dimension of change. For our study, we propose that it is of interest to consider DTCA's developments over an extended period. Although this means that we have to sacrifice some detail to the overall patterns that emerged, it provides us with an elaborate narrative of the nature and kind of changes that occurred. Further, this prolonged time-span in comparison to most studies, allows us to further analyze time in the sense that time does not always equal clock time – the speed of change may be very different.

From the case, we recognize a pattern of evolution and change that warrants further investigation. In order to provide such explanations, we make use of Van de Ven & Poole (1995) ideas on “motors of change”.

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Figure 1  
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Van de Ven and Poole base their model on two dimensions: mode of change and unit of change. The mode of change reflects the way change is understood as prescribed or constructed. The unit of change reflects whether the change concerns a single or multiple entities. The four motors of change (evolutionary, dialectic, lifecycle and teleological) are positioned within these two dimensions as presented in Figure 1. The definition of each of the motors is presented in Table 1.

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Table 1  
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Van de Ven and Poole argue that although these motors are elementary a combination of these motors may be used to explain very complex change.

Cule and Robey (2004) build their analysis of IS-change on Van de Ven and Pooles constructive motors of change. They argue that the framework provides an integrated perspective that connects change at interdependent levels, that is, an individual (single unit) and organization (multiple units). However, we do not agree with their argument that change cannot follow a pre-defined path. Rather, what we see in our case is that changes at different

levels may interfere, thus dialectics and teleological modes can make the prescriptive less certain, or the other way around, life-cycle and evolutionary motors may dominate the construction of change. As such, the outcomes of the multi-faceted developments will both exhibit the intended and unintended, the negotiated and regulated, etc. Thus, we reiterate our call for a holistic approach to describe the changes experienced and we argue that there is an opportunity to do so by taking all four motors into account.

The way Cule and Robey (2004) phase the changes – is contrasted by Tsoukas and Chia (2002). Tsoukas and Chia argue that even at an analytical level, you cannot describe changes in this input-output type of models. Even though Cule and Robey (2004) do not suggest determinism here, their sequential models have this feel. The phased approach that they propose deals with time in a sequential manner and appears to be unable to deal with the fact that there are temporal differences (e.g. not every change moves at the same pace) and that the interactions take place across different times. Furthermore, Cule and Robey make a distinction between internal and external context. The external context is a container for 'everything else' and this makes it difficult to appreciate the complexities and different facets of change. Thus, there is a need to be more explicit about the different levels of analysis that are involved in the changes and the relationships and interactions that they have concerning the change under investigation.

Pettigrew's (1985; 1987; 1990; 2001) work offers several insights to think through in order to realize this. Pettigrew suggests a contextualist analysis of a process such as change draws on phenomena at vertical and horizontal levels of analysis and the explanation of a higher and lower level and the interconnections between those levels over time. Vertical refers to the interdependence between higher and lower levels of analysis (e.g. the impact of socio-economic change on the interest-group behaviour). The horizontal refers to the interconnectedness among phenomena in historical, present and future time. The traditions of the structuration theory (Giddens, 1984; Walsham 1993) too suggest that it is important to explore the interaction between context and action and how context is a product of action and vice versa. A common assumption for these approaches to change is made about causation of change; it is neither linear nor singular and the search for simple and singular grand theory of change is unlikely to bear fruit.

To conclude our presentation of sources suitable for the study of the DTCA case it is found prudent to apply frameworks which can capture the different separate motors of change at different levels. Furthermore, it is found crucial to consider that within our multilevel and historical overview, these four motors may “run” not only separately but also simultaneously and at different speeds. This also means that they affect each other and it is particularly such interplay that characterizes complex change.

Recapitulating, we have provided an overview of selected literature on the topics of eGovernment, organizational change, as well as IS-related change. Based on the selected sources we can now position our study of the Dutch Tax and Customs Administration in these three adjacent fields:

- 1) Our focus on e-customs developments fills a need to provide further understanding of eGovernment in relation with businesses.
- 2) Our historical account offers a processual overview of intertwined organizational and IS changes, bridging a rare time-span of four decades.
- 3) We aim to provide a narrative and analytical discussion that supports a holistic understanding of the complex and wide-ranging nature of the changes involved.

In the discussion of our case findings presented in Section five, we will return to these threads when we analyze our findings, primarily making use of the four-motor work of Van de Ven and Poole and Pettigrew’s horizontal and vertical dimensions. In the next section, we detail our methodological approach and introduce the background of our case study.

### **3. Method**

In the case study, we looked at the developments in the DTCA in the last four decades. We consider this historic overview as interesting as the Netherlands played and still plays a major role in the international trade due to the strategic role of the port of Rotterdam. In this respect, DTCA had to operate under huge evolutionary pressure to constantly change and look for innovative solutions (including the use of IT), in order to keep pace with the developments in trade. In this respect, the case of DTCA illustrates the intricate interplay between the government and the business in a very dynamic context of international trade.

Our predominantly historical account offers a processual overview of intertwined organizational and IS changes in DTCA. In the case study we adhere to the interpretative tradition (Walsham, 1993) and our historical reconstruction, offers perspectives on the “phenomena that are unavailable by any other methodological means” (Mason, 1987, p.307)”. History can help to understand how the phenomena arose and how they unfolded over time (Mason, 1987) and as Neustadt & May (1986) say, “Seeing the past can help one envision the future”.

### **Access to the site and data collection**

We ensured access to the site via a pilot project called “Beer Living Lab” (BLL), part of the ITAIDE EU research project, where DTCA also participates as a partner. The project focuses on the export of excise goods and involves a large beer producer, DTCA, universities and technology providers. The goal of the project is to use innovative technology to achieve a redesign, which will lead to a reduction of the administrative burden for the Beer producer and to increased control and security for DTCA. The field research took place in the period January- August, 2006. The research involved predominantly historical reconstruction of the key changes of the processes and systems at DTCA in the last 4 decades. Additionally, we were able to follow closely the progress of the Beer Living Lab during the first eight months of its development.

The main sources of data were interviews (including follow up meetings, phone conferences and e-mails), full-days brainstorming sessions and document analysis. As the starting point for the data collection we used the “Beer Living Lab” setting. First insights about the DTCA developments in the past years with respect to processes and systems were gained via three full day brainstorming sessions. Although the purpose of the brainstorming sessions was to discuss the state of affairs of processes and systems, which was to be used as a basis for redesign, these discussions provided insights into types of past developments. Consequently, a series of individual interviews were conducted with each of the members of DTCA, who participated in the BLL (see figure 2).

The first rounds of interviews were semi-structured and lasted for around 2 hours. Based on these interviews, general themes were identified and other experts from DTCA were approached to provide further information. The experts that were subsequently approached fall in three general categories: experts familiar with how the processes evolved, experts familiar with how the systems evolved and experts, who are active also at EU level and who could provide information about the past and future EU developments that have effect on the national level. For these experts, the interview questions were tailored to reflect the specific area of expertise of the interviewees.

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Figure 2  
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The researchers maintained a constant interaction with the interviewees, including e-mail, telephone, or follow up interviews for filling in details and clarifying ambiguities during the data analysis. During these follow-up interactions the researchers needed to get specific answers to issues, which remained unclear from the previous interviews. To triangulate the findings we used multiple sources of evidence. Furthermore, whenever possible, summary of our reports were sent to the interviewees for validation.

### **Data analysis**

The full-day brainstorming sessions, as well as the large part of the interviews were recorded and detailed notes were taken. Due to the large number of meetings and recorded material, only partial transcripts of the interviews were done and the detailed notes were used as a basis for the analysis. For issues that were considered of key importance, the researchers were using the tapes to go back to the source data and to do partial transcripts of the specific issues of interest. For the data analysis, we followed a similar approach as the one proposed by Walsham (2006). In an iterative fashion, after an interview or a group of interviews we reflected on the types of issues that seemed interesting. During these reflections, we made active use of the meeting notes. Ultimately, we defined and further refined the themes that we found important from the study.

Concerning the choice of theory, we concur with Walsham (2006) that such choice is subjective. The choice of theory was done in an iterative manner, buy reviewing a number of

theories on change. Ultimately, we decided to make use of the “motors of change” of van de Ven and Poole, combined with Pettigrew’s idea of vertical and horizontal levels of analysis as we felt that the combination of these two theories provides rich grounds for explaining the changes observed in the case. Finally, for the presentation of the case study we have chosen to use narrative, as narrative is especially relevant to the analysis of organizational processes (DiMaggio, 1995; Pentland, 1999).

### **Structure of the case description**

The structure of the case description is schematically illustrated in the figure below.

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Figure 3  
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In the core of the case description are the developments that took place in DTCA in the last four decades. As we consider the change in DTCA as both organizational and IS-related change, we use these two types of changes to structure the presentation. In addition to the core discussion on DTCA, we add two other perspectives that we observe at the moment and we consider relevant to discuss. The one perspective refers to the planned EU strategic agenda on Customs and Taxation and how it influences the national strategic agenda at DTCA. The other perspective reflects the current developments in the “Beer Living Lab” pilot within the ITAIDE project as an example of emergent change that may have effect on DTCA in the long run. These last two developments provide example of planned and emergent changes, which may interact and have effect to forming the future pathways of DTCA.

## **4. An overview of developments in the DTCA in the last four decades**

This section presents an overview of some of the key developments that took place in Dutch Customs in the last four decades. It discusses the changes that occur over time, the conditions, under which these changes occur, the strategic decisions that were made on the way and the outcomes in terms of processes, systems and shift in mindsets. Some of the key developments related to the organizational and IS-related changes are presented in Annex 1.

## **A shift in the way of controlling of DTCA**

### *The invention of the container shipment and the opening of the container terminal in Rotterdam*

Traditionally, Customs played a major role in all the cross-border trade activities in defining regulations, collecting duties and controlling the flow of goods. Until the 1960es and early 1970es, the operations in the Customs in the Netherlands were centered on physical checks and customs officers had a very active role in controlling the cross-border flow of goods of the companies. Some important events however happened which made impossible to proceed in the old way of controlling the companies and required changes in the way of working. We will discuss two of the events that we consider as a key driver for change, i.e. the invention of the container and the opening of the Europe Container terminal in Rotterdam.

Malcolm McLean is considered as the man who conceived the idea to use container for shipping to replace the traditional break bulk method of handling dry goods. The container shipping is considered as one of the great innovations in logistics of the 20th century, which revolutionized freight handling. Today, approximately 90% of non-bulk cargo worldwide moves by containers stacked on transport ships.

The Netherlands has a key position in Europe for international trade due to the port of Rotterdam. The invention of the container shipments influenced the Netherlands and as a result, The European Container Terminal (ECT) was open in Rotterdam<sup>1</sup>. In 1966 the first containers arrived at the ECT. In 1970 the ECT handled 160 000 containers; in 1975- 500,000 containers, in 1983- more than a million and in 2005, the number has increased to approximately 5, 500, 000. Looking at these figures, it is no surprise that it was no longer possible for Customs to rely only on physical checks for control and they had to look for other mechanisms. The DTCA realized that it was not possible to do a complete check of every company and it was clear that a new system for control was needed.

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<sup>1</sup> <http://www.ect.nl/>



*“From the coming of the container ships in Rotterdam we discovered first that 100% control was already impossible, we should have other systems and we should make difference between trustable and other companies; and we should have real controls, responsible controls for both but with some selection in the direction of the trustable companies.” (Customs expert)*

*The change in the audit approach towards businesses*

DTCA had to change its approach to auditing the companies and this change was related to the shift in thinking which occurred. This shift happened in phases, starting with 100% physical check, moving to 100% administrative checks and finally adopting an approach that combines physical and administrative control. The above change happened in steps, under different names.

The first attempts of administrative control in the Netherlands were made already in 1960es-1970es in the mineral oil sector. The name under which this change took place was Administrative organization Mineral Oil.

Due to the large scale in which the oils companies operated, there was a need to have good overview of their operations. The companies started using sophisticated information technology to have a better control on their internal processes and the processes with their customers and suppliers. In the 70es, when DTCA carried projects for providing certificates for simplified procedures to the oil companies DTCA discovered that for purely commercial reasons, i.e. not to loose profit, the oil companies had heavily invested in systems and procedures to control their internal operations. It was found out that not only these oil companies had very good internal controls in place, but they have implemented mechanisms to control their distribution network. DTCA developed a strategy to stay as much as possible to the commercial processes and systems of the companies, to check what control mechanisms the companies have already introduced for commercial purposes and to introduce extra controls only where it identified that there are divergences in interests.

In the 1970es-1980es, the administrative control was introduced also to the Fiscal Entrepots for all sectors. A distinction was made between “Fiscal Entrepots with Administrative Control” and “Fiscal Entrepots with Special Administrative Control”. The idea behind the latter was that even if businesses could not prove to have good internal control, DTCA was able to identify those parts of the process that were reliable and control only the remaining parts using physical checks.

In the 1990es, from Brussels came the initiative to provide different types of certificates, for example for the entrepots. Different levels of certificates were given for businesses that can provide different levels of own control. In the mid 1990es, in the Netherlands the idea of “customer concept” was developed, which was applicable also for the “low” certificates (those certificates issued to businesses that have limited internal control). These allowed auditors to make a customer-specific risk analysis and based on that provide a specific certificate to the company. This way of working lead to significant change in the way of working and thinking. While earlier in every customs warehouse there were many customs officers preparing documents, putting stamps and auditing and controlling the activities, in the current system there are no customs officers any more doing the job. The new way of controlling was making use as much as possible the embedded controls in the commercial processes. Now it was the responsibility of the warehouses to prove to the Tax authorities that their operations are in control.

DTCA had put a lot of efforts in working closer with the customers and providing trade simplification. After the attacks of 9/11 however, the issue of secure supply chains has also become extremely important. As a response to the terrorist threat, the US introduced the C-TPAT (Customs-Trade Partnership Against Terrorism<sup>2</sup>) licenses, and Europe followed a few years later with its own certification- AEO (Authorized Economic Operator)- security. At the moment the Netherlands is conducting a pilot project where the goal is to provide AEO-security certificates to the pilot companies.

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<sup>2</sup> For further details on C-TPAT see [http://www.cbp.gov/xp/cgov/import/commercial\\_enforcement/ctpat/](http://www.cbp.gov/xp/cgov/import/commercial_enforcement/ctpat/).

The developments discussed above illustrate how the relationships of DTCA and the businesses, involved in the international trade shifted and how DTCA adopted much more customer oriented way of auditing. These simplifications however are not without costs, as some of the responsibilities of the Customs offices shifted towards the businesses. Although the companies gain benefits from the certifications in terms of trade simplifications, they also have to put extra efforts to prove that they are in control.

*Customs and Taxation: Attempts to establish mixed teams*

The discussion above illustrates that in area of customs, DTCA had developed the way of thinking of being customer oriented. This means that DTCA currently uses as much as possible the internal control mechanisms that the companies have implemented and includes additional controls only in order to cover the remaining risk. The problem however is that in their daily operations companies that participate in cross-border trade do not have to deal only with customs but also with Taxation issues like VAT and Excise.

Historically, different legislations have emerged to deal with Customs and Taxation. This has resulted in a situation, where the Tax and Customs departments operate in isolation, with little communication with one another. The differences are further reinforced with symbols. For example, the color associated with the tax declarations is blue, while with the customs declarations is green. Such separation exists not only at the Dutch Tax but also at EU level. This has led to a situation where a company, for the same transaction, may need to report almost the same information to the different authorities dealing with VAT, Excise, export and statistics and creates extra burden for the companies.

DTCA has made an attempt to bring further simplification for the companies by doing combined Customs and Tax audit. At the end of 1990es, an experiment was started where the goal was to establish mixed teams including customs and taxation experts who can approach and audit the customers in a holistic manner. The initiative was started from the management of DTCA that wanted to promote the “customer concept” and the feeling that “blue and green belong together” (“blue” refers to the tax; “green” refers to the customs). As an experiment, two mixed teams were established, one team operating in the Oil and Gas

sector and one auditing the very large businesses. The Oil and Gas team currently audits around 5-6 companies and the team for very large customers works with approximately 100 large businesses. Even though these teams have proven successful in the limited scope where they operate, looking at DTCA on a larger scale, the separation between Customs and Taxation is still dominant at operational level. The establishment of these teams illustrates an emergent change in DTCA, which has received some degree of institutionalization but has not yet developed in full scale.

*Attempts of DTCA in collaboration with Sweden to bring changes at EU level based on the changes at national level*

One remark that we need to make is that although the developments that we have discussed reflect to a large extent the Dutch situation, it is important to realize that customs developments are becoming less and less of purely national nature. With the establishment of the EU and later the single European market in 1993, more and more decisions about customs matters had to be taken in agreements with all the EU member states. This meant that national practices concerning customs were becoming more dependent from the EU developments on customs.

If we go back the approach to auditing, as we have discussed earlier, in the 1990es the Netherlands developed the “customer concept”. A similar way of thinking at that time was developed in Sweden. The Dutch felt their approach was close to the Swedish, and therefore the two countries started collaboration. From 1999 until May 2001 two benchmarking projects between the Swedish and the Dutch Customs administrations took place within the Customs 2002 program of the European Commission. The motivation behind this collaboration was to allow the Netherlands and Sweden to promote their control approach (audit based, rather than physical control) in the EU. It is important to mention that traditionally, Northern European countries like the Netherlands and Sweden favor administrative control, while the Southern European countries favor physical control. The collaboration between the Netherlands and Sweden illustrates an interesting development, mainly an attempt from some member states to institutionalize their national practices first on a smaller scale (including a group of member states) with the ambition that at a later stage these practices may become institutional at a EU scale. These efforts of the Netherlands and

Sweden to influence the customs developments on the EU level can be traced even a step further. The current pilots for AEO certification that are run in Europe use the EU framework with customs guidelines. The criteria in these guidelines are based to a large extent on the COMPACT framework<sup>3</sup>, which was developed during the benchmarking pilots between the Netherlands and Sweden.

So far we have discussed some key changes in the processes of DTCA in their continuous attempts to bring simplifications to the auditing of businesses, as well as the attempts to promote these practices on a larger EU scale. In the next section we will focus on the information systems that were developed in DTCA, aiming to facilitate the processes of DTCA in controlling and auditing the cross-border transactions.

## **Development of the information systems in DTCA**

### *Introduction to the customs processes*

To be able to understand how the computer systems of DTCA evolved, it is important to provide some general understanding of the customs processes. When a ship enters the Port of Rotterdam, for example, there are several possible options for the goods: the goods may enter the free market, the goods may be transported in customs sheds or they can be in transit. When the goods enter the country, the goods can become free goods, i.e. goods that can be sold on the free market, after the import duties for these goods are paid. The company importing the goods may also decide not to pay the import duties immediately on the entry, but to postpone the payment. This is possible, if the goods are transported to special customs sheds. These goods are not free goods but customs goods, as for them no import duties have been paid yet. The third option is that although the goods do not stay in the Netherlands but are transported to another country. In this case, the goods are considered as goods in transit. For the different procedures, when the goods enter the Netherlands they need to have specific customs documents accompanying the goods.

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<sup>3</sup> DG/TAXUD. (2002). Customs 2002 Programme, Control Management Group meeting 2 December 22. (Annex 2, En/TAXUD/1008/2003-en). Brussels: European Commission, Taxation and Customs Union.

During the years, different information systems were introduced to allow customs to better monitor and control the flow of goods, as well as to control whether the companies fulfill correctly their obligations.

### *Sagitta Import*

The first system that was introduced in the Netherlands to facilitate parts of the customs procedures was the system for import declarations, called “Sagitta Import”. This system is used for handling electronic import declarations. The decision to develop Sagitta Import was taken at the end of the 1970es and the system was operational in 1985. The system was developed to ensure the collection of import duties. The reason to develop Sagitta import first was that import was always a higher priority than other procedures, as via import (i.e. the import duties), the country earns money. Export was a lower priority, because the country is interested that export takes place (it is good for the economy of the country if the products are sold) and there was no money collection from the government when export was taking place.

### *The system for monthly declarations*

Although Sagitta Import was already in place it was used only when the import declarations were done per transaction. In the 1990es DTCA was already quite advanced with providing licenses for trade simplification and at that period many companies obtained licenses from DTCA to make a consolidated import declaration once a month, for all the transactions that have taken place during that month. The number of transactions handled with monthly declarations amounted to approximately 80% of the total number of transactions per month. Although this development has, to some extent, simplified the work of the companies, it had created enormous burden for the DTCA to process the declarations. Sagitta Import was able to handle only declarations per transaction and did not have the functionality to handle the monthly declarations. This meant that the handling of the monthly declarations had to be done manually. Every month DTCA was receiving from each company with a license piles of paper and it was taking very long time to audit the declarations.

*“There were a lot of transactions, these were some of the biggest warehouses in the Netherlands...large volumes... And the companies said: Now I am a licensed company and I have to deliver a lorry with paperwork to customs. And when you come to do an audit every three years-*

*because the client is very reliable, we do the audit only every three years- then I have to deliver all that paperwork of all three years again for the auditor. And what is he going to audit in such a mass volume of transactions?" (EDP auditor customs)*

This illustrates a situation in which DTCA had made a strategic choice to provide simplifications for the companies but it did not have the capacity and the technology to process the volumes of data. Such a situation is frustrating for the companies, having to collect and provide all the paper-based documents, but it was surely even more frustrating for the customs auditors, who found it very difficult to do their job.

To facilitate his work, one of the customs auditors had developed an application to audit the monthly declarations. He had created a system, which, if the companies wished could use to make their declarations electronically, save them on a diskette or later CD and deliver them to DTCA. The system was created in 1992 and was called Automated Periodic Declaration. This application was running on stand alone PC but other auditors from DTCA also adopted it, as it was providing significant simplification of the work. This application however was not an official application of DTCA and its maintenance and improvement remained a grass-root initiative.

### *Sagitta 2000*

In 1994 DTCA started an project called Sagitta 2000. The reason to start this project was to develop an official system for electronic handling of the monthly declarations. During the years, there were already some forms of systems in place to deal with the different customs procedures but, as discussed earlier, for monthly declarations the only system that was available was developed by one of the auditors and was used on voluntary bases. There was however an urgent need for an official system, as the monthly import declaration amounted to around 80% of the total transaction and the income duties were a key source of revenue. Although the starting idea about Sagitta 2000 was to create an official system only for the monthly declarations, soon after the start of the project it was decided to extend its scope significantly. The goal of Sagitta 2000 to overcome the fragmentation between the different customs procedures and systems by creating one customs process and one integrated system to handle all types of customs declarations (e.g. import, export, monthly declarations,

transit). We will not go into the details of the project, however what is important to notice is that the idea for the holistic view of the processes in customs was rather innovative at that time. There were problem to technically implement these ideas and after a lot of money and time was spent, the project was finally stopped after there was a change in the management team.

#### *The current landscape of customs systems*

During the Sagitta 2000 project and after its ending, the customs systems that were supposed to be integrated in one, developed as separate systems. A system for transit called NCTS was completed in 2005 and its development was pushed by EU requirements. The system for Export (Sagitta Export) and the system for entry (Sagitta Entry) were created as separate systems in separate national project. The system for import “Sagitta Import” is still not replaced, while the system for the monthly declaration, which was developed before as a grass-root initiative is now still in use. In 1992, after the end of Sagitta 2000 it was announced as an official system for the time being. The institutionalization of the system for monthly declaration is interesting in a sense that it is an illustration of an emergent change which took more than 8 years to develop.

If we look back, the ambition of Sagitta 2000 was to provide comprehensive information of the customs processes as a whole by using one big integrated system. The need for provisioning of comprehensive information is still not solved. To address this need, there are currently discussions for development of a new customs system and feasibility studies about the development of the system are currently under way. However the ideas at the moment are not towards one integrated system but towards a modular solution. This development is interesting, as it illustrates that the goal that customs had set to achieve a holistic view on customs processes and information remained stable over time, but the way to approach the goal differs.

There are many new customs systems that will be developed in DTCA in the next decade, however as their development is to a large extent influenced by EU, we will address them in the next section.



### **The external influence of EU and the national response to that**

With the years, and especially after 1993 with the introduction of the single European market, the EU started having an influential role with respect to the systems developed in the Netherlands. For example, in the early 90es, in the filed of taxation, a EU-wide system for tracing the VAT transactions called VIES had to be implemented in every member state. Later on, when in customs Sagitta 2000 started and evolved as a national project, it was already clear that EU planed to introduce another EU-wide system for tracing the movement of transit goods and this was taken into account when the scope of the project expanded. Although Sagitta 2000 never got to a point to produce a running system with functionality for transit, due to the pressure from EU, the transit system was developed and introduced to the Netherlands, as well as to all the other member states. One of the reasons for the introduction of these systems is to fight fraud by using IT and to facilitate the international cooperation between the member states.

With the years, the EU started playing a dominant role in drafting the strategies of future system implementations at EU level, which have consequences for the member state administration and the businesses. The table below provides a quick view on the EU-wide system development plans for customs spanning the period 1997- 2012.

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Table 2  
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These plans refer to customs only, but similar plans are currently developed in the field of taxation. An update of the VAT system (VIES II) is currently under development and the specifications of a new system for excise (Excise Movement Control System) are currently being drafter with the deadline for the EMCS implementation in 2009. These are developments and strategic plans that are drawn on EU level, but the member states are responsible for the national implementation of these systems and have to make them part of their national strategic agenda. Furthermore, the businesses have to incorporate these future developments in their business strategy, as they need to conform to the EU and national requirements. For example, in the Netherlands at the moment there is a national EMCS team responsible for the EMCS implementation in the Netherlands. Apart from that, the companies which export excise goods are also preparing themselves to implement the

system, as if they fail to do so, they will not be allowed to continue to do business. This illustrates how changes at one level (EU) affect in a different time frame other levels like national administrations and businesses and these changes are pretty well planned and defined.

### **The emergent change: The current thinking within the Beer Living Lab**

When we look at the strategic agenda for system developments of EU, we see long-term projects, which affect the national strategies, as the national governments have to implement the system and which have effect on the business. In the way the current projects are running, the businesses are mainly affected by the changes and have very little influence on defining and changing the course. They may have a consultative role, but have no decision power.

While these planned changes occur, at the same time, on the background, there are other developments, which have their own objectives and run in their own pace. We will briefly the developments that are currently taking place in the “The Beer Living Lab”. The goal in the Beer Living Lab is to think out of the box and come with innovative ideas how to reduce the administrative burden that governments put on businesses and at the same time preserve the control and security requirements. The focal processes of analysis are the processes of export of excise goods. The composition of the team consists of a large beer producer, members of DTCA, technology providers and university and the attitude is to cooperate and look for win-win solutions. We will not discuss the pilot in detail but what is important to notice is that in this pilot, innovative technologies and redesign scenarios will be tested in real life setting to illustrate the possibilities to bring substantial improvement in reducing administrative burden and at the same time increasing control without having to implement EMCS and other forthcoming systems. It is clear that the project has different goals, to some extent contradicting with the planned EU agenda to implement EMCS. And if we use a metaphor, we can see these planned EU-wide projects as trains, which gain speed and run on full power on a predefined track. However, as one of the interviewees said:

*“In every train there is an emergency break.”*

*(Expert from the Ministry of Finance)*

Although at this moment we cannot say how the future will evolve, it may be quite possible that the planned developments and the emerging initiatives collide and as a result establish a new balance.

## **5. Discussion**

At the beginning of this article we have discussed the urgent need for getting a better grasp of the IS-driven change in eGovernment with respect to cross-border trade. To address this problem we have conducted in-depth historical study of what developments have taken place at the Dutch Tax and Customs Administration organization in the past four decades. In the case study, we have followed several major threads to study change, these include the organizational changes in DTCA in the way they control businesses, the IS changes related to the introduction of new customs systems, the planned developments of DTCA, influenced by EU regulations, the emergent grass-root initiatives and their effects on the processes and the systems. We can see these general threads as the content of change. Furthermore, we have provided a processual narrative about these changes, aimed at identifying how these changes took place within their local and broader context. Through this, we have also investigated change as a verb, as the actions and interactions of people, plans, and situations. Our findings, similar to e.g. Orlikowski (1996), highlight the mixed nature of change as being both planned and improvisational.

We will now try to explain some of the changes that we discuss in the case, using the motors of change provided by van de Ven and Poole (1995) in combination with the horizontal and vertical dimension of change discussed by Pettigrew (1990).

### **Granular examples of the motors of change**

We will start with discussing specific examples from the case to give a better understanding of how the motors of change apply to developments from the case. These examples are presented in table three below. The table specifies the name of the motor, the definition of the motor as appears in the work of Van de Ven and Poole (1995) and an illustrative example from the DTCA case.

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Table 3  
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Now that we have provided examples from the case to discuss each of the motors, we can proceed to the next step, where we will use themes to structure our further analysis and to illustrate the multi-faceted nature of the change processes in DTCA. We will look at the interconnectedness of the motors, which run in different levels and time dimensions. The goal of such analysis is not to make an exhaustive explanation of all the changes that we observe in the case, but rather to illustrate the reasoning and how the combination of the motors of change and the dimensions can be used as analytical tools to map and understand such changes.

For the discussion of the change processes we will make use of visualizations as the one presented in figure four. We use the concepts of horizontal and vertical dimension of Pettigrew (1990) to map changes. On the vertical dimension we define the levels, at which change occurs. On the horizontal dimension we depict time. The different levels of analysis of change are presented as labeled rectangles. If a level is further decomposed with sub-levels, as we will see in subsequent examples, this will be represented with dashed rectangles. We also distinguish between shaded and non-shaded rectangles, where the shaded rectangles indicate a level, which influences the other levels, but which we will view as a black box and we will not analyze further. The non-shaded rectangles are those levels of change, which will be a subject of further analysis.

Each level starts with a dotted arrow, to indicate the time dimension of this specific level. The changes that occur at each level are mapped on the time dimension of this level with a labeled symbol. In some cases, this symbol can be dotted, meaning that the change is further decomposed to changes at the sub-levels. The change in each level may develop with a different pace, however not to complicate the figure, we will not represent this. Furthermore, for those changes that are being analyzed, the motor of change running at that level is explicitly mentioned. The symbols to mark the different motors are EM for evolutionary, DM for dialectic, TM for teleological and LM for lifecycle. We further use curved arrows to show that a change in one level influences the change in another level and

in many cases this influence is not immediate but with some time lapse. The themes that we will discuss are: the shift in the auditing approach, the monthly declarations, and the EMCS example. We consider that these themes illustrate different levels that are of interest when analyzing developments related to cross-border trade and the motors that run there. Furthermore, they illustrate the interplay between planned and emergent change.

### **The shift in auditing**

Figure four maps map the changes that are related to the shift in auditing in DTCA. In the lower part of figure four, we distinguish three levels, i.e. the level of the innovators, the level of business and the level of DTCA.

#### *The innovators*

We consider the container innovation as a ground-shaking event. If we can use a metaphor, the container innovation can be compared with an eruption of a volcano, which changes the current landscape completely and after a while leads to the establishment of a new order. Similarly, the container innovation had challenged the traditional way that businesses organize their logistics processes.

As in this article we are not interested what motors were driving this change, we will consider it as a black box and not analyze it further. What is interesting however is the effect that the container innovation had on the business level.

#### *The container innovation and its effect on the business level*

The effect that the container innovation had on the businesses involved in the international trade was that it provided opportunities for businesses to handle large volumes, improve their process performance significantly, and thus improve their competitive capabilities. As already addressed in Table three, we consider that the evolutionary motor is most suitable to explain this change at the level of businesses that are involved in international trade. To recall, an evolutionary motor has to deal with competition between entities for scarce resources and the typical sequence for evolution is via variation, selection and retention cycles. Companies, which use the containers, can be more efficient and in this respect gain a competitive advantage compared to their rivals who fail to adopt this innovation.

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Figure 4  
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*The improvement of the logistics processes at the business level and its effect on DTCA level*

The improvement of the logistics processes of the businesses led to enormous flow of goods. That brought the demand for changes at the DTCA level, as it was becoming impossible for DTCA to control such volumes. The physical control, which was the established way of working at DTCA was no longer possible and the administrative control emerged as an alternative, which later on developed in a combined approach. For this change, we consider the confrontation between the physical and administrative control as essential. Such confrontation is best captured in the dialectic motor and is not obvious in the other three motors. The physical control (the thesis) was confronted with the administrative control as a new way of auditing (the antithesis) to come to a situation, where the combined approach (the synthesis) emerged and became institutionalized in DTCA.

*The change in the audit approach at DTCA level and its effect on the business level*

The changes in the audit approach on the DTCA initiated again changes on the business level, as the new approach also lead to shift of responsibilities. It was no longer the responsibility of the customs officers to be physically present at the warehouses to control the flow of goods, now the companies were given licenses and trade simplifications and it became their responsibility to prove that they were in control. This change at the business level can also be well explained by the evolutionary motor. Those companies, which have licenses, can enjoy the benefits of the trade simplification. On the one hand this will make them more competitive but in order hand, in order to receive these licenses, the businesses needed to take the responsibility to prove the authorities that they were in control. Thus, the evolutionary motor is best suited to explain this change. We consider that the dialectic and the teleological motors are not very applicable in this case, as the government is acting as a power player who can impose the rules of the game. Although in the progress of time DTCA has adopted a customer orientation, the companies still have very little influence on defining the rules.

So far we have discussed the lower three levels from figure four. The upper four levels represent two parallel developments. On the one hand, we see the cooperation between two member states (Sweden and the Netherlands) in their attempt to bring their national practices at EU level. Furthermore, we see that these practices receive partial institutionalization in the AEO-security certification in EU. On the other hand, we see the need for increased security, which stem from the threat of terrorism. This has resulted in the US measures (C-TPAT) to deal with such threats in international trade, followed by the EU implementing similar measures (AEO-security).

*The change in auditing, the cooperation with Sweden and the AEO-security certification*

We have discussed the change of auditing that occurred in DTCA. In the case we have seen that Sweden had developed a similar way of thinking about auditing and that the two administrations have conducted benchmarking studies to try to promote their approach in Europe. At the level of cooperation between the countries, the changes can be explained with the teleological motor, where the two countries work together towards the achievement of a common goal, i.e. institutionalizing their audit approach across the EU.

With respect to the EU level, however, this cooperation can be seen as dialectic motor, as the reason for the countries to cooperate is that they want to promote their approach for auditing and risk assessment against the other emerging or existing approaches. We see partial institutionalization of this change in the AEO-security licensing, where the guidelines, currently used for used for AEO-security certification in EU are to a large extent based on the practices of Sweden and the Netherlands.

It is important to point out however, that the proper environment was at place to create the need for these customs guidelines to be widely used in Europe. This was mainly the need for AEO-security certification in Europe. Let us step back and trace what had initiated this need in EU.

*Threat of terrorism, C-TPAT and AEO security*

9/11 was another ground-shaking event that changed the world as we knew it. It is after this event that the threat of terrorism became high on the political agenda and this influenced the

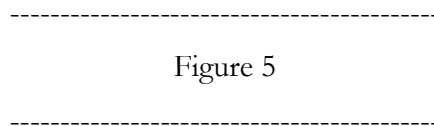
cross-border trade as well. After the attacks in 9/11, the US started the C-TPAT initiative for issuing security licenses. This change can be seen as a dialectic motor, where the government takes measures to combat the terrorist activities that may take place in the context of international trade.

The AEO-security certification in Europe can be explained with two motors. On one hand, similarly to the US, we consider that a dialectic motor takes place, to oppose the possibilities of terrorist actions. On the other hand, the AEO-security can be seen also as a teleological motor, which illustrates the cooperation between the EU and US to work towards a common goal, i.e. secure trade.

It is important to make one clarification. The figures presented here are far from complete, as we are aware that there are many other factors influencing the changes. Furthermore, we do not want to suggest causal relationship beyond specific interactions. For example, we see that the container innovation had contributed to the development of the audit approach; furthermore, we see that the cooperation between Sweden and the Netherlands had some effect on the AEO security licensing. However we do not tend to get into discussion that the container innovation had influence on the development of the AEO-security licenses. Even if such relationship may exist, its effect will be difficult to trace, as there were many other factors that influenced the intermediating level, i.e. the development of the audit approach in the Netherlands.

### **The monthly declarations**

Another theme that we will explore from the case is related to the monthly declarations. The changes that took place are mapped in figure five.



*Change in auditing at DTCA level leads to a change in business level*

In the previous example we have discussed the change in auditing in DTCA and we discussed that we consider this type of change to be best explained with the dialectic motor.



In this example we will look only at one aspect in change of auditing that took place, i.e. the issuing of licenses for monthly declarations. In the previous example we have also discussed that such changes in the auditing reflect back to businesses where an evolutionary motor starts, i.e. if the companies want to be competitive, they need to adopt such licenses but they also need to make sure they meet the licensing requirements for control.

*The change in business level and its consequences for DTCA level*

Although DTCA had made a strategic decision to provide the companies with licenses to deliver monthly declarations, the consequence was that enormous volume of article documents were received in DTCA at the end of every month. With the paper-based processes, it was impossible to audit the declarations and DTCA had to take steps to correct that. The indication for a need of change is represented with a dotted symbol in the figure, as this change will be decomposed as two separate changes that took place in DTCA.

To be able to better explain the changes that subsequently took place, we will make use of further leveling, by defining two sub-levels of DTCA, marked in the figure with dashed rectangles. These levels represent two project within DTCA: the development of the system for monthly declarations from one of the auditors (an example of emergent change) and the Sagitta 2000 project (an example of planned change).

*The project monthly declaration level*

The development of the system of monthly declarations seemed to be initiated as a result of the conflict between the inefficient paper-based auditing of the monthly declarations versus a new, electronic-based way of auditing. Such type of conflict situation, involving two entities is best explained with the dialectic motor of change. The synthesis that emerged after this conflict was that the auditor created a system, which existed as an unofficial system and could be used from other auditors and companies on voluntary bases. Such outcome meant partial institutionalization of the system.

Although the development and the partial institutionalization of the system can be explained with the dialectic motor, the following maintenance and further improvement of the system however is best described by a teleological motor. The auditor, who developed the system, was in constant interactions with his colleagues, collecting feedback and improving the system based on that. This fits well with the notions from the in the teleological motor,

where paths to reach these goals are socially constructed. We consider that the lifecycle motor is not a suitable alternative explanation, as it presupposes the following of a predefined path.

#### *The Sagitta 2000 Level*

The Sagitta 2000 project was officially launched by DTCA with initial goals to develop an official system for the monthly declarations to replace the unofficial one. We consider that also in this case the dialectic and lifecycle/teleological motors are needed to explain this change.

The dialectic motor can be seen in action at two places where collisions occur. The first collision is between the established paper-based way of working in DTCA which was still partially in place in DTCA (the system for monthly declarations was used only on voluntary bases). The second collision is between the already existing system for monthly declaration and the ambition of Sagitta 2000 to replace it with an official one.

Concerning the subsequent development of the Sagitta 2000, we consider that the motors acting there deserve further attention and explanation. Sagitta 2000 project started as a top-down, planned initiative. This types of change processes seem to be best explained by a lifecycle model, due to its prescriptive nature. However, what we observe in the case is that although the project intended to have such planned and controlled flavor, in fact, the way Sagitta 2000 evolved was following the typical path of defining interests and goals, implementing the goals, dissatisfaction and generation of new alternatives, which is typical for the teleological motor. Ultimately, the result being that project, which has consumed a lot of time and resources, was stopped without producing the desired system. We consider that this is a good example of an interaction of the lifecycle and the teleological model, indicating that strategic plans are often distorted by changes driven by other motors (in this example the teleological). This fits very well with the notion of drift, discussed by Ciborra et al. (2000).

#### *The interaction between the project monthly declaration level and Sagitta 2000 level*

To proceed one step further with the change processes that took place, on the intersection of these two projects, we observe that another dialectic motor became active. The synthesis

of that intersection was that the unofficial system for monthly declarations became institutionalized as official in DTCA and as such formed the new thesis, which may be challenged in the future when a new antithesis emerges.

### **The EMCS example**

The last example, which we will discuss, is related to EMCS system, which is currently being developed as an EU-wide system of excise. EMCS stands for Export Movement Control System. Currently, the excise-free export of excise goods is accompanied by paper-based documents and the goal of EMCS is to replace the paper-based document flow of with electronic.

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Figure 6  
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#### *EU level*

In figure six, we mapped four levels. The first is the EU level, where EU strategic plans are drafted. These strategic plans are predefined, long-term and follow a particular path. Typical stages are definition of the legal requirements, definition of the system requirements, development and implementation in all 25 member states and deadline, in which the system should be operational in these member states. If we look at the specific example of EMCS, the system should be operational in 2009. This planned and predefined nature of the EU strategic agenda fits best with the lifecycle motor of change.

#### *DTCA level*

The second is the level of national governments (we have indicated on the figure only DTCA as representative at that level), which have to incorporate the EU plans in their strategic agenda. In the case of EMCS, all the 25 member states have started national projects to implement the EMCS system in the national administrations. This type of change has also a very predefined and prescriptive form and can also be understood as a life cycle motor.

What we need to mention is that the lifecycle motors neither at EU nor at the national level are in a pure form and a closer look one may identify elements of dialectics and teleological motors. After all, there are people involved in setting and implementing these agendas and this inevitably will imply degree of cooperation and conflict. However the degree of operation of the other motors is rather restricted in the predefined requirements.

#### *Business level*

The third level is the level of businesses, which have to fulfill the rules and regulations, set at the EU and national levels. It is obligatory for businesses that deal with the export of excise goods to implement an EMCS interface to be able to communicate with the national authorities. These systems are developed only for the purpose of reporting to the authorities. Companies have hardly any influence in setting the standards for these systems, but they are obliged to implement them if they want to stay in business. Although at one level we could interpret this in terms of conflict and dissatisfaction which are typical for the dialectic and the teleological model, in fact, we think that it is more accurate to talk about the evolution and life cycle motor again given the prescriptive character and unavoidable nature of these developments. An interesting question for future research is how such governmental power, which is rarely addressed in the IS literature, influences IS related change.

#### *ITTAIDE project level*

The last level that we will discuss is the development in the Beer Living Lab in the ITTAIDE project, where the goal is to come with innovative solutions for eCustoms. While the changes at the other three levels were of more planned nature, the Beer Living Lab project is an example of an emerging change. As this is a research projects, the goal are not clearly defined and different scenarios are explored. The process is much in line with the teleological motor through cycles of setting goals, implementing them and evaluating the results. The approach is socially constructed and is a result of consensus between the different actors (business, government, technology providers, universities) involved. As discussed in the case description, the proposed solution from this project proposes substantial improvement in reducing the administrative burden and increasing the control and security levels without the need to implement the EMCS system.

It is clear that such scenario is in conflict with the current planned changes that are under way at the EU and national level to implement the EMCS system in 2009. It can be the case that the planned changes will continue and the pilot project will have no effect on changing the course of action. There is however a possibility that the proofs of concepts that will be developed in the project may have further effect. The people from DTCA, who are currently involved in the project, are determined to bring the results to the decision makers in their organizations, which are also involved at an EU level. If this happens, one can expect that a new dialectic cycles may start at both the EU and the national level. Furthermore, the businesses can use these results to involve the branch organizations and other bodies, to put social pressure on the national governments and EU, as it is in their best interest to reduce the administrative burden, which will start new dialectic cycles. We do not know whether these clashes will happen, but it is important to realize that there are emergent changes that may set the planned developments on a different course. It may be too late to have an effect on the implementation of the specific EMCS system, but it may have consequences for the way the follow up implementations are approached.

In these simplified pictures we have highlighted some of the key interactions and interconnectedness that we observe in our case. One important issue that we need to be aware, and this relates again to the dynamics between planned and emergent changes, is that both the grassroots and planned changes have a possibility to backfire. Indeed, we need to take into account the constant flux of change and the fact that their complexities make the outcome uncertain per definition. As discussed earlier, different motors are acting simultaneously and not necessarily in the same direction. We observe that the described emergent developments may differ significantly from the outcomes strived by the strategic and planned developments at EU and national level. This means one needs to expect that at some point the motors will collide and a new dialectic motor will start up to reach new syntheses.

## **6. Conclusions and further research**

As discussed in the introduction, the EU governments are currently facing the problem of how to deal with the dilemma of reducing the administrative overhead carried by commercial and public administration organizations, while at the same time preserving the control and

security requirements. We have further discussed that process redesign and use of IS are widely perceived as key components of a solution for public sector institutions (Andersen, 2004). However these IS-enabled changes are not always successful and often do not bring significant simplification in processes.

By looking at the existing literature, we concluded that IS-driven change is not well understood and it is even less so in the specific area of eGovernment and eCustoms. However we also pointed out that there is a sense of urgency for getting a better understanding how such change processes emerge, as the administrative burden for companies is constantly increasing to a level that may hinder the very existence of some economic activities.

To be able to understand such change processes in eCustoms, we have argued that there is a need to go as close as possible to the phenomena and study how they reveal in their natural settings. We have further argued, that in order to see how these changes emerged over time, it is appropriate to make a longitudinal historical analysis.

In this article we have presented a longitudinal historical study of how the processes, systems and way of thinking evolved in DTCA to its current state. Furthermore, we have used the notion of motors of change of van de Ven and Poole (1995) in combination with Pettigrew's (1990) horizontal and vertical dimensions to explain these developments.

### **Contribution to research**

We consider that this article brings a scientific contribution to the existing research on change and eGovernment, and more specifically eCustoms in two major respects. First of all, our extensive historical study of the change processes in DTCA provides a rich understanding of how eCustoms change processes reveal in a particular setting and provides ground for further theorizing. The second contribution that this article brings is that it illustrates how the motors of change of Van de Ven and Poole in combination with Pettigrew's vertical and horizontal dimensions, can be used to analyze and make sense of the changes that have occurred in a specific eCustoms context, i.e. DTCA. Based on our study, we have identified several areas for further research, discussed below.

### *Comparative studies*

We acknowledge the fact that this study is limited to the specific context of DTCA, however we also consider that this rich case description opens opportunities for further research in terms of comparative studies especially taking into consideration that other EU countries are governed by similar regulatory regimes stemming from the common body of EU regulation in the domain of tax and customs. More specifically, it will be interesting to compare the developments in DTCA with developments in other administrations. This comparison can include cases, where the countries experienced the same environmental pressure to change and improve and cases, where such pressure was not so obvious. Furthermore, in our case study we identified that there are differences in the auditing approaches preferred by the Northern and the Southern European countries, which also opens interesting grounds for comparative studies.

### *The levels of analysis of change in eCustoms*

During our analysis we found the use of levels extremely important. We consider that in order to study change in eCustoms, it is not sufficient to talk about DTCA and its context, where the context becomes a large container. Rather, we consider the identification of the levels as an important step in understanding change in eCustoms. We were able to identify a number of levels and their significance in the process from our analysis, e.g. businesses, national administrations, EU, and other economic zones (e.g. US). A possible area for further research is to make a further analysis of the key types of levels that may play a role in the change processes in eCustoms.

### *The interactions between the motors in the eCustoms context*

Another important aspect to consider is the role of the motors and the interactions between these motors. What we have observed from the case is that in the eCustoms setting, mainly evolutionary motors play a role at a business level. This may be explained with the significant role that governments play at the moment.

Williams (1994, 1996) signals a tendency to attempt to shift from mandatory to voluntary relations between regulators and those regulated. The 1994 paper examines the relations of the Australian Tax Office with the taxpayers, in terms of an inter-organizational network

that is build around tax agents and intermediated by the Electronic Lodgement Service, the “national computer-based system which allows authorized tax agents to transmit income tax returns electronically” (Williams, 1994, p. 111). Whereas the initial results were promising, the follow-up study suggested that perceptions of improved co-operation declined over time, even though the tax agents experienced benefits. In this study, it is concluded that a barrier may exist between the regulator and those regulated that is difficult to bridge because of limited interaction and participation between the parties (Williams, 1996).

In our study, we see that some initiatives indeed take this shape to build on voluntarism but that there is also a tendency to make the use of ICT obligatory in order to be able to ensure critical goals such as security from terrorism or prevention of fraud.

On the other hand in the Beer Living Lab project we have seen examples of how governments and large businesses work together and get involvee in a teleological type of setting. Furthermore, we observe that over time, projects that have started out as grass-roots improvements or pilot projects may change into formalized planned projects and may even become obligatory to use. Also, we observe that some (very large) companies may become involved in the development of the solution, whereas these solutions later on are diffused on much wider scale to organizations that have not been involved initially. We consider the potential role of legislative power – one of the unique denominators of a substantial set of the eGovernment changes – an important area for further study.

Furthermore, it is interesting to look at some of the interactions of the motors acting at the level of EU and national governments, where the lifecycle motors of planned change may be disturbed by the teleological or dialectic motors, which means that change can never be fully planned.

### **Contribution to practice**

This paper may be found useful also for practitioners acting in the field of eGovernment. As Ciborra et al. (2000) argue, the current management literature focuses on control and looks for models to help to keep the control but outcome of the management efforts often leads to drifts that are caused by forces acting at different levels. Ciborra et al. call for



acknowledging the notion of drift and argue that new approaches in management are needed.

As Van de Ven and Poole (1995) suggest, the motors of change can be identified while they are acting. This identification can create awareness and better understanding of the context of change. We are not able to give prescriptions of what to do if motors are acting at specific levels, as we adhere to the view of Pettigrew that it is very difficult to predict in which direction the change will occur due to the complex interactions between the levels. However we consider that an analysis of the levels and the motors may be a first attempt to provide grounds for managers and policy makers, on which they explore new ways to operate in a new way in a world of drift.

## **Acknowledgements**

The research is part of the ITAIDE integrated project (nr. 027829), which is funded by the 6th Framework Information Society Technology (IST) Program of the European Commission.

The authors would like to thank Fred van Ipenbrug, and his colleagues from DTCA, for providing us with their tremendous support during the data collection. We would also like to thank also to all the participants in the Beer Living Lab as well as our colleagues from the University College Dublin, University of Muenster and Copenhagen Business School for the inspiring discussions on eGovernment.

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## **Annex 1**

### *The processes and systems in time*

The figure below provides an attempt to sketch the developments of the processes and systems in time. We do not aim to have a very accurate representation of how the processes and systems evolved, but to provide an impression how these events revealed over time.

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Figure 7  
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## Tables

**Table 1.** Definitions of the four motors of change

<b>Motor</b>	<b>Description</b>
Evolutionary	“An evolutionary model of development consists of a repetitive sequence of variation, selection, and retention events among entities in a designated population. Competition for scarce environmental sources between entities inhabiting a population generates this evolutionary cycle.” (Van de Ven and Poole, 1995, p. 521)
Life-cycle	“A life-cycle model depicts the process of change in an entity as progressing through a necessary sequence of stages. An institutional, natural, or logical program prescribes the specific contents of these stages.” (Van de Ven and Poole, 1995, p. 520)
Teleological	“A teleological model views development as a cycle of goal formulation, implementation, evaluation, and modification of goals based on what was learned by the entity. This sequence emerges through the purposeful social construction among individuals within the entity.” (Van de Ven and Poole, 1995, p. 520)
Dialectic	“In dialectical models of development, conflicts emerge between entities espousing opposing thesis and antithesis that collide to produce a synthesis, which in time becomes the thesis for the next cycle of a dialectical progression. Confrontation and conflict between opposing entities generate this dialectical cycle.” (Van de Ven and Poole, 1995, pp. 520-521)

**Table 2** EU strategic agenda for customs for the period 1997- 2012

<b>System</b>	<b>Time-span</b>
New Computerised Transit System (NCTS)	(1997-2006)
Automated Export System (AES/ECS)	(2003-2009)
Automated Import System (AIS/ICS)	(2004-2009)
Risk Management Framework (RMF)	(2004-2009)
Registration systems for Traders (AEO)	(2005-2009)
Common Customs Information Portals (CCIP)	(2005-2009)
Single Electronic Access Point (SEAP)	(2005-2011)
Integrated Tariff Environment (ITE)	(2005-2011)
Single Window/One-Stop Shop (SW)	(2005-2012)



**Table 3** Discussion of the different motors with examples from the case

<b>Motor</b>	<b>Description</b>	<b>Example from the case</b>
Evolutionary	“An evolutionary model of development consists of a repetitive sequence of variation, selection, and retention events among entities in a designated population. Competition for scarce environmental sources between entities inhabiting a population generates this evolutionary cycle.”	The container innovation can be seen as an example of an evolutionary motor. It made it possible for businesses to handle large volumes and improve their process performance significantly. The evolutionary motor at this level means that the businesses adopting the new technology will have greater competitive advantage and better chances to stay in business.
Life-cycle	“A life-cycle model depicts the process of change in an entity as progressing through a necessary sequence of stages. An institutional, natural, or logical program prescribes the specific contents of these stages.”	In terms of logical programs of change that took place, we consider the supra-national regulation from the EU towards the national and subsequently to business level as an example of a life-cycle. These types of programs often have long-term vision and lifespan and a planned route from beginning towards predefined ends. However, as we will argue later, we should take into account that at other levels, changes may occur that make the overall change emergent.
Teleological	“A teleological model views development as a cycle of goal formulation, implementation, evaluation, and modification of goals based on what was learned by the entity. This sequence emerges through the purposeful social construction among individuals within the entity.”	The development of customs systems often follows the typical pattern described by Van de Ven and Poole as the teleological motor, including setting and envisioning of goals, implementing goals, dissatisfaction from the implementation, search and interaction for improvement. As Van de Ven and Poole note, the goals are to a large extent agreed upon but there are no predefined paths to reach them. Rather, these are socially constructed. It is important to make a clear distinction between the lifecycle motor, where the path is predefined while the end state may be different and the teleological motor, where the goals are socially constructed but the way to reach these goals is not predefined.
Dialectic	“In dialectical models of development, conflicts emerge between entities espousing opposing thesis and antithesis that collide to produce a synthesis, which in time becomes the thesis for the next cycle of a dialectical progression. Confrontation and conflict between opposing entities generate this dialectical cycle.”	Because of the multiple entities that are part of the investigated network, many of the changes may be explained in terms of dialectics. For example, the experiment with putting together combined teams (including both Tax and Customs experts to work with the same client) can be understood to be a synthesis of the basic conflict between the prevailing idea that tax and customs are separate entities (silos) and the anti-thesis that DTCA needs to be integrated in order to provide better service that supports trade. There are currently only two of these teams, and in that sense the new synthesis has not been reached to a full extent yet. However, some initial institutionalization and positive outcomes of the changes are already visible.

## **Figure captions**

**Figure 1** The four motors of change (Source: Van de Ven and Poole, 1995, p. 520)

**Figure 2** Strategy for data collection

**Figure 3** The logic followed in the case description

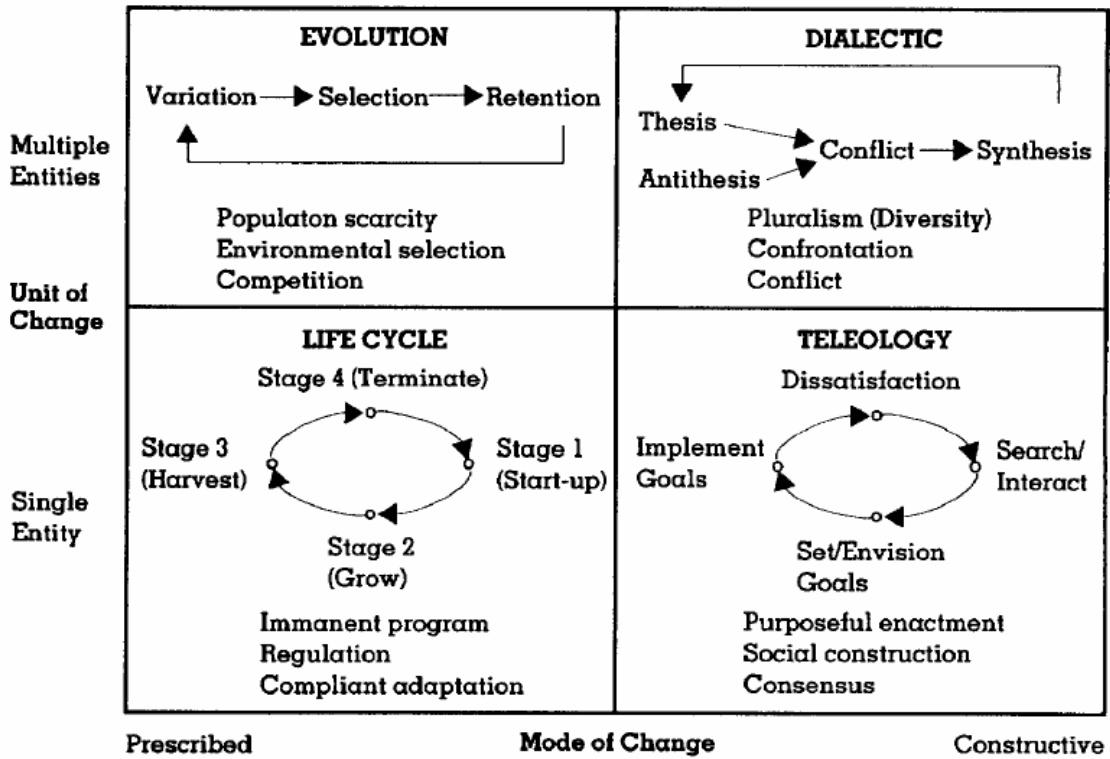
**Figure 4** The changes related to the shift in auditing

**Figure 5** The monthly declarations

**Figure 6** The EMCS example

**Figure 7** The development of the processes and the IS in DTCA

**Process Theories of Organizational Development and Change<sup>a</sup>**



<sup>a</sup> Arrows on lines represent likely sequences among events, not causation between events.

