Evaluation of the electronic customs implementation in the EU

Annexes to the final report

21 January 2015

Introduction

This document contains the annexes to the final report submitted to the European Commission's Directorate General for Taxations and Customs Union (DG TAXUD) by The Evaluation Partnership (TEP), Europe Economics (EE) and Ramboll in the context of the *Evaluation of the electronic customs implementation in the EU*.

The annexes contain the detailed summary results of all main participatory evaluation methods, including Eurobarometer survey, interviews with economic operators and case studies.

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Annex 1: Overview of documents referenced in the report

Nr	Document	Date
Policy documents		
1.	Regulation (EU) No 952/2013 Of The European Parliament And Of The Council of 9 October 2013, laying down the Union Customs Code	Oct. 2013
2.	Regulation (EU) No 1294/2013 Of The European Parliament And Of The Council Of 11 December 2013 establishing an action programme for customs in the European Union for the period 2014-2020 (Customs 2020) and repealing decision no 624/2007/EC	Dec. 2013
3.	Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee on the State of the Customs Union COM(2012) 791 final	Dec. 2012
4.	REGULATION (EC) No 450/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2008	April 2008
5.	Commission Regulation (EC) No 1192/2008 of 17 November 2008 amending Regulation (EEC) No 2454/93 laying down provisions for the implementation of Council Regulation (EEC) No 2913/92 establishing the Community Customs Code	Nov. 2008
6.	Decision No 70/2008/EC of the European Parliament and of the Council of 15 January 2008 on a paperless environment for customs and trade	Jan. 2008
7.	Strategy for the evolution of the Customs Union: COM(2008) 169	April 2008
8.	Regulation (EC) No 648/2005 of the European Parliament and of the Council of 13 April 2005 amending Council Regulation (EEC) No 2913/92 establishing the Community Customs Code which provides for full computerisation of all procedures related to security and safety	April 2005
9.	Decision 2004/387/EC of the European Parliament and of the Council of 21 April 2004 on interoperable delivery of pan-European e-Government services to public administrations, businesses and citizens	April 2004
10.	Regulation (EC) No 2913/92 establishing the Community Customs Code and implementing provisions contained Regulation 2594/93.	Oct. 1992
Strategies, work plans, progress and monitoring reports		
11.	Commission Implementing Decision (2014/255/EU) establishing a Work Programme for the UCC.	May 2014
12.	Electronic Customs Multi-Annual Strategic Plan	2013
13.	Customs Business Rules for Maritime Transport (DG MOVE)	2013
14.	e-Customs progress report	2012
15.	Report on the Tariff Suspensions Scheme of the European Union (period 2007-2011)	2012

16.	IT Master Plan for Customs and related cost estimates and implementation reports	2008 – 2013
17.	Annual Work Programmes for the Implementation of Customs 2013 programme as approved by the Customs 2013 Committee	2007 – 2013
18.	Annual Activity Reports Directorate General for Taxation and Customs Union	2007 – 2013
19.	Statistics on the IT systems funded through the Customs 2013 programme (e.g. information system statistics, reports on EU customs enforcement of intellectual property rights, etc.)	2007 – 2013
20.	Other available monitoring reports, meeting minutes joint actions, etc. as available from DG TAXUD	2007 - 2013
21.	Customs Code Committee; Section for General Customs Rules; Nature and legal value of guidelines, TAXUD/1406/2006, Brussels, 05/04/2006	2006
22.	DG TAXUD (2006) "Working document: TAXUD/1241/2005 – Rev. 5: Single Window at community level",	2005
Independent evaluation studies and reports		
23.	Feasibility study for an evaluation of the EU Customs Union (Deloitte)	2012
24.	Financial Times, Chris Giles, "Heathrow holds key to UK trade revival" published on November 7, 2014.	2014
25.	Coffey International Development (2014) "Final evaluation of the Customs 2013 Programme — final report"	2014
26.	Flash Eurobarometer 399 "The electronic customs implementation in the EU", conducted by TNS Political & Social at the request of the European Commission, Directorate-General for Taxation and Customs Union.	2014
27.	Study on the Evaluation of the EU Customs Union (PwC)	2013
28.	Study on reporting obligation resulting from the Reporting Formalities for Maritime Transport (Tractebel)	2013
29.	Bourdet, Yves and Persson, Maria (2012) "Completion the European Union customs union: the effects of trade procedure harmonization", Journal of Common Market Studies, 50(2), p. 300-314.	2012
30.	Oxford Economics (2012), "The value of aviation connectivity to the UK"	2012
31.	Mid-term evaluation of the Customs 2013 programme (The Evaluation Partnership)	2011
32.	The future business architecture for the Customs Union and Cooperative Model in the Taxation Area in Europe (Deloitte)	2011
33.	The European Court of Auditors Special Report 1/2010 on the effectiveness of	2010

	controls for simplified customs procedures for imports	
34.	Forfás (2010) "Single window: assessment of the costs of trade-related regulatory requirements in Ireland".	2010
35.	Djankov, S., Simeon, Freund, Caroline, and Pham, Cong S. (2010) "Trading on time", The Review of Economics and Statistics, 92(1), p. 166-173	2010
36.	Martínez-Zarzoso, Inma, and Márquez-Ramos, Laura (2008) "The effect of trade facilitation on sectoral trade" The B.E. Journal of Economic Analysis and Policy, 8(1).	2008
37.	Nordås, Hildegunn Kyvik, Pinali, Enrico, and Grosso, Massimo Geloso (2006) "Logistics and time as a trade barrier", OECD Trade Policy Working Paper No. 35.	2006
38.	Customs 2013 and Fiscalis 2013 Impact Assessment	2005

Annex 2: Results of the Eurobarometer survey analysis

Introduction and methodology

A survey of traders engaging in import and export operations throughout Europe was conducted to gain an understanding as to how the e-Customs environment has affected their operations. Areas that the focused on included ease of customs operations and the changes occurring over the past five years. The survey was conducted by the Eurobarometer contractor, TNS (which also produced a more general analysis that complements the present section[1]).

The survey consisted of **telephone interviews** conducted from TNS dedicated call centre during April and May 2014 with **2,803 traders in 17 Member States**. The sample was drawn from an international business database supplemented with information sourced locally as needed, allowing a variety of company sizes and sectors to be represented. TNS applied quotas in terms of company size and industry type, so that the sample was representative of the population. Table 2 presents responses per country. The remaining EU Member States were not included in the sample because it was not possible to secure a sufficiently representative response-base.[2] See also "2.4. Caveats and limitations" – in the main body of the report.

Table 1: Trade responses by Member State

Country	Nº responses	Country	Nº responses
Bulgaria	201	Lithuania	100
Belgium	201	Netherlands	200
Denmark	101	Poland	200
Estonia	100	Portugal	200
France	200	Romania	100
Germany	200	Spain	200
Greece	100	Sweden	200
Italy	200	United Kingdom	200
Latvia	100		
Total	**2,803**		

[1] Flash Eurobarometer 399 "The electronic customs implementation in the EU", conducted by TNS at the request of the European Commission, Directorate-General for Taxation and Customs Union. Url: http://ec.europa.eu/public_opinion/flash/fl_399_en.pdf

[2] The methodology used to guarantee representativeness is detailed in the technical specifications of the Flash Eurobarometer 399 (see, p. TS1 at http://ec.europa.eu/public_opinion/flash/fl_399_en.pdf). It includes adjusted quotas for size of the company and sector, for each Member State. Where a sufficiently representative sample for each category was not available, the MS was not included.

TNS elaborates more detail on the data collection methodology used in this survey in the "Technical Specifications" annex of their survey document:

> *"The FLASH EUROBAROMETER 399 covers businesses who imported from or exported to countries outside the European Union in 2013 and employing one or more persons in the Manufacturing (NACE category C), Retails (NACE category G), Services (NACE categories H/I/J/K/L/M/N/R) and Industry (NACE categories D/E/F) sectors in 17 Member States of the European Union… Whenever such company was eligible, the selected respondent had to have decision making responsibilities in the company (managing director, CEO) including those who led the commercial activities of the company (Commercial managers, sales managers, marketing managers) and who were responsible for customs compliance or customs operations".*[3]

While the **sample is diverse** in terms of include new and old Member States, Eurozone and non-Eurozone Member States, Member States from a variety of geographies, inevitably one must keep in mind that patterns may vary by Member State and that findings and the evaluation team's interpretations may not apply for some Member States not sampled.

Also, the data itself does not speak to some of the "deeper" issues on economic operators' experiences with the e-Customs environment. The survey data show **high-level perceptions**. We delve deeper into particular stakeholders' experiences in the qualitative parts of the evaluation, which we cite as appropriate in the survey analysis.

Similarly, it should be noted that to enable objective comparison between responses and quantitative analysis, interviewers presented respondents with a **fixed set of answer choices** for each question. This necessarily sacrificed some flexibility and nuance, which explains the **considerable number of 'Don't know' or 'N/A'** responses to some questions. Such responses denote incidences when respondents were unable to answer or did not feel that the answer choices reflected their views. In order to shed light on these issues, we relied on the qualitative data collected during interview campaign and case studies.

The remainder of this section explores some of the key demographic characteristics of the data obtained by the Eurobarometer survey.

Firm size

Company size was determined according to the number of employees and turnover in 2013, as classified using the standard European Commission classification system.[4]

The evidence from the survey suggests that there is **variation in how SMEs and large firms have benefitted from the e-Customs environment**, since SMEs are more likely than large firms to outsource customs operations.

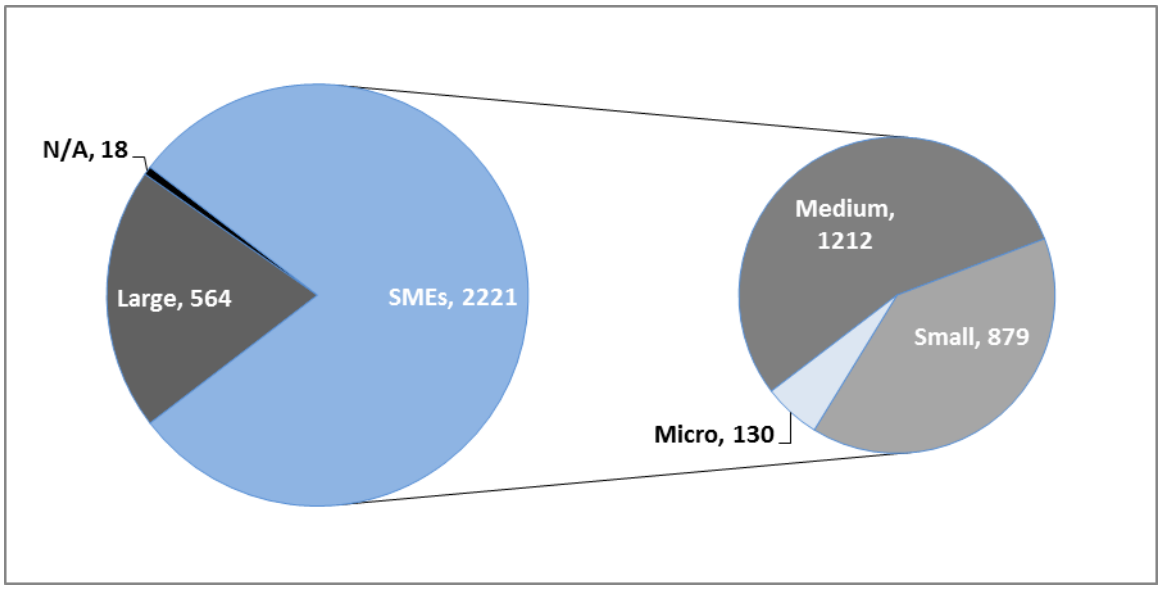
Of the 2.803 firms covered in the survey, 2,221 are classified as SMEs. This is equivalent to 79.5% of all firms in the survey. Figure 1 presents the breakdown of the

[3] Flash Eurobarometer 399 "The electronic customs implementation in the EU", conducted by TNS Political & Social at the request of the European Commission, Directorate-General for Taxation and Customs Union, p. TS1.

[4] European Commission (2007), "Definition of micro, small and medium-sized enterprises". Available at: http://europa.eu/legislation_summaries/enterprise/business_environment/n26026_en.htm

size of firms surveyed into SME, large firms and firms which did not provide sufficient detail to be classified as either SMEs or large firms. A more detailed breakdown of SMEs into medium, small and micro enterprises is provided on the right hand side of Figure 1.

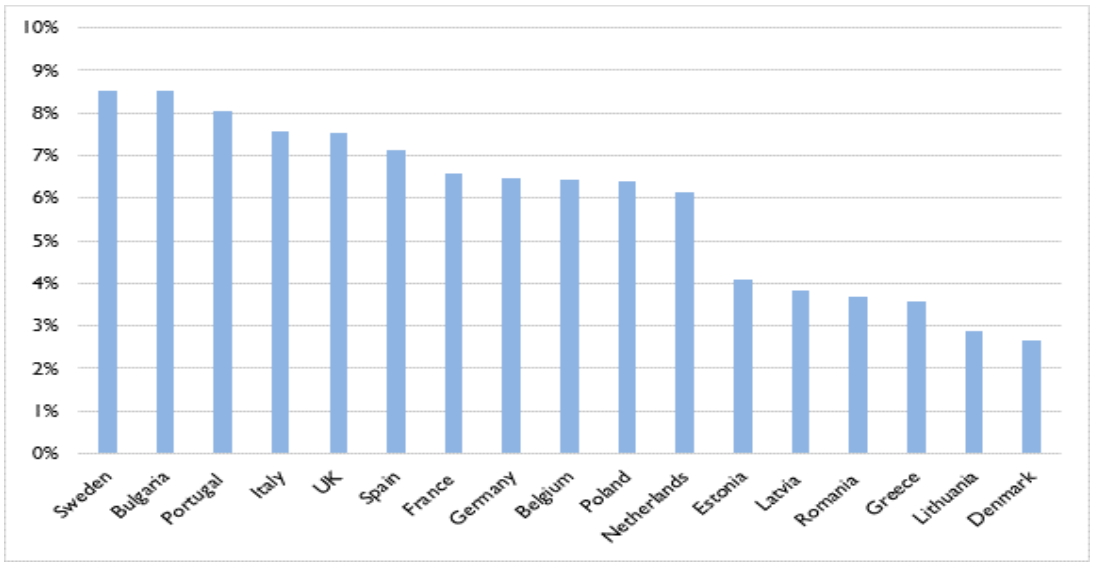
Figure 1: Breakdown of all firms by size and SMEs



n = 2803, Note: "N/A" denotes instances where respondent could not classify company size.

The coverage of SMEs across Member States is fairly evenly distributed, with an average of 131 SMEs being interviewed in each Member State. No more than 8.5% of the total SMEs came from any one Member State, with 189 SMEs being interviewed in both Bulgaria and Sweden.

Figure 2: Spread of SME respondents across Member States



n = 879

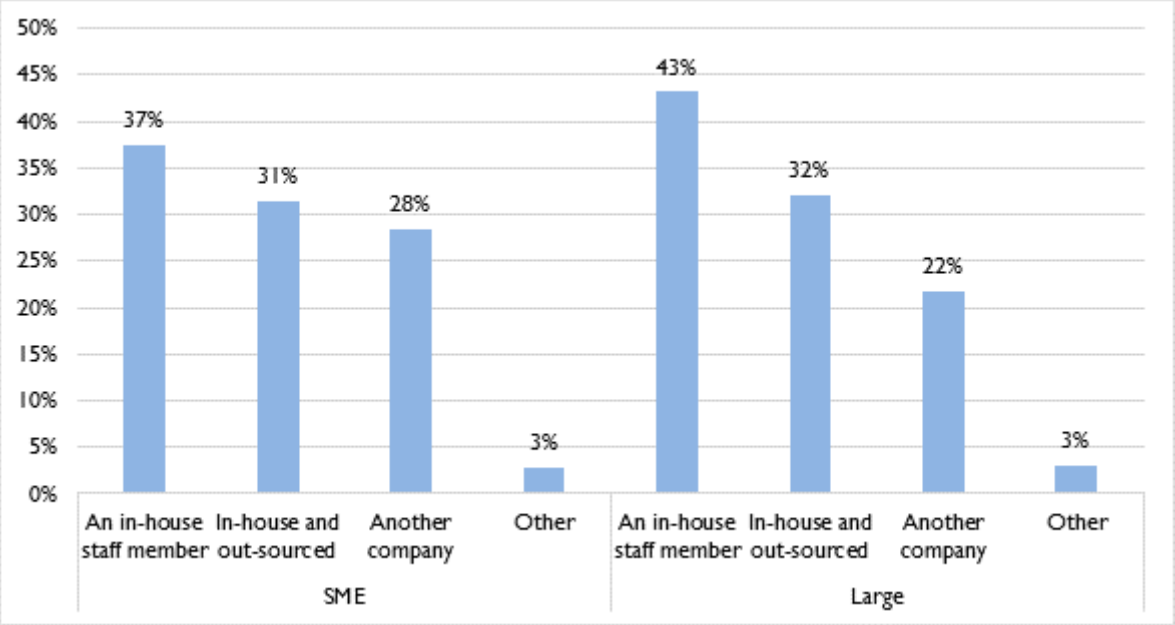
62% of SMEs classified themselves as manufacturers. This fits with the concept of multiple suppliers operating within manufacturing supply chains. A further 16% categorised themselves in other sectors, with 11% of those surveyed being retailers and 8% categorised themselves as service providers. Other sectors covered included transport/logistics and customs agents.

Differences between SMEs and large firms

Important differences emerged in the ways between SMEs and large firms conduct customs operations. Here we consider how SMEs operate with regards to who is responsible for conducting their customs operations and whether firms have premises across borders.

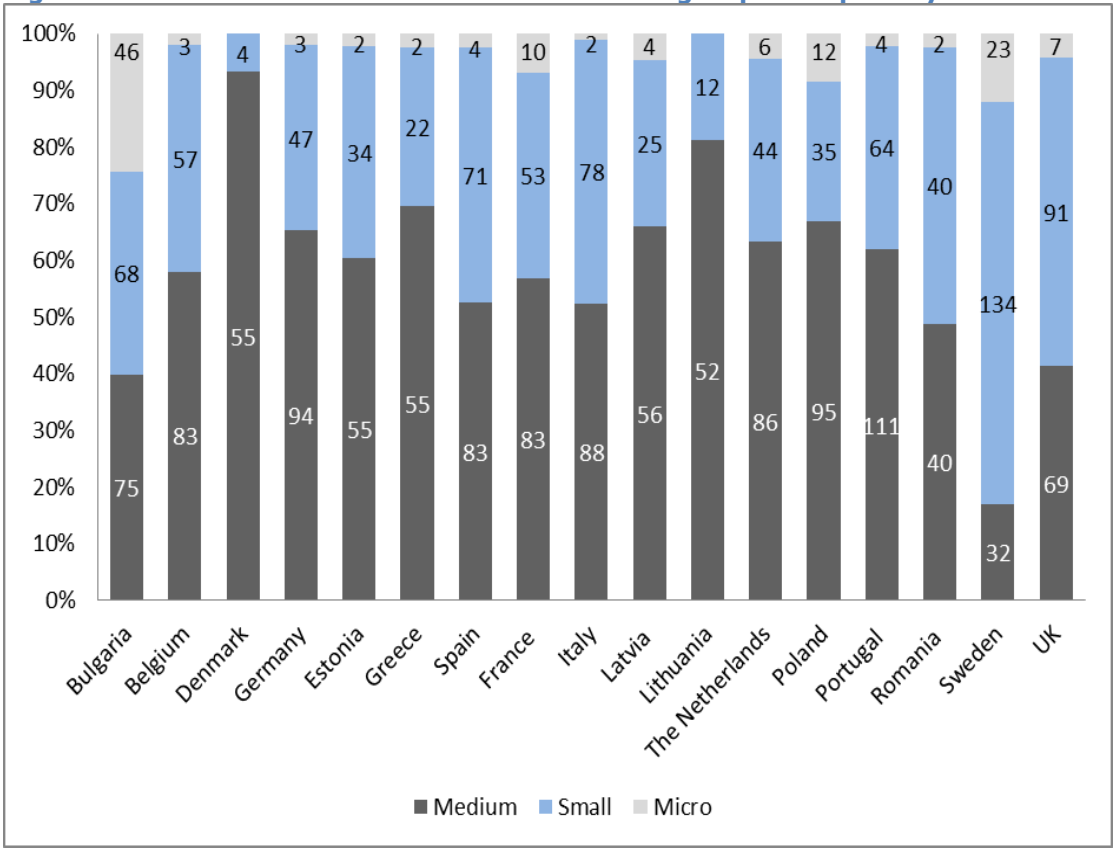
Of the firms surveyed, the **likelihood that customs operations were conducted in house is 6 percentage points lower for SMEs** than large firms, with 37% of SMEs conducing customs operations in house versus 43% of large firms conducting operations entirely in house. A similar proportion of SMEs and large firms choose to conduct their customs operations both in-house and by using another company. These two facts combined result in the proportion of SMEs which opt to outsource customs operations being 7 percentage points higher than the proportion of large companies which opt to outsource their SME operations. Case study evidence presented in another section of this report suggests that firms outsource their customs operations by having third-party customs services providers submit customs declarations on their behalf.

Figure 3: Differences in responsibility for customs operations between SMEs and large firms



n = 2,774

Figure 4: Detailed breakdown of SME subgroup sample by Member State

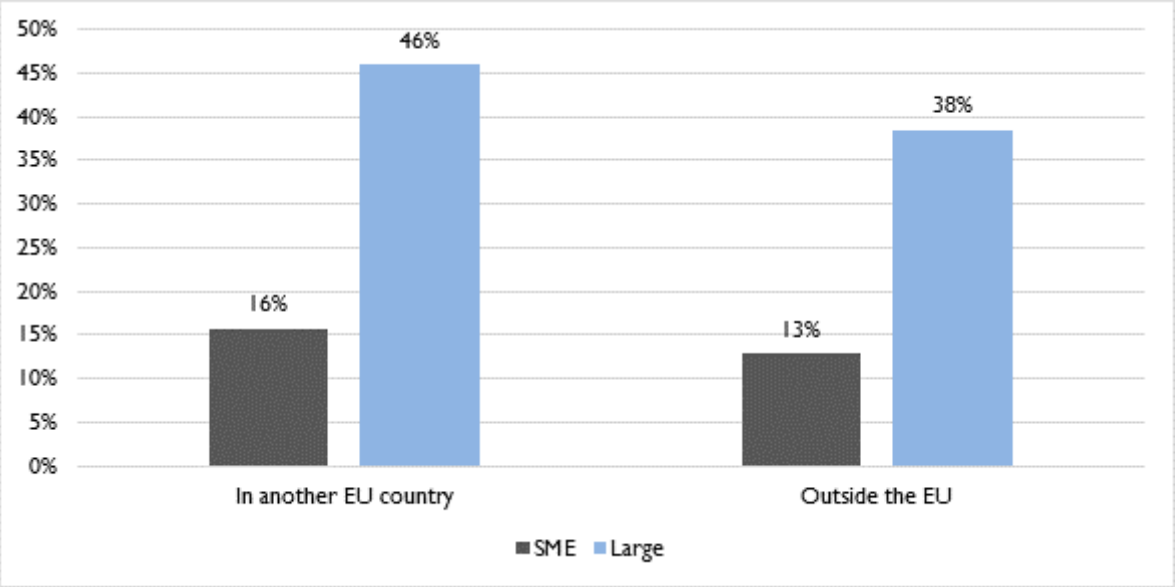


n = 2,221

Figure 4 gives a detailed breakdown of SME respondent subgroups by Member State. Denmark has the highest proportion of medium-sized companies in its sample among Member States with around 92% of its SMEs being medium-sized. This is followed by Lithuania, with around 80%. Sweden and the UK have the highest proportion of small companies reporting, with around 65% and 55% of SMEs being small, respectively. Bulgaria has the most microenterprises, at approximately 23% of its SMEs respondents. Denmark and Lithuania, by contrast, have no microenterprise respondents in their SME respondent pool.

The evidence presented in Figure 5 demonstrates that **large firms are significantly more likely to have international premises**. Of the large firms surveyed, 38% had premises located outside of the EU, whereas only 13% of SMEs had such premises.

Figure 5: Location of premises by company size



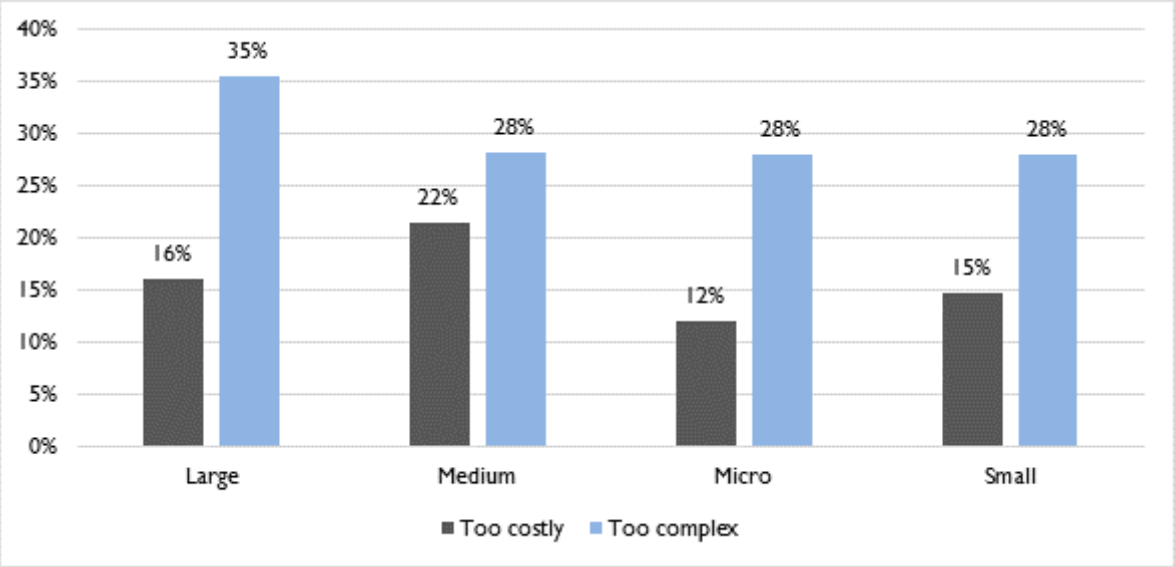
n = 1,110

These two factors could plausibly result in changes to customs operations having a more noticeable impact in larger firms. For example, Figure 7 shows that firms have a **less positive perception of the impact of e-Customs where they outsource** their customs operations. Although not explored in the survey, it is also possible that there is an increased likelihood that firms with premises both within and outside of the EU have been affected by changes in the customs process. Plausibly, they could have a greater awareness of the customs process when compared with firms that are strictly located within the EU.

In-house versus outsourcing

Many of the results found in the Eurobarometer survey were linked to whether companies perform customs operations in-house or whether they outsource them to a third party. Of the 758 companies surveyed which exclusively outsource their customs operations, both large companies and SMEs responded that they are likely to **outsource customs operations due to their complexity**. Medium sized companies are also likely to outsource for cost considerations (Figure 6). Not having sufficient experience in customs operations was also a common reason to outsource, with 50% of large enterprises and 34% of SMEs outsourcing for this reason.

Figure 6: Reasons to outsource customs operations by firm size



n = 2,035

Survey contribution to evaluation questions

The section considers the contribution of the Eurobarometer survey to the evaluation questions. This is built on and triangulated using data from all (desk research, interviews and case studies) in order to provide full responses in the final report.

Overall objectives of the e-Customs Decision

Evaluation Question 1 asks to what degree the initial objectives of the Decision 70/2008/EC still correspond to the **needs of stakeholders**.[5] The Eurobarometer survey has found that the impact of the introduction of electronic customs has generally had a positive effect upon companies. Of those responding to the survey, 73% stated that the impact of electronic customs had been positive.

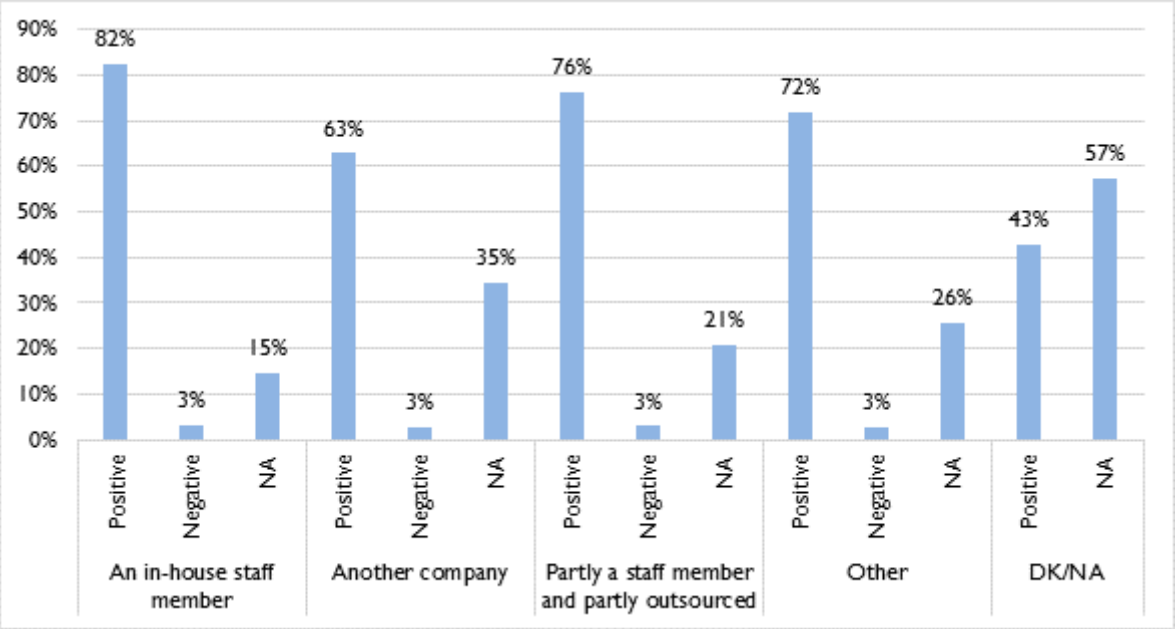
The proportion of positive responses becomes higher the more involved a trader is with the customs process and the more frequently they conduct customs operations. **82% of traders that perform procedures in-house have a positive view**, while the opinion of firms that perform them partially in-house or outsource them completely is 76% and 63% positive, respectively (see Figure 7). Moreover, **heavy users of the electronic systems, such as customs agents and transport/logistics companies have a higher percentage of positive views** than the average of respondents (95% and 81%, respectively). Perhaps unsurprisingly, the businesses that have seen the most positive effect of the e-Customs environment are those which use it most frequently, with the extent to which it has had a positive impact being positively correlated to the extent to which it has had a positive impact being positively correlated to the frequency of use (Figure 8).

The positive perception of the introduction of e-Customs is widespread, holding for all respondents regardless of size, industry or type of points of entry/exit used. Across Member States, while there is some variation, at least 50% of all respondents in each

[5] The core objective of the Decision was "to set up secure, integrated, interoperable and accessible electronic customs systems". See: http://europa.eu/legislation_summaries/customs/l11019b_en.htm.

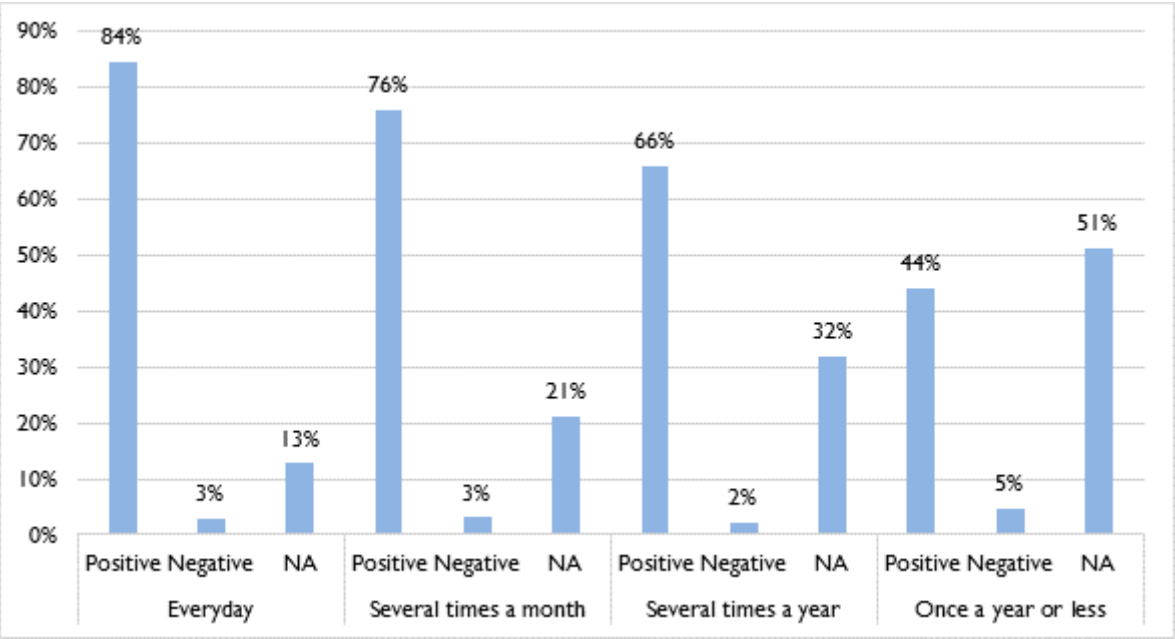
Member State stated that the introduction of e-Customs has had a positive impact, with as many as 90% in the case of Germany.

Figure 7: Impact of e-Customs by who conducts procedure



n = 2, 774

Figure 8: Impact of e-Customs environment by frequency of use



n = 2,774

Benefits for traders from e-Customs

The potential benefits for traders from the e-Customs environment result from several factors, including **lower costs for conducting customs operations, faster clearing times and overall simplicity**. Evaluation Question 2 asks to what extent

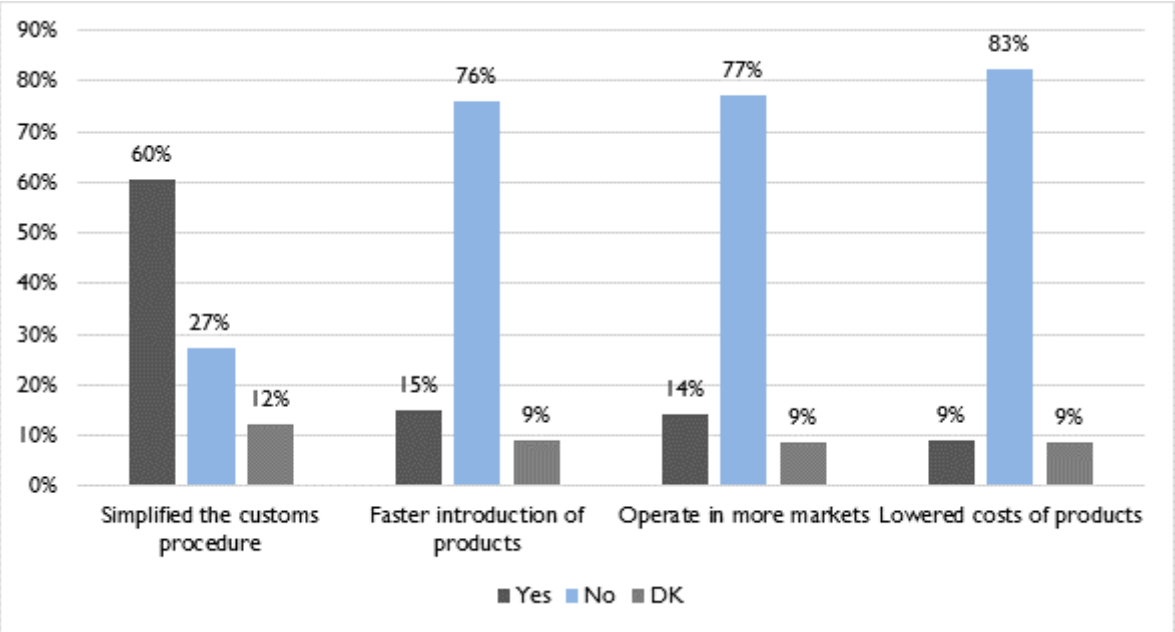
the creation of a paperless environment for customs and trade contributed to increasing the competitiveness of companies doing business in Europe.

The responses to the Eurobarometer survey suggest that the key way in which e-Customs has affected the competitiveness of businesses is to **simplify customs operations for firms**, with 60% of respondents indicating that this is how e-Customs has assisted them. As shown in Figure 9, the effects on lowering the cost of their products, allowing to introduce new products to the market faster and to operate on a wider geographical area appear to be more modest. Nevertheless, it is worth pointing out that a non-trivial number of traders claim to benefit from faster introduction of products and being able to operate in more markets (15% and 14%, respectively).

The fact that **at least 14% of firms can operate in markets where they were not operating before** because of the introduction of e-Customs is significant. Geographic expansion thanks to e-Customs can come through a variety of mechanisms. For instance, lower overall customs compliance costs can free up resources that firms could in turn use to fund expansion into new markets. Alternatively, simpler and more streamlined compliance procedures could give firms confidence to deal with customs authorities in other markets, given the existing differences in the customs compliance process in different Member States. Furthermore, harmonised European classification systems could provide a "common rulebook" that firms are confident will apply across the EU, encouraging them to expand operations thanks in part to this certainty.

While a large number of firms have answered no to these survey questions, it is important to note that this only implies that they have not particularly benefitted from the introduction of e-Customs in these areas. There are several plausible reasons for this, including other barriers to entering given markets, say, or the relative importance of factors unrelated to customs operations.

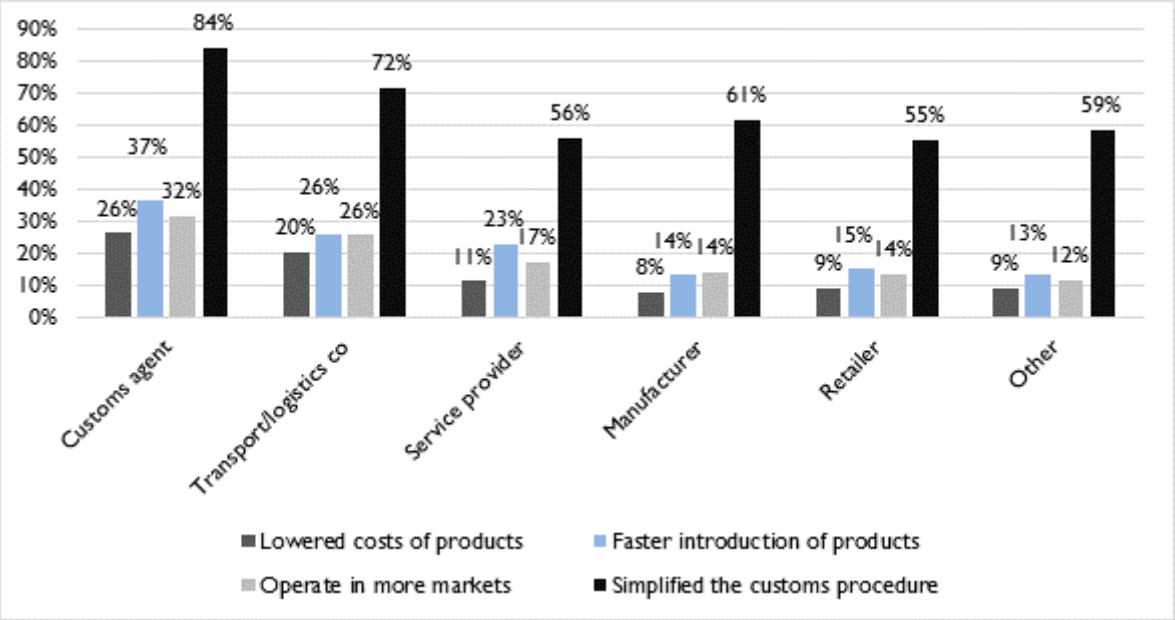
Figure 9: How e-Customs has impacted competitiveness



n = 2,774

The responses for various industry types present some variations. For frequent users of e-Customs systems, such as customs agents and transporting and logistics companies, the proportion of firms that benefit from these positive impacts is much higher, as shown in Figure 10. Also above the 22% average, albeit to a lesser extent than the previous sectors, service providers report being able to introduce new products faster and operate in more markets as a consequence of the introduction of e-Customs.

Figure 10: Benefits of e-Customs by industry



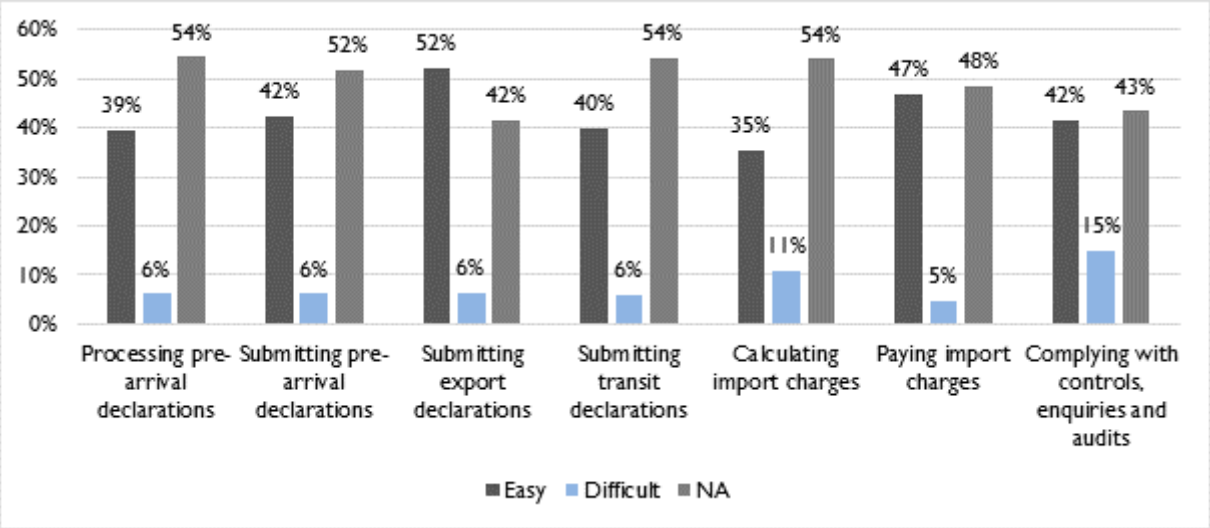
n = 2, 774

The fact that 65% of respondents state a satisfaction with the functionality of fully electronic customs declarations also suggests that it should be assisting companies in how they operate. However, **only 31% of respondents reported that they are satisfied with the functionality of submitting full electronic declarations**.[6] Conversely, when issues do arise, 42% of the respondents of that survey were satisfied with the availability of help and assistance.[7]

Evaluation question 3 asks to what extent the creation of a paperless environment for customs and trade contributed to facilitating import, transit and export procedures. As shown in Figure 11, the number of respondents that considered that performing certain processes has been positively affected by e-Customs is several times larger than those a negative view.

[6] Question 13.1 from the Eurobarometer
[7] Question 13.3 from the Eurobarometer

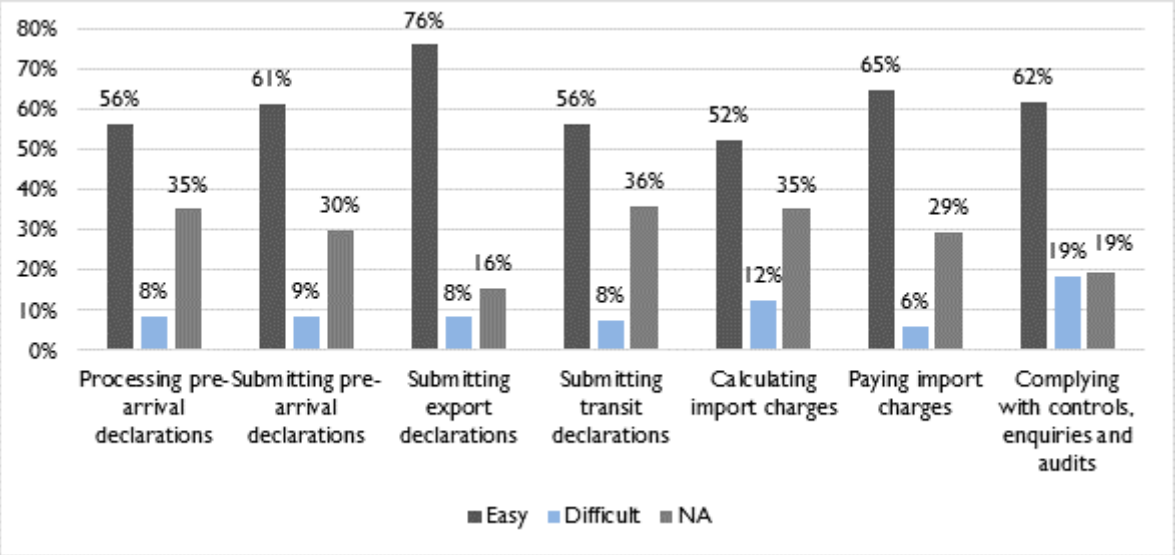
Figure 11: How e-Customs has affected ease of certain processes



n = 2774

It should be noted that there is also a **high number of respondents not expressing an opinion in this regard**. Possible explanations include potential difficulty for respondents to differentiate between e-Customs specifically and general changes in the customs operations. This hypothesis and alternative ones will be explored further in the interviews and case studies. Companies that process their customs in-house are more likely to have a formed opinion. As shown in Figure 12, there are a greater percentage of these traders responding that e-Customs had a positive impact upon their ability to undertake certain customs processes.

Figure 12: How e-Customs environment has affected the ease of certain processes (companies processing customs in house only)

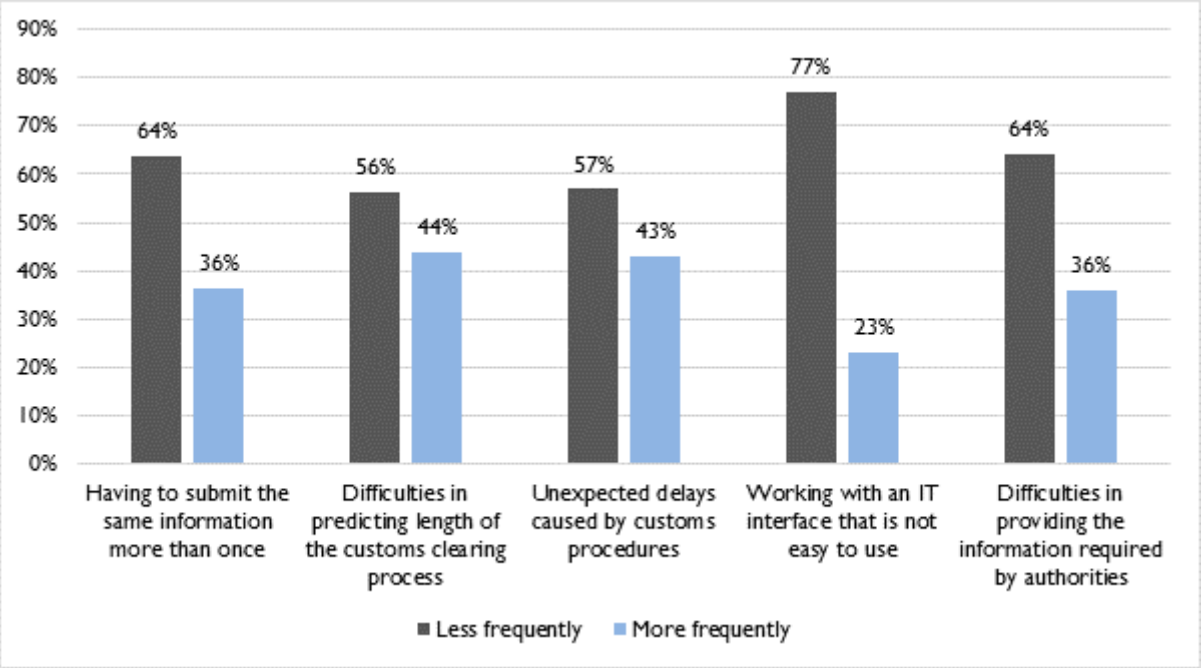


n = 2,774

On a related issue, the Eurobarometer survey asked whether traders experienced difficulties in predicting length of the customs clearance process and unexpected delays caused by customs operations. In general, **difficulties that arise from customs operations happen less frequently for most companies** since the

introduction of e-Customs. However, opinion appears more evenly balanced for difficulties in predicting the length of the customs clearing process and unexpected delays.

Figure 13: Difficulties experienced by traders from the current system



n = 2,774

Firms that outsource procedures only report more frequent difficulties in providing information in 28% of cases, whereas **those conducting their own procedures report more frequent difficulties in 41% of cases**. There are several possible reasons for this. For example, if part of the outsourcing of customs process involves setting up standardised file transfers to the third-party customs services providers, these could in turn take responsibility for customs compliance. It may also be that processes are less well-structured when they are handled completely internally. Nonetheless, evidence from the case study portion of this assessment did not point to a clear difference between outsourcing customs operations and handling customs operations in-house that would give rise to this survey finding.

Costs from electronic Customs

The survey sought to investigate the extent to which the introduction of the e-Customs environment introduced costs to traders in the form of investments in IT systems and training for employees, as well as other costs such as the necessity of dealing with several electronic interfaces and lacking harmonisation across MS.

The Eurobarometer survey has found that the proportion of traders that needed to make investments in IT systems and training employees were 21%[8] and 23%,

[8] This does not necessarily mean that 79% of firms are not using IT systems. It may be that existing internal IT systems are sufficient for engaging with e-Customs or using third-party providers of e-Customs services. Nevertheless, every firm in the automotive and pharmaceutical case study indicated that they had to make some kind of investment in IT systems. It may mean, then, that only 21% of firms invested in *internal* IT systems, whilst others contracted out an IT solution to a third-party developer.

respectively, with around 5%[9] of respondents being unable to answer these two questions and the remaining respondents reporting that they made no investments in these two areas. The TNS report provides details of the large variations in the responses across Member States. In Germany, 54% of firms required investments in training staff while this figure is only 11% in Estonia.[10]

All Member States sampled have a **majority of respondents**, ranging from 58% to 93%, **using a single IT interface**[11], which presents savings to traders. The highest proportions of companies using multiple interfaces are found in Denmark, the UK and Spain. These countries tend to have below average overall positive responses regarding e-Customs (in particular, Denmark and the UK have the least positive views in this category), which suggests that the benefits of a single IT interface are likely to be positively correlated with the extent to which e-Customs benefits companies. As noted in the TNS report, exporters are more likely than importers (58% and 53%, respectively) to have a single IT interface for their customs operations. The using of a single IT interface or an IT system using multiple interfaces is a decision made by the company in question, and so customs authorities and DG TAXUD have little influence over this determinant of satisfaction.

The Eurobarometer results show that the lack of harmonisation presents challenges, adding costs to traders who need to deal with different systems. In over 60% of cases, customs costs and time delays do not influence the choice of point of entry. However, **for a sizable minority of traders (30%), customs costs and time delays do influence the choice of point of entry**, indicating that these two factors may greatly impact the overall choice of entry points.

Summary

Overall, the survey findings suggest that e-Customs has had a positive effect on the firms surveyed. While there are multiple ways in which it has benefited firms, the most important one appears to be the simplification of customs operations. Case study data collected independent of the survey suggests that the biggest impact on simplification is on submitting customs declarations; economic operators overwhelmingly responded that e-Customs had streamlined the customs declaration submission and compliance process. Furthermore, many operators also argued that various e-Customs components made it easier to track consignments in the supply chain. While these are the principal benefits mentioned by stakeholders in case studies, survey evidence suggests that simplification has occurred across all or nearly all procedures.

Countries in which operators appear to have benefitted the least from e-Customs are also those where the uptake of a single IT interface has been the smallest. Although the decision to use a single IT interface or an IT system with multiple interfaces is outside of the control of customs authorities or DG TAXUD, this finding indicates that

[9] We do not view this as a material concern. If a stakeholder does not have sufficient knowledge of certain details of the rollout of the use of e-Customs (e.g. investment in IT systems or staff training), this does not mean that they are not well-placed to answer other questions. For instance, a front-line customs employee in a firm may be able to give good responses on how e-Customs has made certain processes easier without knowing all of the details of the e-Customs roll-out.

[10] Case study evidence suggests that firms engage in more training the more that they handle customs operations in house.

[11] By "single IT interface" we mean a single IT system point of access within the trader (i.e. the trader's internal systems) for the relevant information for compliance with customs rules using e-Customs.

best-practice with respect to self-reported user satisfaction, on the basis of the survey evidence, is to use a single IT interface.

Survey evidence indicates that lack of harmonisation of process between Member States is a concern for economic operators. This is in line with findings from case studies, where economic operators mentioned lack of harmonisation — particularly on fields and formats for customs declarations — to be one of the main areas for improvement in the current system.

Annex 3: Summary of interviews with economic operators

A total of 70 interviews were conducted during the interview programme. This consists of 47 economic operators (drawn from 20 Member States) and their representatives, 21 Commission officials (including interviews conducted during the structuring phase), and 1 other (UNECE). **In addition to this**, 41 interviews were conducted in the course of the case studies (see annex 4 for detailed reports).

Stakeholder group	Interviews conducted	Notes
Economic operators:		
Industry associations of relevant economic operators	9	Includes representatives of customs agents and freight forwarders, road transport carriers, port community systems, and customs-related IT service providers.
Traders	17	Including shippers, freight forwarders and customs agents. Drawn mostly from Eurobarometer survey respondents who had volunteered to be interviewed.
Point of entry operators	6	Includes airport and sea port operators, port community systems and cargo community systems. Several points of entry declined interviews.
Carriers	12	Includes air, sea, rail and haulage companies
CRSPs	4	Customs-related service providers
EC officials:		
DG TAXUD	11	
DG MOVE	1	
OLAF	8	
DIGIT	1	
Other:	1	UNECE

The interviews were conducted between June and November 2014, mostly by telephone, and typically lasted between 30 and 60 minutes. The sample of organisations we spoke with during the interview programme (as well as the sample for our case studies, presented below) reflects a balance that was reached in consultation with DG TAXUD. The sample aims to achieve a good combination of economic operators with regard to size (volume of goods handled), mode (ports,

airport), geographical spread (South, North, East, and West, EU-15 and EU-13) and the share of imports and exports of goods from a particular Member State (small, medium, and large). While many of each stakeholder group would have made suitable interviewees, the selection is reasonably representative given the limited number of interviews that could be included in the study.

The following text presents **the results of the interviews conducted with economic operators and their representatives**. It reflects the views of those interviewed rather than the evaluators; our interpretation of the findings is presented, alongside other evidence, in the main report in terms of answers to the evaluation questions, conclusions and recommendations.

1. Summary of interviews with trade associations

The evaluation team began the interview programme by conducting a series of interviews with a range of trade associations representing the interests of economic operators active in the e-Customs environment. The following text presents key findings from the interviews with representatives of the trade associations for customs agents and freight forwarders, postal services, carriers, port community systems, and customs related IT service providers. In addition to providing insight into the issues under examination, these interviews helped us to collect suggestions for economic operators willing to participate in further telephone interviews.

It should be noted that there were some concerns from the steering group that the selected sample of industry associations were not part of the Trade Contact Group and had little EU representation. We would like to point out that the sample of interviewees and case studies reflects a balance that was reached in consultation with DG TAXUD. The industry associations selected here represent point of entry operators and carriers, as well as other significant users of e-Customs processes and procedures. UNECE, for example provided an outside perspective and had especially valuable insights regarding interoperability between custom systems and electronic standards. Five of the trade associations[12] are members of DG TAXUD's Trade Contact Group and are either primarily Europe-based or cover industries in most Member States.

Table 2: interviews conducted with industry associations and the UNECE

Industry associations	
Organisation	Role of interviewee
International Port Community System Association (IPSCA)	Secretary General
International Road Transport Union (IRU)	Head - TIR and Trade Facilitation
European Liaison Committee of Common Market Forwarders (CLECAT)	Senior Policy Adviser
European Alliance of customs-related service providers (EURTRADENET)	General Manager

[12] CLECAT, EURTRADENET, IPSCA (formerly EPSCA), IATA, IRU

PostEurop	Chair, Customs Working Group
International Air Transport Association (IATA)	Senior Manager, Cargo Security Process and Standards
British International Freight Association (BIFA)	Regional Representative
European Shippers' Council (ESC) / Dutch Shippers' Council (EVO)	International Policy Director
Airline operators cargo committee, UK (AOCC)	Chairperson
European Community Shipowners' Association (ECSA)	Director - International Relations, Security, Ports and Logistics
Other	
United Nations Economic Commission for Europe (UNECE)	Economic Affairs Officer; Project Coordinator Global Trade Facilitation

Background

The interviewees explained the background to the customs clearance process, focusing on the involvement of their member economic operators. CLECAT, for instance, explained that the majority of customs services are provided to clients by freight forwarders as part of a broader range of services. The CLECAT representative had witnessed the development and implementation of NCTS, ECS and ICS, and had been involved in discussions and follow up/ development of those systems.

The interviewee for **EurTradeNet ('ETN')**, the trade association representing customs related service providers or '**CRSPs**' explained the role that its members play in the customs clearance process (see text box below).

Customs Related Service Providers

The evaluation team interviewed EurTradeNet ('ETN'), the international non-profit professional association representing customs related service providers or '**CRSPs**'. CRSPs deliver IT systems and communication solutions to allow traders to exchange customs-related information electronically with the relevant authorities across the EU's Member States.

- CRSPs include a wide **variety of company sizes and business models,** from the smaller local providers focused on serving a specific national regulatory environment, to larger multinational businesses serving global (customs) environments.

- Some CRSPs provide IT solutions to '**both sides of e-Customs'**: to the **private operators** moving goods in and out of Europe (importers and exporters, logistics integrators and freight forwarders, covering all customs procedures and in all transportation modes), and to the **public bodies (customs authorities)** for key systems and applications (particularly in

several countries of Central and North Eastern Europe).

- Each CRSP decides its background platform **to assure reliable IT services and effective e-Customs exchange** among the actors they interconnect with Europe-wide: from concise stand-alone solutions or web-services, to vast telecom networks and hosting-clearing centres.
- Sector standards and major market tendencies are highly used, but always adapted to local needs and tech constraints. 'CRSPs have their own software and networking solutions, EU-aligned while ad-hoc adapted to National requirements'.
- In some European territories there are **gateways** configured to streamline e-Customs operations in and out of the region, in some key cases developed and operated directly by leading ETN members.

The **IRU** explained the relationship between the TIR system and NCTS, with the latter allowing the exchange of data between EU customs authorities, including a module for the collection of TIR data.

IPSCA, which represents the leading Port Community System Operators (PCSO) in Europe, explained the background to Port Community Systems and their development as 'electronic platform that connects the multiple systems operated by a variety of organisations that make up a seaport or airport community' including the relevant customs authority.

PostEurop highlighted its role as the trade association that represents European public postal operators. It gave an overview of the simplified customs procedures at EU level, both for the transit of mail and parcels within the EU and regarding customs security procedures, which public (as opposed to private) postal operators are privy to.

ECSA explained its members' main interest with regard to e-Customs was the new "e-manifest" proposal, re-named "the customs goods manifest", aimed at reducing unnecessary administrative burdens for the maritime industry and extending further the benefits of the Single Market to maritime transport.

IATA discussed its policy work in the 'e-policy' field, with a focus on ensuring new regulation conforms to international (WCO) standards and minimises any detrimental impact on the airline industry.

Evolution of e-Customs

The interviewees discussed the evolution of the e-Customs environment since 2008. They described the technical difficulties associated with the introduction of ICS, and how these initial problems were resolved over time. Interviewees also spoke of procedural deficiencies and the fact that Member States' national customs authorities tend to interpret the 'common' rules in different ways e.g. requiring additional data from economic operators which is not required by the common ICS specifications. Specific comments included:

- 'The EC works hard to assure overall harmonisation in customs and trade management, but the procedures in Europe are still **very much localised**, thus a Trader that handles customs in various territories faces the challenge of meeting diverse requirements'**.**

- 'There is still a long way towards effectively streamlined e-Customs. Although it could be assumed (wrongly) that the CRSPs live "thanks to" current e-Customs diversity. EurTradeNet and its devoted members **fully support EU harmonisation**, since market advantages stem from added value services rather than administrative burdens'.

Benefits

Associations were clear on the benefits of electronic customs systems with the feeling that the international supply chain in its current state would not be possible in the absence of electronic processes. Attempting to process the number of declarations manually would take 'incalculably longer', not to mention the huge amounts of paper involved. Interviewees were not ready to attribute these perceived benefits to drive towards paperless customs by the EU in particularly, however, and explained that much of the digitalisation of information in the international supply chain pre-dated any EU agenda aimed at e-Government.

While some interviewees were aware that '**customs shopping'** might exist, none had evidence which pointed to a decision on which point of entry to use based solely, or influenced chiefly, by customs clearance times. At most, this was thought to be a **minor factor** among those driving economic operators' decisions on where to bring goods into the EU. No interviewees could report that their members said these considerations drive their decisions to operate one way or another.

Drawbacks

Interviewees did not consider there were significant drawbacks related to the implementation of electronic customs systems. They acknowledged that investments were required, both in terms of buying technology and training staff, or paying someone else (a CRSP) to do it, but in the medium-term these were more than offset by gains due to reduced administrative burdens and compliance costs'.

One interviewee suggested that 'One drawback [of paperless systems] maybe that there is less flexibility because the national authorities use the new possibilities that electronic systems bring to have more stringent controls. This is of course legitimate, but an electronic approach may be stricter and less flexible, with less discretion for officials'.

Rather than objecting to e-Customs in principle, some interviewees were critical of the way systems had been introduced, and complained of:

- Continuous **changes** in the way processes are implemented and high levels of diversity across countries. This was attributed to the fact that 'most systems were developed at EU level but locally decided and implemented (not even NCTS is equal from country to country)'.

- Lack of **harmonisation** or low EU **compliance** (e.g. Digital Certificates).

- Inaccurate and/or **delayed** information on new Directives (and 'tight deadlines from specifications availability to effective deployment').

- Persistent operational **problems** with relevant procedures (e.g. ICS, multiple agents and multiple filing to complete an ENS).

- **Uncertainty** on issues such as (feasibility and realistic deployment of) single access points, and centralised clearance.

Finally, an issue raised by carrier representatives related to a problem faced by carriers: while the **regulatory burden falls on carriers** to provide information that is true and correct on declaration forms, they are not the gatekeepers of this information per se. As one commented 'Most of the information required to advance data reporting to Customs is contained on the house air waybill. In about 90% of cases the HAWB[13] is drawn up by the freight forwarder and the carrier has limited means to always check the accuracy of the data'. This issue will be explored in greater detail in the air carriers' case study.

Promotion and communication

A number of the associations explained how they worked with their members to help the latter understand new customs requirements, including with regard to newly introduced electronic systems. With regard to training delivered by the Customs Authorities, interviewees held divergent views although agreed that the standard varied between the Member States. While the best were responsive, with well-staffed help lines, others were considered to be unhelpful, providing inaccurate information which 'arrives too late for proper implementation' as well as including 'non-transparent fees', causing frustration for economic operators.

ETN explained that its members always **train their end users**, 'basically on how to deal with the **IT applications and core problem solving**. Some members have also significant help desks to also support their client traders in **functional** aspects and even **legal** issues (tariff classification, taxes and duties, law interpretation and conflict resolution)' surrounding e-Customs systems.

Lessons learned and suggestions for the future

The interviewees were asked about **improvements** to existing systems as well as how future developments might be implemented. Continuing difficulties were felt to exist in terms of incomplete EU-harmonisation, tight deadlines for the implementation of systems (which made it difficult for economic operators to react); and, in general, the EC and Member States were criticised for the disconnect between their 'ambitious plans with limited resources'.

In terms of suggestions for improvement in the approach to developing electronic customs-related systems, interviewees highlighted the importance of communication between stakeholders, including:

- The scope for greater **consultation between the public and private sectors**, at an early stage of a system's development, involving all stakeholders and key agents of the international supply chain; and

- The need for greater **professional on-going collaboration between the public and private sectors**, from needs analysis and specification, to systems deployment and operational fine-tuning.

[13] House Air Waybill

Perhaps unsurprisingly, the interviewees also urged the EC to pay more heed to the views and needs of economic operators, with one calling for the Commission to 'listen carefully and to react promptly'. Some associations explained how they already worked with the Commission. EurTradeNet, for instance discussed its active collaboration with DG TAXUD on the issue of **uniform trader access**, dealing with digital signatures to be valid across the EU and centralised-distributed gateways, 'a crucial step towards single entry points for customs clearance'.

Moreover, the interviewees had several suggestions with regard to how the EU might **develop electronic customs related initiatives in future**. These centred on:

- The idea of **centralised clearance**: while some interviewees knew their members stood to benefit were customs clearance to be centralised within the EU, they also thought it unlikely to happen in the near future given the importance Member States attached to customs as one of the core prerogatives of the state and its relationship with tax. As one interviewee put it: 'We're in favour of creating a super-hub for clearance all over the EU – we cannot do this because we have on-going delivery issues with VAT – if you clear goods in the Netherlands and send them to Austria, for example, then you can fulfil the customs requirements in an easy way in Rotterdam but a tax burden on intra-community deliveries will occur from a tax point of view'.

- The **single window**. Given the prominence currently afforded to the single window idea, as the focus of the seminar to be organised by the Italian presidency, the evaluation team asked the interviewees for their views on how the EU might meet its commitment to endeavour to establish and make operational a framework of single window services. Some interviewees were unaware of this aim in the customs field and were more familiar with the concept of the single window in the context of DG Move's Reporting Formalities Directive. Interviewees urged the Commission to coordinate these initiatives or change the name from 'single' window to something more reflective of the fact it would be one 'window' among several.

  In terms of setting up a single window environment in the EU, interviewees favoured an approach whereby Member States would establish their own single windows for customs, with the EC charged with establishing **standards for the interoperability** of these systems. Establishing an 'EU single window' was not thought to be practicable. As one interview put it, 'the single window is a one-stop shop. I don't see a single window as an EU-wide solution because that would mean you'd have to harmonise aspects of the customs systems that are currently developed at national level. Also, the information required by national administrations varies for operational issues which will continue to differ so long as there are 28 national customs administrations'.

  Another interviewee explained that the key sticking point remains the diversity in national requirements (such as VAT, or legislation relating to radioactive waste) and that resolving this is something of a prerequisite for the success of a single window.

In addition to providing these comments and suggestions, interviewees directed the evaluation team towards the work of the United Nations Economic Commission for Europe's Centre for Trade Facilitation and Electronic Business. This led to an interesting interview, preliminary findings from which are presented in the text box below.

Single Window for Customs – the UNECE perspective[14]

In addition to the interviews with economic operators, we also spoke with the UNECE's expert on the single window in customs related matters. Although not a trade association, the UNECE is well placed to offer its views on the development of e-Customs systems in the EU. The UNECE has published widely on the topic of the national single window (NSW), and its **'Recommendation 33' for the key characteristics of a NSW** remains the objective standard against which the establishment of single window services are judged.

- The UNECE explained that there has been a development of **data models for customs**, under the auspices of the World Customs Organisation (WCO). The UNECE considers that that a data model would be a very useful idea for the EU as would help to create a basis for interoperability between IOS systems. The WCO data model was developed independently of the EU, although there is strong participation from some Member States, in particular the Netherlands. The UNECE notes that the data requirements for (DG MOVE's) maritime single window are also defined in terms of the WCO data model.

- The UNECE would expect an advanced economy like the EU to have a list of data elements that would be recommended for use in data exchange between major government agencies. This would consist of a list of data elements, and a code list which would be recommended, as well as handbooks and guides so that national projects have ready-to-use instruments in order to implement data exchange. **Customs, as the major agency regulating exports and imports, has the responsibility to play a leading role in providing these standards**.

- Asked about the EU's potential to reach its **goal of establishing a framework of single window services**, the UNECE explained that this should not be understood to mean that national customs authorities need to operate within a single EU system. Instead, it means national customs agencies establish interconnected e-Customs systems (as is already the case with the port community systems (PCS) systems in the northern part of Europe). Customs can connect with importers and exporters through PCS to exchange important information elements.

- Within the EU, both public and actors have made significant progress with regard to the development of IOS (inter-organisational systems) solutions. Systems within the EU involving customs have developed and are capable of linking with IOS outside.

- While in developing countries, the single window concept has developed as an organisation, or system in its own right, in the complex regulatory context of the **EU, the single window is better described as an 'environment'**. All sub-systems with the environment must perform as if they comprised a single window. The European Commission's role would be to provide the standards and the concepts that systems should use in order to allow this performance. Beyond interoperability (meaning 'exchange of data'), what is required is collaboration (including: service level agreements; common business models, acceptance that customs models differ; and different layers of exchanges with regard to security and confidentiality).

[14] The UNECE representative we interviewed has asked that the results of this interview should not be made public prior to receiving the organisation's express approval.

- The UNECE pointed out that **there is very little research on the impact of IOS, and collaboration between them**, on international trade. The UNECE has started to work on a discussion paper on this topic, focusing on the issue[15].

- The interviewee also suggested that perhaps the EU's Member States consider it to be unnecessary to develop a framework of single window services for the EU, because the purpose and benefits are ill-defined. There are divergent views within the EU, with some Member States highly advanced with regard to automation of government agencies and the need for inter-agency collaboration.

- **In summary: a single window should be seen as a leitmotif rather than a practical initiative to implement**. The idea is to use collaboration between government agencies and between government agencies and the private sector, to simplify existing procedures and to use the electronic exchange of information for all procedures. When it comes to the single window as a system, there may be more effective or feasible means to achieve the same goal, such as networks of systems that together provide the performance of a single window (meaning the WCO concept of the single window as an 'environment'). **The single window as a system is seen as appropriate where you have a 'one country, one government' type scenario, whereas in the highly diverse EU a network might provide the best solution.**

2. Summary of interviews with traders

Background

This section sets out findings in relation to the in-depth interview programme for traders (including shippers, freight forwarders and customs agents). The evaluation team carried out 17 interviews with these economic operators from across the EU. Interviewees were selected from among respondents to the Eurobarometer survey who had indicated their willingness to be interviewed. The interviewed companies represented a diverse group of industries, in terms of size and area of activity, and the majority occupied positions in the supply chain that primarily involved transactions with other businesses. Dutch traders are slightly overrepresented in the sample since they were particularly responsive to requests for interviews.

A majority of traders (8/15) are classified as large enterprises in accordance with the Eurostat definition[16] with four medium-sized companies and three small companies comprising the remaining sample. While the evaluation team made efforts to include a greater number of smaller companies in the sample, we encountered reluctance on

[15] The interviewee described IOS systems, regardless of their ownership structure, as behaving like private enterprises, focusing on specific issues like regulating a port, agricultural systems, or health systems. While there is nothing that currently prevents these systems exchanging information, and help from the EC is not required to enable them to do so, the extent to which this happens at present is limited. In the UNECE's view, it would be useful to have a micro economic analysis to examine the questions of 'What is the cost- benefit analysis of IOS systems' optimum level of collaboration?', ''Is there much less collaboration than there should be?', and 'What is the market failure preventing IOS systems reaching the optimum level of collaboration?'.

[16] Classification based on Eurostat definitions. Large enterprises > 250 employees, Medium enterprises: 50 to 249 employees, Small enterprises <50 employees. Url: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Enterprise_size

the part of these companies to participate, most likely due to limited time available to the relevant staff members and, possibly, a lack of incentive to share their views.

Most interviewees either partly or completely outsourced customs operations. In doing so, traders made use of both forwarding agents and customs agents. In some cases global logistic companies such as DHL were reported to provide both services. Around a third of traders interviewed were entirely in charge of their own customs procedures.

Implementation of electronic customs processes

Most interviewees reported that the gradual **introduction of e-Customs systems had a positive impact** on their business. As described by one trader, "The paperwork was overwhelming and when the electronic systems came with the simplified procedures, it made a massive difference to my daily job. Before it took me 8 hours and 2-3 days trying to chase all the paperwork, and now I can do it all in 1-2 hours."

There was general agreement that **the shift to paperless systems had resulted in quicker, simpler and overall more efficient handling of customs procedures**. In addition, the transition to electronic systems had made it possible for some traders to bring some customs procedures in-house. Teething problems were reported to have occurred when these systems were introduced but all interviewees agreed that the changes had been positive overall.

Initial implementation of systems always caused teething problems but in the longer term the benefits brought by e-Customs systems were thought to outweigh these costs. In the Netherlands, for example, recent changes and the development of a 'single window' type system (AGS) were described by a couple of traders as being challenging to implement but in the end very useful. The new system was reported to be replacing many of the declaration and customs systems currently employed in the Netherlands with the current system for import declarations being over 25 years old[17].

Customs operations

Most traders interviewed were satisfied with how the e-Customs environment worked. While some connected directly to the IT systems of the relevant customs authority, the vast majority either relied on third party software provided by CRSPs, or .outsourced entirely their customs operations. Company size did not appear to influence this decision. Some traders noted that it was only necessary for to outsource with regard to import procedures; with export procedures considered less complicated, and therefore more easily handled in-house.

Traders considered that some national customs authorities were quicker and more flexible than others. Nordic customs authorities were thought to cooperate with business, and Dutch customs were also seen as being efficient and quick.

Most traders agreed that the time to clear customs had decreased. Traders described how they previously would have to go to the actual customs office with all the original documents. Some countries were still thought reluctant to adopt the e-

[17] URL: http://www.belastingdienst.nl/wps/wcm/connect/bldcontenten/belastingdienst/customs/reference_books_and_other_information/ags/ags

Customs agenda, with a couple of the newer Member Sates described as wanting 'more paper less E', still insisting on paper declarations, sometimes in addition to electronic submissions.

Traders operating in more than one Member State observed a lack of harmonisation in customs procedures. A variety of approaches and enforcement procedures could be observed across the Member States. Information requested and the format specified for its provision varied from one Member State to another. Traders suggested that even within a single Member State the interpretation of customs regulations could vary from one customs office to another and called for greater harmonisation.

The idea of **varying interpretations of the same customs rules** was one traders took to with gusto. In one specific case, a trader from one Member State had built a bonded warehouse in another, but was forced to close it down after the local customs authority insisted on the trader paying an import duty on everything stored there. This goes against the concept of bonded warehouse, since it is arranged to avoid paying duty by not releasing the goods into free circulation.

Traders also suggested that knowledge of customs procedures and regulation was not evenly spread across the hierarchy within a customs authority. Traders sometimes found themselves embroiled in time consuming disputes with local customs offices and claimed customs authorities sometimes admitted having little training on recent policy, procedural and legislation developments.

Pre-arrival declarations	Pre-arrival declarations were experienced as being easy and intuitive to use by traders who complete declarations themselves. Of the traders who used customs agents, the process was explained as simple; one trader noted how their only input was sending an automatically generated sheet from their customs system to their agent who then in turn sent it to the relevant authorities. The main difficulty described was on the rare occasions when the customs authority's IT network went down.
Import declarations	Submitting import declarations was described as being integrated in the overall customs systems that traders employed. As one trader explained, "It's very easy [submitting import declarations], we have some automated programmes that check our stock, if all bookings are done, any mistakes, or stock is missing we get messages in SAP [customs programme interface] and we have to check it." Since **customs systems are still considered highly fragmented and localised**, other things being equal interviewees tended to keep customs operations as close to home as was practically feasible. Where this was not practical, traders used other solutions such as bonded warehouses to allow them more flexibility and Single Authorisation for a Simplified Procedure (SASP). SASP allows economic operators to use the local clearance procedure or the simplified declaration procedure in the Member State where they are established in order to perform the customs formalities relating to their imports in another Member State. In terms of local specificities, traders noted that: • **The import declaration proof was not harmonised.** • Methods for **calculating and paying import charges** varied depending on country and if customs operations were outsourced,

	see below. ○ In some cases (such as Denmark and Netherlands) the national customs authority usually did this for traders and billed the companies monthly. ○ In other cases (such as Spain) calculating import charges was done through looking up tariff codes in databases (i.e. the European Binding Tariff Information database). ○ There were also traders who relied on their freight forwarding company to handle the calculations needed.
Export declarations	In general, **submitting export declarations was not considered to be particularly difficult or burdensome by traders.** However there was evidence that some border control officers continued to prefer the look and feel of physical declarations. For example: "We hear from forwarders that when they get to the border – you can get a stamp but they don't clear the goods [export declaration] electronically… When local customs need to clear it they tell us that we are not instructed to clear this document in the ECS system."
Transit declarations	Almost all interviewees reported that they did not have any issues with transit declarations. Only rarely did interviewees encounter problems. For example, one trader noted that out of the 1,000 declarations submitted annually less than 10 resulted in issues[18]. Traders that used transit procedures regularly remarked that the system could be simplified further, for example along the lines of a SASP license (currently the trader has to apply for every MS individually)[19].

Costs related to electronic customs processes

The majority of traders interviewed agreed that **costs related to e-Customs** had decreased over the last five years as a result of developments in the e-Customs environment, in some cases making a significant difference to their operating costs. These costs related to:

1. **Training** related to e-Customs was considered to be a relatively minor cost was frequently provided by CRSPs as a core part of their service. Traders had difficulty assigning monetary costs to training, but in any case felt more training was needed on evolving customs rules than IT systems and electronic procedures.

2. **IT investments** in relation to e-Customs were limited. Traders choosing to outsource their electronic customs procedures did not have major IT investment costs. Traders carrying out customs procedures in-house typically reported relatively minor initial costs and maintenance costs. However, they were not able to assign concrete figures to the amounts involved. While there was considerable diversity in the configuration of IT systems, a majority of traders used a single interface system that took care of most of their customs needs.

[18] Nevertheless, we heard that some countries tended to be more problematic and that in these cases it was important to choose a forwarding agent with ample experience and "contacts" in order to manage declarations smoothly.
[19] This was explained by the interviewee in terms of a "European transit license", which cleared transit in all countries. How this would work in practice was not substantiated.

Impact on competitiveness

Most interviewees felt that the introduction of **e-Customs processes had not affected their ability to access and expand to new markets**. However, one trader described how the introduction of e-Customs in the EU had made it easier to comply with the requirements of third countries' systems. Traders described that when exporting to the United States mutual recognition agreements for AEO status greatly facilitated and simplified their interaction with the US customs authority.

Equally, **the impact of e-Customs on traders' ability to increase their product range was not considered significant**. The time to market for products was not reported by traders to have been affected significantly by the introduction of electronic customs procedures. In terms of offering a wider product range, most traders did not perceive the introduction of e-Customs to have in any way facilitated this. Other factors such as compliance with anti-dumping measures and safety issues were considered to have a far greater impact on product range.

We also examined any impact e-Customs systems might have over a trader's choice of point of entry or exit for goods entering and leaving the EU. Elements related to electronic customs were not commonly described as determinant of the choice of point of entry or exit. Rather, this was attributed to other factors influencing logistics costs and speed (such as non-customs-related controls, like sanitary inspections), in addition to proximity of other operators in the supply chain and customers.

Difficulties encountered

Where difficulties were encountered these consisted of:

1. **Having to submit the same information more than once.** Traders reported having to submit the same information various times to different authorities.in charge of border management. Where this had to be carried out sequentially rather than in parallel delays would cascade through the process.

2. **Difficulties in predicting length of the customs clearance process or unexpected delays.** Operators who had AEO status noted that delays had become far less frequent once they had been granted this status.

3. **Lack of harmonisation of data requirements** was the most common complaint among economic operators active in more than one Member State.

4. A few difficulties were reported in terms of **controls, enquiries and audits**. Again, traders with AEO status noted a decrease in 'compliance issues'. In general, the reduction of physical and document-based controls for traders with AEO status was greatly appreciated by traders. Obtaining AEO status was described by a couple of traders as a difficult process, however, where 'every procedure and minute detail of the customs operations needed to be reviewed'. One trader described it as taking two years to become approved.

5. Finally, issues arose with **the requirement for traders to maintain paper records** of declarations which had been submitted electronically. Traders described how they kept extensive paper records 'for compliance reasons' on the understanding customs could ask to see these records at any time.

Future evolution of the e-Customs environment

Asked to consider how the existing e-Customs environment might be improved, traders:

- suggested the focus should be on dealing with the issues set out above in the 'difficulties encountered' section, particularly a move towards **greater harmonisation of data requirements**.

- described how they would **benefit from authorities linking up to share information** submitted by declarants same information or one international system for import/export operations for all of the European Union.

- Finally, while around half of the traders interviewed were aware of the concept of **the single window for customs**, most had only vague ideas of what it involved. While traders welcomed anything which would facilitate customs processes, there was scepticism regarding how it would actually work. Some traders noted on-going discussions over the last ten years with regard to the "single window". One described the process of developing a national single window for customs as "highly politicized" and that there was a power struggle between different national authorities responsible for border management to control the roll out of the single window.

3. Summary of interviews with point of entry operators and carriers

The **role of air and sea ports are** explored in detail in our case studies focusing on these points of entry. Some of the key points raised during our interviews are presented, highlighting observations and concerns on the part of these economic operators with regard to the e-Customs environment. Similarly, our case studies on air carriers will present the findings in relation to this group in greater detail.

Almost all the interviewees considered that overall, the implementation of e-Customs systems had been a success and broadly beneficial to their businesses. Among points of entry interviewees, this success was frequently attributed to **close cooperation** between the stakeholders operating at a point of entry (including carriers, handling agents, terminal operators, CRSPs, PCS, freight forwarders, shippers, customs and other state agencies responsible for border management), while our interviews with carriers indicate they shared this view.

Cooperation was deemed vital to introducing key IT infrastructure, such as a CCS[20]. One interviewee explained that at his point of entry previous attempts to introduce such a system had failed in the face of opposition from freight forwarders, fearing they would lose business to larger competitors with greater IT resources. In some cases, PCS and CCS are owned in equal proportions by different groups of stakeholders (e.g. one third by a terminal operator, one third by freight forwarders, one third by carriers) which should ensure the system tries to meet the, sometimes diverging, needs of these different businesses.

One of our interviewees was able to discuss his airport's experience of the introduction of a **'single window' initiative** (linking customs with the ministry of health), and the

[20] Cargo community system, in the air cargo context, the counterpart of a Port Community System (PCS) in the sea freight context.

significant benefits this had brought traders resulting from a reduction in the time taken for goods to clear the border from 2 days to 0.5.

Air carriers highlighted **the importance of handling agents** at airports in enabling them, and their freight forwarder clients, to complete the customs clearance process and supply information to other agencies involved in border management with minimal difficulties. 'All is solved by the handling agent's system which we feed our data to and in turn supplies this data to customs as well as the veterinary and phyto-sanitary authorities' said one interviewee from a relatively small air carrier. This 'solution' to the question of how to supply different datasets to several different agencies was thought to be a good one. In exchange for a fee, carriers are in effect insulated from the challenge of having to supply different datasets to several different agencies in order for a consignment to cross the EU border. This led many of the carriers we spoke with to the conclusion that, for them at least, there were no significant problems to report with the current implementation of the e-Customs system.

The role of CRSPs in the e-Customs environment was highlighted by numerous carrier interviewees. With regard to the air freight industry, interviewees highlighted the role CRSPs can play in solving the 'problem' of a lack of harmonisation i.e. that e-Customs systems vary from one Member State to another, in terms of the requirements placed on economic operators. 'Every national customs authority in the EU has its own system with its own requirements on how to send data, and the GCG is the best solution' said one interviewee, hinting at how the problem of fragmentation in customs processes was overcome in practice. 'GCG' refers to CRSP CHAMP's 'global customs gateway'[21], an interface designed to provide seamless access to multiple national customs agencies and ensure customers (i.e. carriers, freight forwarders) experience no interruption to their EU freight[22].

Similarly, sea carriers highlighted the **importance of Port Community Systems (PCS)** in enabling a seamless transfer of data, ensuring it could be shared for operational purposes and ensure regulatory requirements could be met. The concept of a PCS is examined in our case study on ports.

Both air and sea carriers raised concerns that under current legislative provisions they are expected to provide information to ICS which they in many cases do not have and, at least for commercial purposes, have no interest in acquiring. Some interviewees raised this issue to point out that this meant **ICS** would probably be less useful than it ought to be in enabling customs authorities to risk profile consignments. Mandatory fields would be filled in with the minimum of information necessary to avoid rejection by the system, they said.

Asked to discuss **the future development of the e-Customs environment**, air carriers expressed their desire for greater harmonisation of customs clearance processes i.e. to have the same requirements (in terms of datasets) to clear customs across the EU. While carriers themselves may not make customs declarations, they explained that a harmonised set of requirements would allow their partner agents to

[21] http://www.champ.aero/index.php/component/content/article/8-customsasecurity/8-globalcustomsgateway

[22] Air carriers send electronic air waybill*s (*e-AWB*),* a standardised IATA message, to supply information to the GCG with data then 'translated' to supply every national customs administration with the information they require. This issue will be examined in our case study on air carriers.

handle more shipments abroad[23]. 'If our forwarding agents could use the same processes across the EU, that would be a great benefit to them as they would be able to operate in a greater number of markets'. And as key partners of these agents, access to more markets would mean the carriers could expect more business, they reasoned.

For similar market access reasons, although mostly for the potential efficiency savings, carriers expressed an interest in the idea of **centralised clearance for the EU**. Several thought this unlikely to happen in the short to medium term, however, due to Member States' interest in retaining their national competence in the field of taxation.

4. Summary of interviews with CRSPs

Throughout our interviews with other economic operators, the importance of customs-related service providers or 'CRSPs' in ensuring the effective functioning of the e-Customs environment had become apparent. The Eurobarometer survey and our interviews with traders had suggested that while a significant proportion of traders outsource the customs clearance operations, more have kept these operations in-house, through a reliance on customs-related IT solutions. As a result, we decided (in agreement with DG TAXUD) to conduct a series of interviews with CRSPs and their representatives to better understand their role and the business proposition they offer their customers (carriers, freight forwarders and shippers).

Customs-related services

The customs-related service providers we spoke with outlined the services they typically provide to their customers. They explained that, in most cases, CRSPs do not supply the service of making the declarations or managing customs operations for traders. Instead, CRSPs supply software licenses for so called **'smart declaring systems'**, maintenance and support of the software and functional assistance, while the customer manages the systems, which are designed to run on a Microsoft platform alongside a standard ERP database[24] such as Oracle.

CRSP interviewees explained that customers use their systems for the following main reasons:

1. **Customs systems are (often) the result of legislation and international treaties that change constantly** (e.g. tariff preferences). The consequence is that companies' systems need constant modification, usually within a short time frame. This means a customer needs people (whether internal staff or external consultants) to follow up on the changes and update the company's software on an on-going basis. Modifying a company's ERP systems is costly and cannot be done in a short time. If customers use CRSP software, however, these modifications are made in that software. The software will also inform

[23] Freight forwarders frequently concentrate on providing services to a single national market, with carriers working with different local freight forwarders for every point of entry in which they operate.

[24] ERP or enterprise resource planning refers to business management software—usually a suite of integrated applications—that a company can use to collect, store, manage and interpret data from many business activities, including product planning, costing, manufacturing or service delivery.

customers of new releases and upcoming changes to requirements. In other words, by using software under licence from a CRSP, the customer can make savings through not needing to invest in people.

2. **Secondly, a CRSP can make changes to its software to comply with new regulations**. This software can then be used by all the CRSP's customers. If the customer were instead to develop and use software of his own, this would require significant resources, which, CRSPs point out, is not a cost effective way for a company which does not focus on IT issues to operate.

3. **Customs declarations are in general urgent in nature**. If a declaration cannot be sent, there will nearly always be some delay (with regard to transporting goods) and resulting costs. CRSPs are organised to cope with emergency situations and can help the customer immediately in many cases. They will provide direct hotlines for the customer to call, while in contrast many ERP suppliers will have a ticket registration helpdesk where they will not be able to intervene immediately.

4. **Finally, CRSPs are specialised in dealing with customs matters**. Among the firms we spoke to, while they do offer other logistics related IT solutions, over 60 % of their income is customs related. CRSPs have trained experts with knowledge of the functional regulations and can help their customers with functional issues when declaring.

Having outlined their basic offer to clients, one CRSP explained **the diverse needs of the clients they serve** and outlined their fee structure: *'Depending on their needs it may be a one-time software license from 10 to 300 thousand euro and a monthly recurring maintenance fee from 200 to 5000 euro/month'.* The diversity of the 'customs applications area' can be illustrated by the following example of permutations among the clients which CRSPs serve:

CRSP client permutations	Customers who make 10 declarations per week with one declarant
	Customers who make 1,000 declarations per day with a declaration team.
	Systems with 200 concurrent licenses for declarants (up to 600 declarants working 24/24 and 7/7)
	Commercial systems (Inward Processing relief) with up to 40,000 mutations/day to be declared.

Source: TEP interpretation of information provided by interviewees

Asked to discuss how the time taken to clear customs changed since 2008, CRSPs and their representatives opined that while the legislative and the regulatory requirements to clear customs have increased, **customers who use their smart declaring systems have improved their customs clearance times.**

Interestingly, one interview did not consider that the advent of a **single window** for customs would have a significant impact on the business of CRSPs which would continue to supply a range of smart declaring systems for their customers alongside other logistics related IT solutions. He suggested the businesses most likely to be

impacted will be the courier services in ports, which dispatch and collect paper documents to and from customs authority offices.

Annex 4: Case study reports

We chose to undertake six case studies in order to allow us to gain a deeper understanding of the impacts of electronic customs than would be possible through desk research and a survey alone.

Approach to selecting case studies

The sample outlined was presented in the inception report (section 5.1.4) and agreed in consultation with DG TAXUD. The six case studies are broken down into three categories. This permits us to interrogate the dynamics and relationships of the e-Customs environment from three specific perspectives. These are:

1. Points of entry (two case studies);
2. Industries (two case studies); and
3. Carriers (two case studies).

During the case studies the evaluators reviewed information available in the public domain, complemented by interviews with selected officials and economic operators involved in customs processes and procedures. The selection of specific points of entry, carriers and industries are set out in the following table.

Table 6: Selected case studies

Case Study	Focus	Interviews conducted	Details
1. Ports	Hamburg, DE	7	Hamburg is one of the EU's largest container ports, serving Germany's strong export industry. Fierce competition from other northern European ports and the continuing expansion of capacity at Hamburg's container terminals made for an interesting backdrop to this case study.
	Civitavecchia, IT	6	A visit to Civitavecchia allowed the evaluation team to contrast the situation in Hamburg with a smaller, Mediterranean port which does not currently possess a PCS. Civitavecchia was also one of the first pilot ports for the Italian national single window.
2. Airports	London Heathrow, UK	10	Heathrow Airport is the largest in the UK in terms of tonnage of cargo handled annually. Imports from across the globe arrive in the UK via Heathrow. During the case study interviews with officials in the UK's customs authority (HMRC) as well as various economic operators using Heathrow to import and export goods to/from the EU were conducted.
	Prague, CZ	10	Prague Airport has seen its share of cargo increase steadily in recent years to approximately 78,000 tonnes in 2012. Its location within easy reach of important cities

			in Central and Eastern Europe means it benefits from an extensive network of road feeder services. This case study selection allowed us to examine the experience of the customs clearance process in one of the EU's newer Member States.
3. Sea carriers	Economic operators involved in the sea cargo industry	3	The case studies on carriers allowed us to assess the effects of recent changes to customs processes and procedures for sea and air freight and outstanding issues which economic operators in these sectors face.
4. Air carriers	Economic operators involved in the air cargo industry	3	
5. Auto-motive industry	Economic operators in the automotive industry	4	The case study of the automotive industry examines the customs dealings of a complex and multifaceted sector that is highly active in terms of import and export and both finished products and intermediate goods. Among other issues, the case study examines the effects for the industry of recent changes to customs processes and procedures, particularly regarding costs and benefits of new and / or harmonised processes.
6. Pharma-ceutical industry	Economic operators in the pharma-ceutical industry	4	The case study on the pharmaceutical industry focuses particularly on the background of e-Customs and general customs use in that sector, interviewees' experiences, training requirements, and perceived influence on the e-Customs environment, and perceived benefits and drawbacks of the use of e-Customs in the pharmaceutical industry.

The sample of case studies (as well as the organisations we spoke with as part of the interview programme) reflects a balance that was reached in consultation with DG TAXUD. The sample aims to achieve a good combination of operators with regard to size (volume of goods handled), mode (ports, airport) and geographical spread (South, North, East, and West, EU-15 and EU-13).

Case study on points of entry - ports

The purpose of the case study on ports was intended to examine how the implementation of electronic customs processes is experienced at points of entry, where goods are imported into, or exported from, the EU. To this end, a member of the evaluation team visited the ports of Civitavecchia (22 – 23 July) and Hamburg (11 – 12 August), interviewing a range of stakeholders including the port authorities, terminal operators, customs officials, freight forwarders and carriers.

The following text briefly presents some preliminary findings from the interviews conducted with economic operators and customs authorities in Italy and Germany, and identifies areas for further research.

Background to Civitavecchia and Hamburg

Civitavecchia, one of three ports serving Rome, lies on Italy's Tyrrhenian coast approximately 80 km northwest of the Italian capital. Civitavecchia is a major cruise and ferry port, with cargo playing a smaller but significant role. After initially being hit by the financial crisis, the port has increased its commercial traffic in recent years, reaching a total of two million tonnes of bulk goods. Across the ports of Rome[25] 19,196,168 tons of goods were moved in 2011, representing an increase of 16% compared with the previous year. Civitavecchia handled 38,165 teus[26] in 2011, a slight decrease compared to 2010. A large proportion of these goods are transported within the EU, however links with Tunisia are establishing Civitavecchia as a logistics hub for commercial traffic from North Africa.

The port of **Hamburg** lies 115 km from the North Sea with the Kiel Canal connecting it to Scandinavia and the Baltic Sea region. Along with its container terminals, the port has multi-purpose terminals that can also handle heavy lifts, conventional cargo, and so-called project cargo. In addition to general cargo, bulk cargo makes up an important part of the port's business. Around 25% of the goods handled in the Port of Hamburg have their origin or destination in the greater Hamburg area, giving the port a high proportion of local cargo[27]. Hamburg is the largest German seaport and the third largest container port in Europe. In 2012, the Port of Hamburg's seaborne cargo throughput reached 130.9 million tons[28]. In 2011, the most important most important market partners for container handling at the Port of Hamburg were China, Russia and Singapore.

While Hamburg and Civitavecchia are clearly in different leagues when it comes to handling cargo from outside the European Union, the issues raised by stakeholders using these ports are interesting to compare, offering various perspectives on the different electronic customs systems in place.

[25] Civitavecchia, Fiumicino and Gaeta
[26] twenty-foot equivalent unit, based on the volume of a 20-foot-long (6.1 m) intermodal container.
[27] http://www.portofhamburg.com/en/content/hamburg-%E2%80%93-universal-port
[28] "the quantity of cargo […] passing through a port on a daily basis, from their arrival at the port to their loading onto a ship, or from their discharge from a ship to the exit (clearance) from the port complex" (US Department of Defense, 2005).

Electronic customs operations

Electronic customs operations in the Port of Hamburg, Germany

In Hamburg, the DAKOSY **Port Community System** or PCS (see explanation in text box below) was established for the port by its economic operators. DAKOSY is a privately owned company, with one-third each owned by freight forwarders, liner agents/shipping lines and terminal operators. Its Port Community System, established in 1982 and continuously updated, represents a joint IT solution to an operational problem.

Port Community System (PCS)

A Port Community System or PCS is defined as 'a neutral and open electronic platform enabling the intelligent and secure exchange of information between public and private stakeholders in order to improve the competitive position of the sea and air ports' communities' which 'optimises, manages and automates port and logistics efficient processes through a single submission of data and connecting transport and logistics chains'[29].

According to the United Nations Economic Commission for Europe (UNECE) 'A good collaboration between all the parties involved is one of the key success factors of a PCS. Distinctive for all PCSs is the link to Customs and port authorities and other institutions such as veterinary offices or coastguard, for example'[30].

According to the UNECE, key drivers for the establishment of Port Community Systems are:

- 'on the one hand, the need for a standardised communication platform in order to improve the systems in terms of punctuality, reliability or costs'; and
- 'on the other hand, the need to increase competitive position among ports'.

The core benefits for all parties involved are higher efficiency and speed regarding port processes, particularly through automation and the reduction of paperwork.

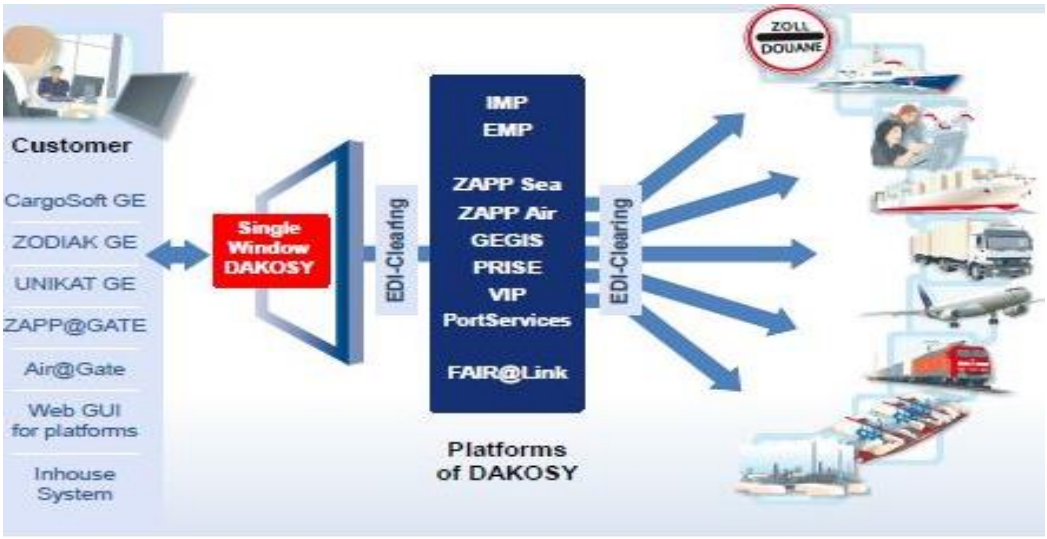
The majority of carriers and freight forwarders shipping goods via Hamburg do not interact directly with the German customs system, Atlas, but rather supply the information required by that system via DAKOSY's message platforms, such as IMP[31] for imports entering Germany from outside the EU. This electronic data interchange (EDI) relies on common standards to ensure the exchange of data via electronic means. DAKOSY's platforms act as a 'single window environment', for the port in effect linking their customers (in particular, freight forwarders, terminal operators and carriers) with the various entities (including public bodies such as customs) which require information to manage their part in the logistics chain.

[29] http://www.epcsa.eu/port-community-systems/pcs-definition

[30] Trends for collaboration in international trade: Building a common Single Window Environment
by Somnuk Keretho, PhD, Kasetsart University, and Markus Pikart, United Nations Economic Commission for Europe (UNECE) Geneva, 2013

[31] import message platform

Figure 14: DAKOSY's 'single window environment'



Source: DAKOSY

DAKOSY: from PCS to IT logistics solutions provider

Since its inception in 1982 as the port community system for Hamburg, DAKOSY's business has developed to offer a wide range of IT and data centre services for their customers. More than 2,000 companies across Europe now use DAKOSY's state-of-the-art data centres for their electronic business communication. These companies include trading companies, industrial enterprises, freight forwarders, shipping companies, liner agents, carriers (sea and air), trucking companies and various authorities (customs, harbour police and so on).

The challenge for companies which operate across the EU's national boundaries, faced with a multitude of customs IT systems, is one of ensuring the **right information is provided in the right format** to each of the EU's 28 customs authorities. As a company operating across these boundaries, DAKOSY's interviewees were able to explain clearly the need to supply differing levels of information to achieve customs clearance depending on the Member State in question.

Electronic customs operations in the port of Civitavecchia, Italy

Civitavecchia (and the Rome ports generally) **do not possess a PCS** in the strict sense i.e. one which links with customs and other public bodies. Instead, economic operators must submit information to separate systems for various processes including the PCIS[32] system used for harbour operations. Customs declarations are submitted directly to the Italian customs system, AIDA, and information can be made available to other public bodies as well as customs systems in other Member States.

[32] Port Community Information System

Figure 15: AIDA's interactive system connecting traders and public bodies

Source: Agenzia delle Dogane (Italian Customs Authority)

According to interviewees the customs clearance process can take time, as there is a need to submit accompanying documentation (including certificates) in paper format. Up to 18 separate agencies are involved in the 'customs' clearance process, prompting the Italian authorities to develop the concept of a single window (see **future plans** below).

In terms of assistance from the authorities, the economic operators interviewed in Civitavecchia believed there were **adequately supported by the port authority and customs**, both in terms of learning how to use the relevant electronic systems and help when things went wrong. In Hamburg, DAKOSY explained that as they provide a service to clients, they are expected to deal with any difficulties (for example, contingency planning in the event that the customs portal goes down) on behalf of their customers. DAKOSY expressed a high level of satisfaction with the level of support provided by the customs authority in Germany.

Benefits and drawbacks

Paperless systems have been a reality in large ports such as Hamburg for **over three decades**, providing an IT solution to an operational problem, namely how to move huge numbers of containers and other cargo through a port as quickly and efficiently as possible DAKOSY confirmed that in some cases they had also been contracted by the customs authority directly to develop specific systems under tender and are thus intimately involved with the electronic customs environment in Germany.

While interviewees acknowledged that paperless systems inevitably saved money few were able to point to direct costs saved. Interviewees highlighted their ability to reduce staff numbers as they outsourced to CRSPs such as DASKOSY.

Instead, interviewees spoke of the many advantages of using a Port Community System and the overview it gave Dakosy and its owner economic operators who are able to know exactly where a container is throughout its journey through the port.

Few if any drawbacks of an electronic customs environment were mentioned. Where complaints were raised it was with regard to the data requirements which had to be

entered into trans-European Systems, notably ICS. Carriers complained that while the regulatory burden falls on them to provide information that is true and correct on declaration forms, they are not the gatekeepers of this information per se. This issue will be explored in greater detail in the air and sea carrier case studies.

Throughout the interviews in Hamburg the strong collaborative relationship with customs was mentioned, which was said to have fully embraced the e-Customs agenda. It is easier for economic operators and systems to be electronic if the customs authority is wholeheartedly supporting this agenda with legislative measures and resource commitments. Were this not to be the case, it would be much more difficult for a PCS to operate successfully.

In several cases, interviewees raised problems in relation to what could be termed the **inefficiency of the customs clearance process**. While no doubt legitimate concerns, these often seemed to relate more to the business processes in question, rather than specifically to the current state of implementation of the e-Customs environment.

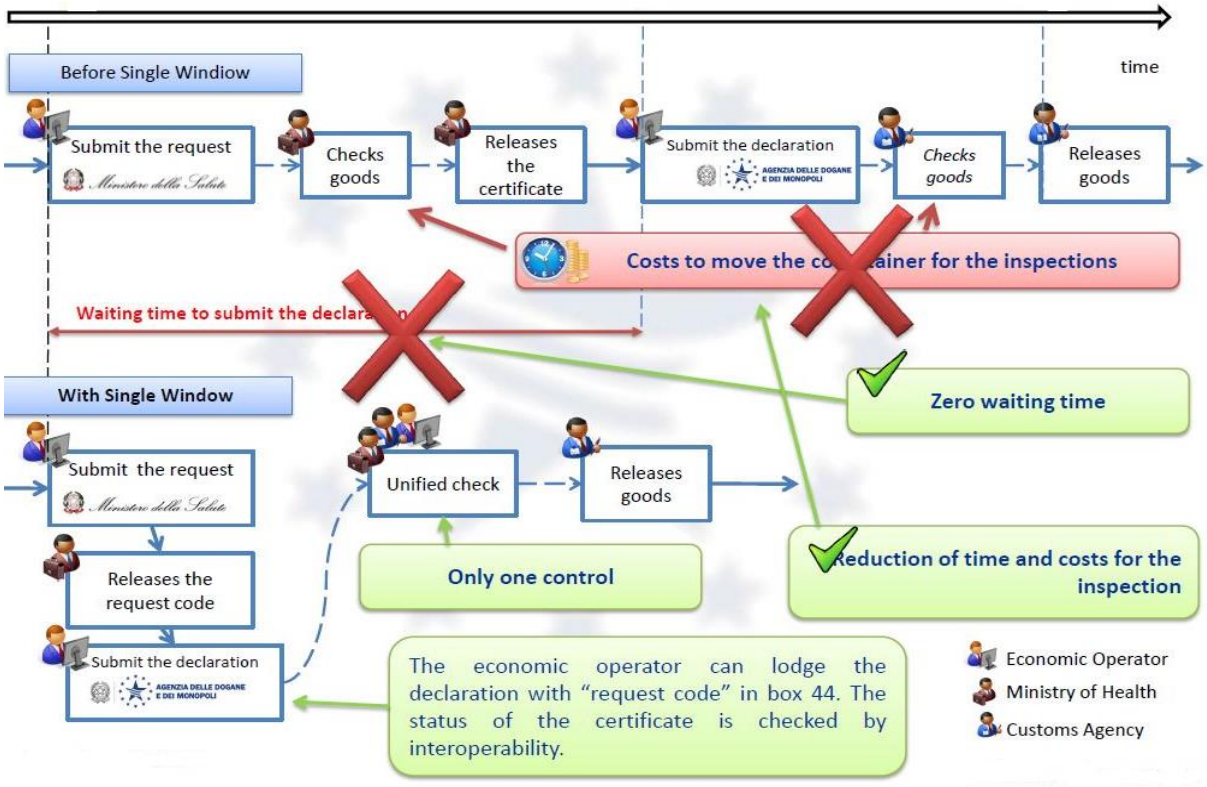
Future plans

Part of the reason for the evaluation team visiting Civitavecchia was to explore the **pilot of a single window for customs** which the Italian customs authority is currently rolling out. While it currently connects customs with the ministry of health, the customs officials we spoke to signalled that the intention is to ultimately provide an interconnection with all 18 authorities engaged in border control in Italy. According to the Italian customs authority, the anticipated benefits of this window, designed to link information submitted to customs to a host of other public bodies include:

- A simplification of the customs procedures 'leading to a drastic reduction of time and costs for businesses and Public Administration';
- Unified controls: 'more effective and efficient based on risk analysis, document check in parallel' and.
- The AIDA system monitoring all phases of declaration and status of release of the certificates.

In Hamburg, it could be said that the Port Community System already in operation acts as a kind of single window. Interviewees highlighted this fact pointing out the fact that these message interfaces act as a kind of funnel for information, collected from economic operators and distributed to customs and the other agencies involved in border management.

Figure 16: the Italian single window for customs (model of interoperability with the Ministry of Health)



Source: Agenzia delle Dogane (Italian Customs Authority)

At this stage, the customs authority is currently **trialling the single window** with the Ministry of Health. The above diagram illustrates the benefits which would be felt by users as a result of customs and health officials operating a single system for the purpose of conducting a single 'unified check' on goods. In accordance with this model, the economic operator will save time waiting for sequential checks and the cost of moving a container around between inspections.

Conclusions

It is important to emphasise that changes to the logistics environment in Europe's ports have been gradual and in some cases digitisation predates by up to three decades the e-Customs Decision[33]. This is especially the case in north western Europe, driven by the economic necessity to ensure that ports such as Hamburg maintain a competitive position as a global logistics hub. Even here, however, not all aspects of customs are handled electronically.

In Civitavecchia, the Italian authorities have chosen the location of their single window pilot for the opposite reason as why the PCS is needed in larger ports such as Hamburg: the lack of complexity means less can go wrong during this exploratory phase. Whereas in Hamburg, the PCS acts already acts as a king of single window environment, the absence of a PCS at Civitavecchia makes the need for a single window environment all the more pressing.

[33] and the EU policy priority placed on the implementation of paperless systems more generally

The case study suggests that where economic operators feel their operations will be most efficiently conducted through participation in a PCS, as in the case of the port community system in operation at Hamburg, they will be content to use this. In other words, the need to coordinate processes and share information in order to satisfy complex operations in the global supply chain gives rise to the creation of port community systems. Supplying information to customs is an administrative necessity which can be completed by relying on the same information as would be required in any case to perform operational tasks in the transfer of cargo through a port.

The case study presented the evaluation team with an opportunity to examine a PCS in action and to understand the importance of this system in the movement of goods into and out of the EU. It became clear that the existing infrastructure and systems that the EC needs to take into account are highly diverse and in some cases may already be addressing some of the issues that more harmonised systems would intend to. Future developments in the field of e-Customs will need to take account of what already exists in the most developed ports, where privately run 'single windows' provided by economic operators serve the needs of stakeholders, including supplying information to customs authorities.

Case study on points of entry - airports

Air freight is an essential mode of transport for a number of industries, including but not limited to high-value pharmaceutical products, the automotive sector, and fresh (perishable) produce. The purpose of the case study on airports is to examine how the implementation of electronic customs processes is experienced at points of entry, where goods are imported into, or exported from, the EU. To this end, a member of the evaluation team visited the airports of Václav Havel Prague (24 – 25 September) and London Heathrow (September - November), interviewing the airport authorities, customs officials, freight forwarders and carriers.

The following text briefly presents some preliminary findings from the interviews conducted with economic operators and customs authorities in the UK and the Czech Republic.

Background: Heathrow and Václav Havel Airports

Heathrow Airport is located 22.5 km west of Central London. It is one of two international airports located in the Greater London area, but one of six international airports and a number of smaller airports serving the London area[34]. Air freight accounts for 40% (or around £400 bn) of total UK imports and exports and the majority passes through **Heathrow Airport**[35] making it the largest in the UK in terms of tonnage of cargo handled annually. In 2013, 1.42 million metric tonnes of cargo were handled. In 2011 Heathrow ranked 16th in the world and 3rd in the EU in terms of volume of cargo handled[36]. The airport serves 185 destinations in 85 countries worldwide and is the UK's only hub airport[37]. A heated debate surrounds the case for the expansion of Heathrow. Those pushing the case for expansion highlight the strategic importance of air freight: 'It is these operations – getting small, light and high value goods on to scheduled flights – that have made Heathrow more important for the value of imports and exports than Britain's biggest container ports, Felixstowe and Southampton combined, according to the Seabury trade database'[38]. Those against Heathrow's expansion take issue (primarily) with the environmental cost of expansion, rather than the economic case. The airport is owned and operated by Heathrow Airport Holdings[39].

Václav Havel Airport Prague is the Czech Republic's international civil airport located 17 km northwest of Prague city centre. Its location within easy reach of important cities in Central and Eastern Europe means it benefits from an extensive network of road feeder services. It is also the biggest airport among the new EU MS. Five cargo carriers regularly operate here. The airport has seen its share of cargo increase steadily in recent years to approximately 78,000 tonnes in 2013. The airport

[34] London Heathrow and City Airport are located within the Greater London area (Stansted; Gatwick, Southend, Luton are the other four international airports which serve London but are not within Greater London)
[35] According to a study by Oxford Economics on "*The value of aviation connectivity to the UK*" (March 2012) 65% of international air freight to pass through UK airports in 2010 went via Heathrow (by volume).
[36] http://www.aci.aero/Data-Centre/Annual-Traffic-Data/Cargo/2011-final
[37] For all destinations see: http://www.heathrowairport.com/flight-information/route-map
[38] "Heathrow holds key to UK trade revival" by Chris Giles, Financial Times, published on November 7, 2014.
[39] Owned by FGP TopCo Limited, an international consortium led by the Spanish Ferrovial Group.

serves close to 40 destinations, mainly within or around Europe but also in the Middle East and South East Asia[40]. It is owned by Letiště Praha[41].

This case study selection allowed us to examine the experience of the customs clearance process in one of the EU's newer Member States and an old Member State with very different profiles. Indeed, Heathrow and Václav Havel operate on very different scales in terms of the quantities of cargo handled from outside the EU and the evolution of the systems they use to do so are also very different. This makes them interesting to compare.

Electronic customs operations

Electronic customs operations in the UK

Electronic customs in the UK has evolved over a period of over 40 years. The system in place today reflects changes in the customs landscape as a whole over this time. Customs operations have two basic tasks: the protection of financial interests (i.e. collection of proper of duties) and the monitoring of goods for the upholding of safety and security (i.e. law enforcement). Over time the financial aspect has become less critical (as revenue from duties has fallen), while the safety and security has risen up the agenda (particularly following the September 11 attacks). This shift lent itself to a move "away from a transaction based approach to risk based assurance", according to one of our interviewees. The approach taken by customs authorities in the UK today – which hinges on the electronic exchange of information - can be described as intelligent, pro-active and risk-based. Nevertheless, customs operations at Heathrow (and in the UK generally) were described to us as "paper-**less** not paper-**free**"; meaning that paper documents were still routinely used. For example, air waybills (contracts of carriage) remain in paper format only and are required in cases of inspection[42].

Key to understanding electronic customs operations at Heathrow Airport is the role played by the community service provider (or CSP)[43], the UK Cargo Community System or "CCS UK".

CCS UK[44] was established over 20 years ago for a network of airports (Gatwick, Stansted, and Heathrow) by its users (freight agents and carriers, cargo handlers and storage companies). Together these users fund an external service provider (currently, British Telecom) to maintain and develop a messaging system. CCS UK operates as an "exchange hub" which facilitates an automated system for controlling

[40] A map of destinations from 2013 is available here: http://www.prg.aero/Files/destinace/mapa-dest-zima-2013/

[41] A subsidiary of the joint stock company Český Aeroholding

[42] "An air waybill (AWB) is a document made out by or on behalf of the shipper which evidences the contract between the shipper and the carrier(s) for carriage of goods over routes of the carrier(s) . The AWB can be in the form of an:

- Airline air waybill, with pre-printed issuing carrier identification
- Neutral air waybill, without pre-printed identification of the issuing carrier in any form" http://www.iata.org/whatwedo/cargo/Pages/air_waybill.aspx

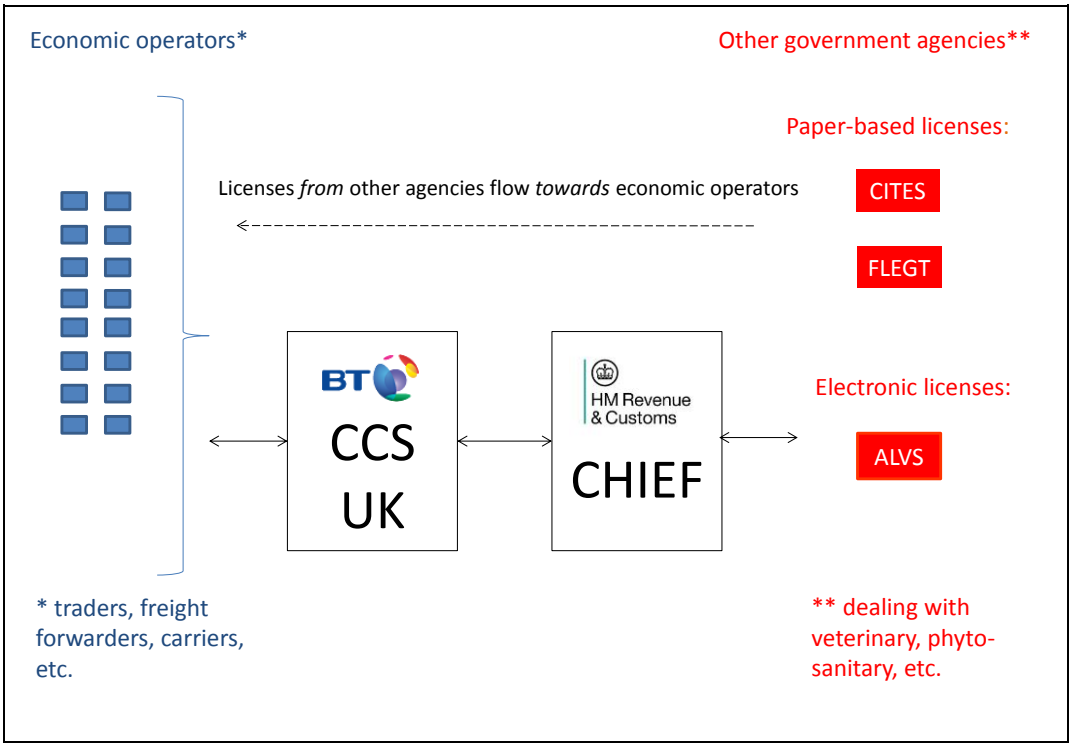
[43] CSPs provide community network services to specific port / airport communities of which HMRC or UK Border Agency form a part, along with other government agencies and commercial logistics entities such as freight forwarders, shipping lines, temporary storage facility operators and haulage companies.

[44] The only UK Community Service Provider (CSP) specialising in air freight; one of only six Community System Providers authorised to connect to, and exchange messages with, the HM Revenue and Customs electronic declaration processing system (CHIEF)

the movement of goods from point of origin to destination via electronic messages. As such, CCS UK provides "an electronic solution for the control of cargo". Membership of the community is secured through an annual facility fee and a fee for usage is determined on the basis of volume of transactions[45].

Using CCS-UK, carriers and freight forwarders shipping goods via Heathrow Airport interact indirectly with the UK's electronic customs system, CHIEF[46] (see Figure 17 and Box 1). They supply the information required by that system via CCS UK. Where operators are required to supply information to other government authorities for specific licenses and controls, they tend to do so by interacting directly with them. In some cases, however, this process has been digitised. This allows the licenses and clearance to be managed via CHIEF through CCS UK.

Figure 17: Information exchange for importing customs proceedings, Heathrow Airport



Source: drawn up by the evaluation team based on information obtained through interviews

Box 1: CHIEF – The electronic system used by the UK customs authority

[45] Pp. 24 of the "BT CCS-UK Terms and Conditions" lists these costs for economic operators using the service. For higher volumes, the fees are determined "by arrangement" (available under "resources" at: http://www.globalservices.bt.com/uk/en/products/air_logistics_cargo_community_system_uk)

[46] Customs Handling of Import/Export Freight (CHIEF) facilitates the efficient passage of legitimate goods into and out of the United Kingdom (non-EU trade)

UK Customs comprises two departments: HMRC[47] and Border Force[48]; other licenses are organised directly with other government agencies[49] (which are largely paper-based). Nonetheless, electronic customs operations in the UK have a long history. HMRC has a Customs Handling of Import and Export Freight (CHIEF) Computer System which dates from 1994 and replaced previous electronic systems. The system facilitates - controls, records and checks - the efficient passage of legitimate goods into and out of the United Kingdom by road, sea and air.

A replacement for CHIEF is under development, in part because of EU legislative changes. CHIEF interacts with five trade CSPs which serve hundreds of carriers, transit sheds and freight forwarders to record and track the movement of goods within ports and airports.

Electronic customs operations in the Czech Republic

Electronic customs systems came much more recently to the Czech Republic, just a few years ahead of its accession to the EU in 2004. The EU-wide NCTS (New Computerized Transit System), used for transit operations within the EU, became the pilot area for the Czech Republic's first electronic systems for processing customs declarations. The system was developed to completely replace the physical exchange of documents between declarants and the Czech Customs Administration and to act as the single interface (known as the "ECR gate or gateway")[50] for this communication. As such, the Czech Republic's present electronic customs system was developed essentially from scratch alongside the introduction of EU systems. This makes it a very different case study to the UK where legacy systems were firmly in place when EU systems were introduced.

Also in contrast to Heathrow Airport, there is no CSP as such at the airport in Prague. Rather, for customs procedures economic operators - traders and traders' (in)direct representatives - have two options for electronic communication with the Czech Customs Administration (CCA) via the ECR gateway. They can either use a (free) **Web Client** to interact directly to the ECR gate (used by 21% of traders or traders' representatives[51]) or use a **Value Added Network (VAN) operator** to submit an XML message to the ECR gateway (used by 79% of traders or traders' representatives) - Figure 18. The role of the VAN operator in this case is purely technical, i.e. resending XML data from traders' domain to the customs domain but not on their behalf[52]. Companies which are VAN operators must be certified by the CCA[53].

[47] Responsible for Collection / enforcement of taxes (import VAT, excise / customs duties); Regulation, control and facilitation of international trade; Customs policy, procedures, systems and legislation and HMRC has primary responsibility for processing import and export declarations and carrying out pre and post clearance controls at the National Clearance Hub

[48] Border Force is responsible for carrying out anti-smuggling checks and any physical checks on imports and exports that are required at UK points of entry and exit for either regulatory or anti-fraud purposes

[49] Such as the Department for the Environment, Food and Rural Affairs (DEFRA); Department for Business, Innovation and Skills (BIS); Rural Payments Agency (RPA)

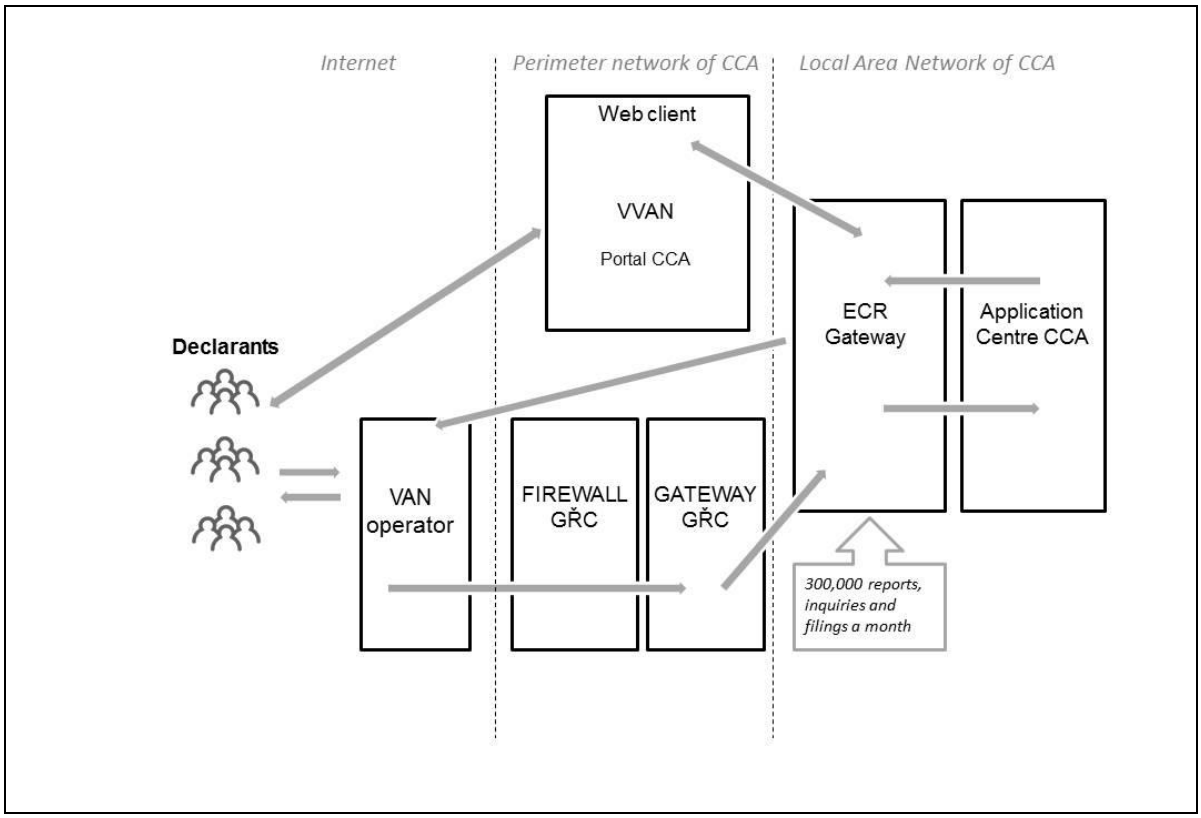
[50] See http://www.aquasoft.eu/en/pripadova-studie/11_central-electronic-gateway-for-online-communication-with-the-declarant-public.htm for description of the gateway and its usefulness.

[51] Figures based on situation in September, 2014, 1854 economic operators were in use.

[52] Using a VAN operator is necessary if the trader or traders' representative use commercial software which does not directly connect to the ECR gateway.

[53] There are presently three firms certified for this procedure: CNS, Transoft and NZService.

Figure 18: Schematic of information exchange between declarants and the Czech customs authority (CCA)



Source: TEP, adapted from a diagram provided by CCA

Important for understanding the aims and functioning of electronic customs system in the Czech Republic, is the development of guaranteed electronic signatures. Guaranteed electronic signatures are a "legally sufficient means of identity verification and irrevocable assignment of responsibility for the provided data"[54]. In other words, legal responsibility can be properly assigned through the use of these signatures, preventing misuse and the falsification of customs documents.

Benefits and drawbacks

The benefits and drawbacks of electronic systems at Heathrow Airport and Prague Airport are best understood with the two contextual aspects outlined above in mind. Namely, whereas Heathrow is a hub airport with the third highest volume of cargo handled in the EU, the same cannot be said for Prague Airport. Furthermore, the benefits – and indeed drawbacks - of electronic custom operations in the UK, where such systems have been in place for nearly half a century, and in the Czech Republic, where systems are by contrast relatively new, are likely to diverge in some respects. Finally, through our fieldwork we discovered the benefits and drawbacks of electronic customs operations (at times) differed depending on the actor asked.

It is worth mentioning at the outset that every effort was made to quantify benefits and drawbacks for stakeholders involved. However this proved difficult for some of the

[54] See http://www.aquasoft.eu/en/pripadova-studie/11_central-electronic-gateway-for-online-communication-with-the-declarant-public.htm

above mentioned reasons. For example, in the UK, the system has evolved a great deal over time, making it impossible to imagine a system which does not operate primarily through electronic systems and difficult to estimate how the developments driven by the e-Customs Decision specifically have impacted all the different types of stakeholders involved. In addition, the fact that there are various different actors involved at different stages is an added layer of complexity.

Benefits

Universal benefits identified relate primarily to the **efficiency and effectiveness** of operations which can be now be automated. This not only means that they can operate around the clock, it also results in time and labour savings as well as a reduction in errors (for example in calculating duties payable). The time taken for a (straight forward) customs declaration to clear was estimated to be ten minutes, according to economic operators in the UK. Where documents are examined, this might increase to around two hours; while a physical examination of the goods could take up to 24 hours (although this was harder to estimate). Interviewees in the Czech Republic were able to tell us that the system pre-clearance time before electronic customs systems used to take five days, and all documents were delivered in person to the customs office. Nevertheless, we heard from many economic operators that they are always pushing for processes to be faster since their competitiveness relies on speed.

The electronic exchange of information also, we were informed, makes it **easier for errors to be identified** and attributed to a responsible party. As explained by a CRSP interviewed in the Czech Republic, "*We are placed in the middle of the two stakeholders [economic operators and customs authorities] so we can see errors made by either side. We can follow the history of all transactions and also act as an arbitrator – this can be used in case of issues arising and resulting penalties*."

Assigning responsibility and legal liability was an important aim driving the development of electronic customs in the Czech Republic, which was described as "a *clever solution for long-term record-keeping, including legally binding guaranteed electronic signatures, prevents misuse and falsification of customs documents*"[55].

We observed through our interviews that, when economic operators pay for IT solutions for filing customs proceedings they can benefit from added **support**. For example, a helpline or support desk email address in case assistance is required. Lastly, increased **visibility** – knowing where a consignment is at any given point in time – was another commonly cited benefit.

For customs authorities in particular, another important benefit is that the increase in the speed of processing declarations has not come at the expense of security; in fact the opposite was found. As expressed most emphatically by the UK representatives for customs, the digitisation of customs proceedings has actually meant that it is **easier to profile for risk**. However, in the context of EU systems (particularly ICS) this has not been an outright success for all parties, as explained in more detail below.

Drawbacks

From the perspective of businesses their main concerns can be summed up in a one word: ***certainty***. It is the *cost* of change and uncertainty which troubles them. As

[55] See: http://www.aquasoft.eu/en/pripadova-studie/11_central-electronic-gateway-for-online-communication-with-the-declarant-public.htm

such, drawbacks are costs which result from implementing change or uncertainty, which makes planning difficult.

In the case of Prague and Heathrow, the technological solution(s) for passing information to customs authorities were developed by a private business, or businesses. By extension, **the costs and the risk of developing the systems** were borne by private companies. These private companies must also collaborate with the customs authorities developing systems which are compatible with legislative requirements. The cost involved in setting up these systems is commercially sensitive information which was not shared with the evaluators. From our interviews, we know that to a greater or lesser extent retainer fees and on-going messaging costs allow private companies to recuperate their investment costs. Nonetheless, all legislative changes have a cost of implementation. Interviewees emphasised that when change is required by legislation, it is preferable a) that it is incremental and b) that sufficient time is given to prepare, plan and introduce the necessary changes.

Economic operators interviewed as part of the case study in the UK and the Czech Republic implied that these charges for using a commercially developed messaging service by an independent provider are not onerous. More importantly, for those who make the **commercial decision** to use either a VAN operator or CCS UK, the benefits outweigh the costs especially if they consider the costs of developing alternatives in-house. The cost of membership and messaging fees in the UK's CCS-UK's community is detailed in the annex of the terms and conditions[56].

In addition, the EU systems specifically were not immune to criticism from economic operators. In broad terms, what emerged from the interviews in the UK particularly was the dissatisfaction with the rollout of ICS, although there were also grievances in related to ECS. Although the objective of the system was valued in the UK, it was described as hugely costly, without comparable benefits for those in both the private and public sector undertaking the main burden of implementing the changes. The main criticism was the quality of the data but it also points to a more structural criticism: the need to – constantly – (re) assess EU systems against their original aims and to be purposeful. Feedback from interviewees in the UK showed that the widespread consensus was that **ICS has not achieved its aim because of poor design and rollout.** In the Czech Republic, ICS was also criticised but – perhaps tellingly – only by economic operators, and for technical reasons. We heard how pre-clearance had become more complicated and less timely for freight forwarders who trade on speed. By contrast, the EU systems in place were roundly praised by the customs authorities in the Czech Republic.

A final drawback relates to the risks of a complete reliance on electronic systems. This makes the system vulnerable to **cyber-attacks and/or system outages**. Interviews conducted in relation to the experiences at Heathrow reported that, were the system to fail, the airport could continue to function for four hours, before flights would need to be cancelled. As such, in both countries, "fall-back" systems are in place which can kick in if for any reason the national systems are down. In the UK the national "fall-back" is managed by CCS UK[57].

[56] Pp. 24 of the "BT CCS-UK Terms and Conditions" lists these costs for economic operators using the service. For higher volumes, the fees are determined "by arrangement" (available under "resources" on this page: http://www.globalservices.bt.com/uk/en/products/air_logistics_cargo_community_system_uk)

[57] As per the terms and conditions of CCS UK (pp. 11) "A fallback service to cover occasions when CHIEF is, or communications to CHIEF are, unavailable or there is a material reduction in performance in CHIEF or such communications or there is planned outage of CHIEF. Clearance

Future plans

Neither the UK nor the Czech Republic have yet built a full single window environment (a working definition of single window as per the UNECE is given in the Port Case Study, Annex 3 of this report). Rather, parts of the interaction between economic operators and other government agencies have been (or are being) digitised.

Customs officials were notably more optimistic in the Czech Republic about the prospects for a single window environment than those in the UK. This may have to do with the level of complexity of the legacy systems in the UK, compared to the relatively new systems developed in the Czech Republic.

In the Czech Republic, the customs administration IT expert interviewed was clear that they "see the future in single window". Accordingly, "a single window would mean all the communication with other authorities (veterinary, ministry of environment, which issue CITES licenses) was managed centrally." Currently the Czech Republic is working on a single window project funded by the Customs 2013 Programme[58]. The project covers three data areas (including an EU-based single authorisation[59])

In the UK, while there are plans to move towards a single window concept, it is generally considered to be some while away. Few government agencies have managed to digitise their licensing arrangements. But where this has been effective, in the case of ALVS (which is the automatic license verification system that controls decisions for regulated plants, flowers, seeds, planting materials, fruit and vegetables)[60], electronic systems have led to efficiency gains: once a release decision is shown and the Customs declaration has been submitted, clearance will take place in around 10-15 minutes, compared to up to 2 hours under the previous system.

When speaking with economic operators in the UK, we found them to be sceptical of how a single window might work. In the UK, HMRC is the only government agency which has within its service-level agreement the objective to facilitate trade. Therefore, any system which allows other government agencies (which are focused only – or primarily – on securing the safety and security of goods entering the UK) to have some level of control over goods (for inspection purposes) could result in delays.

Conclusions

As with seaports, changes in the systems for moving cargo in airports across the EU have been diverse. While in some cases (such as Heathrow), digitisation predates by more than three decades the e-Customs Decision, in others (such as Prague) electronic systems are much newer and more closely connected to developments in EU legislation. Airports in north-west Europe, such as Heathrow, have been quick to develop IT solutions and integrate customs clearance with port inventory systems for use by various different stakeholders as they seek to secure and maintain a

during the fallback may necessitate reference to the National Clearance Hub. Customers will be required to operate certain different procedures during fallback and customers may need to adapt their individual systems to operate with the fallback service."

[58] (due to end 30 November, 2014)

[59] Key point of international/EU communication is that the single authorisations relate to more than one MS and they always involve economic proceedings. This means that you can have one MS which releases the goods and another EU country which is responsible for checks of the proceedings before this single authorisation. Before this authorisation there is a system for communication between MS about requirements that need to be connected to the particular good.

[60] See "ALVS" (http://www.fera.defra.gov.uk/plants/plantHealth/imports/alvs.cfm)

competitive position as global logistics hubs and manage the movement of high volumes of cargo. Still, there are certain procedures which remain paper-based.

The case study illustrates the tensions resulting from situations where stakeholders have had to invest heavily to adjust legacy systems to meet new EU specifications without seeming to add substantial value to economic operators. This was clearly the case for ICS in the UK. By contrast, in the Czech Republic the cost of introducing ICS was less contentious, probably due to the fact that legacy systems were not an issue.

The different standpoints of the two cases at hand are reflected in the approach to the single window environment as well. On the one hand, stakeholders in the UK expressed scepticism about the possibility and need for a single window (content with the community system developed and concerned about how it would work in practice). On the other, the Czech Republic is embracing the objective of creating a single window and doing so in direct partnership (i.e. with funding provided by) the EU.

Case study on carriers - sea cargo

The case study on sea cargo offered the evaluation team an opportunity to explore the experience of this important industry in the global supply chain, its interaction with e-Customs systems and views with regard to future development. This case study is based on desk research carried out by the evaluation team and interviews conducted with economic operators and one of their representative industry associations. These in-depth interviews enabled the evaluators to probe issues which affect the industry related to e-Customs and were in addition to those conducted in the context of the in-depth interview programme and the case study on ports.

Background to sea cargo industry

Almost 90% (by volume) of the EU's external freight trade is seaborne[61,62]. Liner shipping is crucially important to global trade. According to its representative body, the World Shipping Council (WSC), 'Liner shipping could lay claim to being the world's first truly global industry'. Liner shipping, perhaps more than any other industry, makes a truly global economy possible, as gigantic container ships carry thousands of containers between continents, connecting businesses and people, and allowing them to buy and sell goods on a scale not previously possible.

Today's ships are able to carry more goods in one voyage than their forerunners: the size of container ships has grown from just 1,500 TEU[63] in 1976 to ships able to carry in excess of 12,000 TEU today[64]. In recent year, advances in the technology behind the humble shipping container, such as the development of the 'reefer' or temperature controlled container, has seen sea cargo capture market share for intercontinental freight from air carriers, particularly for perishable products such as foodstuffs.

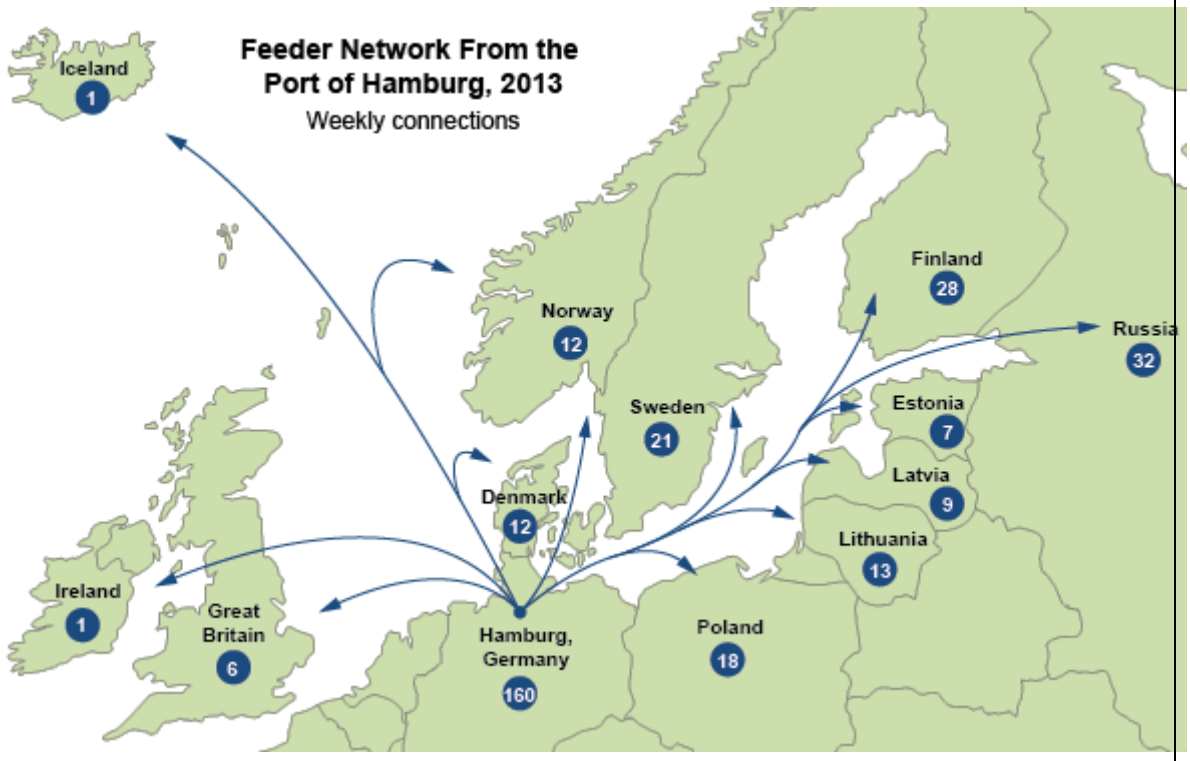
The sea cargo industry is based on a few key working relationships. The **shipping lines** which operate these vessels work with **freight forwarders**, who are often responsible for up to 60+% of the shipments to the EU. As the WSC explains "Freight forwarders are 'shippers'[65] in their relationship to the ocean carrier, but in turn they act as carriers, and resell the transportation service to their customers, who may be shippers in their own right (e.g. cargo owners) or may be other freight forwarders, who, again in turn, will have dealings and contracts with their own shipper customers".

Liner ships will typically ply intercontinental routes, transporting goods loaded in Shanghai, for example, to Rotterdam or Hamburg. At this point, while many containers will then be loaded onto trucks and trains by a **terminal operator**, a large proportion will continue via a **feeder service**: smaller ships transport containers transferred from the liner ship to so-called 'feeder ports', often in neighbouring countries. Feeder services from the port of Hamburg, for example, transport goods to feeder ports around the Baltic and North Seas, including other EU Member States and third countries such as Russia (see text box on feeder services, below).

[61] Although air cargo accounts for a higher proportion in terms of value (see air cargo case study)
[62] http://ec.europa.eu/transport/modes/maritime/index_en.htm
[63] Twenty-foot equivalent unit, the standard size of a multi-modal shipping container.
[64] World Shipping Council
[65] any person or organization paying for its cargo to be shipped from one place to another.

Feeder services

Feeder services operate connected feeder networks in Europe (including but not limited to EU Member States). They act as a vital link for international container shipping lines by providing them with easy coverage of ports and regions beyond their reach. Feeder services work in fixed schedules, with vessels providing rapid service from large hubs to and from smaller ports.



Source: Port of Hamburg (2013)

As with other operators in the global logistics industry, the feeder service operators we spoke with had invested in direct EDI (Electronic Data Interchange) connections with most customers, ports, terminals and authorities throughout the region. Among the advantages for the operator 'This gives a constant flow of information about the many container movements. Through EDI connections, we handle more than 10,000 transactions every day', ensuring benefits including: elimination of re-keying and data duplication:

- reduction of errors
- reduced data interchange cycle time
- improved customer service and response time
- reduced business transaction costs
- improved productivity, possibility of staff re-assignments
- improved access to real time financial data.

Electronic customs operations in the sea cargo industry

The role of the liner industry in the development of e-Customs operations has been important. As examined in our ports case study, they have often played a role in developing, and sometimes part owning, port community systems (PCS). These systems were set up to speed the flow of goods through a port by transferring data electronically. Interfacing with a PCS' message platform allows carriers to provide customs with the information required to complete a declaration almost instantaneously, relying on the data already contained in several operational and legal documents such as: the **ship's manifest,** a document listing the cargo on board a ship; and **the bill of lading**, issued by a carrier which details a shipment of merchandise and gives title of that shipment to a specified party.

Under existing regulations, the ENS data is capable of being drawn from information that is present in the carrier's bill of lading, which is, or evidences, the carrier's transportation contract with the shipper. According to the WSC, ocean carriers are generally able to provide the current ENS data in the time and manner required[66]. Feeder services are also subject to these requirements, where services from outside the EU feed into liner routes via EU ports.

Benefits and drawbacks

The economic operators we spoke with considered that the introduction of an **e-Customs environment had made a positive impact on their industry**. As had already become apparent from the ports case study, the move towards paperless systems had given rise to benefits to the liner industry as goods could be smoothly transferred upon arrival in Hamburg, having 'pre-cleared' before leaving Shanghai. This meant fewer delays, and less spent on storing goods in bonded warehouses as they waited to clear customs. The fact that port community systems had been in place for decades meant it difficult for economic operators to conceive how their operations might be handled by anything other than paperless systems, let alone to estimate how much they saved as a result of these processes being conducted electronically.

The costs related to e-Customs proved equally difficult to assess. Interviewees from large liner and feeder operators agreed that over the course of the last five years their companies had invested 'millions' of Euros in IT: consisting of both an initial outlay and operational costs, including retaining the services of a customs-related service provider or CRSP. Working with CRSPs and PCS enabled carriers to reduce the cost of training their own personnel.

Drawbacks highlighted mainly related to the imposition of additional obligations related to the introduction of trans-European systems (TES). Carriers are responsible for providing customs authorities with the necessary cargo details for all goods shipped on board a vessel. However, the necessary cargo details must be obtained from their customers (mostly shippers and freight forwarders). This led several carriers to argue in favour of **'dual filing'**, a practice in place in the US and Canada whereby both carriers and shippers are able to submit, independently of each other,

[66] As the WSC explains 'For many years, the industry has sought a solution to the difficulties, costs and inefficiencies associated with paper bills of lading. The obvious answer is to make the bill an electronic document. Electronic Bill of Lading or eB/L is the legal and functional equivalent of a paper bill of lading. An eB/L must clearly replicate the core functions of a paper bill of lading, namely its functions as a receipt, as evidence of or containing the contract of carriage and, if negotiable, as a document of title'.

information required to complete a declaration. As the WSC has previously indicated in a position paper, 'We continue to believe the "single" ENS filing approach is a mistake, and that ENS filings, which rely on bill of lading information, should be made by both ocean carriers and freight forwarders'.

One of the economic operators we interviewed explained that a fully electronic environment for customs was yet to be achieved, with some countries' administrations still insisting on the provision of hardcopy import manifests. This interviewee was in favour of the EU taking measures to harmonize this area, with one electronic manifest for "all use" (to functionality, technical specifications and data elements between all EU countries and establish only one platform within the EU for data exchange). All interviewees were sceptical of whether new developments would really result in their lives being made easier. 'Each time new ideas are implemented the results are often more work for the industry' summarised one feeder service operator.

Future plans

The interviewees were questioned about the DG MOVE initiative for a **single window in the maritime transport sector.** Currently the European Community has two major single window initiatives: (a) the single window initiative of the Directorate-General Taxation and Customs Union (DG TAXUD), aims at a community-level single window, and (b) the "maritime single window" of Directorate-General for Mobility and Transport (DG MOVE) aims to provide electronic exchange between the operators of maritime transporters within the EU.

While all interviewees were aware of the single window plans by DG MOVE, they were not all optimistic about its chances of harmonising the EU Member States' obligations for maritime reporting. As one commented, 'the EU Reporting Formalities Directive with its new single windows seems to end up with the same failure as we saw for the ENS, where each country (and even ports within the same country) set their own requirements forcing us to develop individual IT solutions for each port we call at within the EU'.

Conclusions

The e-Customs environment is key to the successful operation of intercontinental liner trade. Transporting goods to the EU from all corners of the globe in giant container ships would be unthinkable were customs operations in the EU's largest ports still paper-based. The benefits of an electronic environment are taken as a given, so much are they part of and necessary for the global supply chain, dependent as it is on speed, reliability and a seamless flow of data.

Some problems persist, however. Interviewees spoke of continued requests for paper manifests by some national customs authorities, and the desire to introduce 'dual filing' and thus reduce the burden placed on carriers was reiterated by both carriers and their representatives.

Evidence generated by this case study, as well as throughout our data collection exercise, points to continuing differences among the EU's Member States in terms of the data which is required to clear customs, even for the purposes of localised versions of trans-European systems. Given this experience, it is not surprising that the EU's single window plans (in both the maritime transport sector and for customs) meet with some scepticism by economic operators who desire a less diverse and fragmented regulatory environment across the EU's ports. The Commission will need

to coordinate its services and demonstrate the benefits that a single window environment can hold for economic operators, if they are to be brought on board.

Case study on carriers - air cargo

The case study on air cargo offered the evaluation team an opportunity to explore the experience of an important industry in the global supply chain, including its perceptions of the e-Customs environment and views about the future. In addition to desk research, interviews with both economic operators (air carriers and freight forwarders) and their representative industry associations enabled the evaluators to analyse numerous issues related to e-Customs that affect the industry.

Background to air cargo industry

Due to the speed and requisite expense of transporting cargo by air, it tends to be used for higher-value goods. Thus, despite accounting for only 2% of world trade *volume*[67], air cargo comprises just over a third of trade *value*[68]. The types of goods which make up the bulk of air freight transportation are high value, time sensitive products which are less suited to the (considerably) slower but cheaper option of sea shipment, which accounts for around 90% of global trade (see case study on sea cargo).

In recent years, the air cargo industry has steadily been losing market share to ocean cargo. There are a number of reasons for the weakening of the air cargo position: new fleets of larger capacity combination (passenger and cargo) planes have meant that supply has increased (while demand has not). In addition, growing concern over prices due to the global recession has led firms to opt increasingly for the cheaper option of sea transportation. Technological advances that have made it easier to transport perishables by sea, as well as issues like shifts in sourcing and trade flows more generally have also had an adverse effect. Nonetheless, parts of the market are bucking the trend, in 2013 "express air freight grew by 6% globally"[69].

The air cargo industry is supplied by three types of carriers:

- passenger or combination carriers (which carry both passengers and cargo) which may operate all-cargo freighter aircraft within their fleets;
- all-cargo carriers (which operate on routes where there is either little passenger demand or regular and heavy cargo demand) and finally,
- charter airlines[70].

In 2013, around a quarter of air cargo was carried on commercial passenger aircraft[71], but this may increase over the long term as global air travel "is expected to grow by around 5% annually until 2030"[72].

[67] "Shift to Ocean Erodes Air Cargo Market Share" Peter T Leach, JOC.com, 9 March 2013 (see http://www.joc.com/air-cargo/international-air-freight/shift-ocean-erodes-air-cargo-market-share_20140319.html)
[68] Air cargo transports over US$6.4 trillion worth of goods, approximately 35% of world trade by value." (http://www.iata.org/whatwedo/cargo/Pages/index.aspx)
[69] "The Freight Debate; Another argument for expanding Heathrow", The Economist, October 18th, 2014 http://www.economist.com/news/britain/21625881-another-argument-expanding-heathrow-freight-debate
[70] The Air Logistics Handbook: Air Freight and the Global Supply Chain (2013) by Michael Sales (p.3)
[71] The Air Logistics Handbook: Air Freight and the Global Supply Chain (2013) by Michael Sales
[72] http://ec.europa.eu/transport/modes/air/index_en.htm

The supply chain for air cargo is complex and fragmented, involving diverse actors and more intermediaries than sea transport. For example, a freight forwarder is usually involved as an intermediary, while for sea freight it is more common for importers or exporters to book directly with the shipping line. Freight forwarders tend to buy space on aircraft[73] (some have their own dedicated aircraft as well) and (usually) arrange for the collection and transportation of goods from the shipper to the cargo handler at the airport. The cargo may have to be stored temporarily while goods are consolidated. Licensed cargo handlers load the goods into the plane. At this point freight must be cleared through exit customs procedures. Once goods arrive, a licensed handler will unload them from the airport where upon they again need to be cleared according to customs requirements of the arrival destination, and security checks must be carried out.

At different points in the transit of goods by air, various documents are required, including but not limited to:

- The invoice, packing list and letter of instruction;
- Certificate of origin and dangerous goods declaration, where applicable;
- A master waybill (which constitutes the contract between the shipper and airline) and house waybill (contract between shipper and agent/consolidator for a specific shipment);[74]
- Cargo manifest (which provides a detailed list of goods);
- Export, import and security declarations;
- Customs export release, import release at destination.[75]

IATA, the International Air Transport Association representing 84% of the airline industry, has been pushing for the digitisation of (some of) these documents, with limited success so far.

Electronic customs operations in the air cargo industry

Electronic customs processes are an important feature of the air cargo industry, although experience and interactions with systems vary depending on the actor and the location concerned. Some points of entry have had electronic customs processes in place for several decades (e.g. UK), while for others; they are relatively new and coincide with EU accession and the related introduction of trans-European systems (e.g. the Czech Republic). Notwithstanding scope for improving these processes and considering divergent opinions among different stakeholder, existing electronic processes are perceived in a positive light (see benefits section below).

Despite the introduction and widespread usage of automated import and export systems and trans-European customs systems in recent years, there are residual paper forms required for the import and export of air cargo in the EU. For example, if a consignment is selected for inspection, supporting documents (such as the air waybill) may be requested, and these supporting documents are more often than not still paper-based, despite efforts to promote the adoption of an electronic-AirWayBill (e-AWB). Economic operators are also known to cite the difficulties of interacting with 28 different national systems which, additional to the common reporting requirements,

[73] This is arranged through a General Sales Agent (GSA) who represent an airline in a specific country or region

[74] http://en.wikipedia.org/wiki/Air_waybill and http://www.iata.org/whatwedo/cargo/Pages/air_waybill.aspx

[75] Source: The Air Logistics Handbook: Air Freight and the Global Supply Chain (2013) by Michael Sales (p.8)

often have their own – supplementary – requirements (see drawbacks section below). Indeed, the difficulty in navigating this complexity can to some degree explain the emergence of integrated solutions offered by handling agents, as explained in the box on the next page.

Handling agents

According to IATA, "*Airlines outsource more than 50% of ground handling* [worldwide] *and this trend is increasing*." Handling agents are contracted by airlines to provide all their "handling at a given airport, or this work can be divided between up to four subcontractors handling passenger and baggage check-in, cargo reception, transfer from cargo facility to the aircraft and loading" (Sales, 2013, p.8). Cargo handling takes place at airports around the world by big and small handlers, but they need to be licensed.

Integrated handling solutions, like "Cargospot Handling" provided by CHAMP Cargosystems, address some of the complexity of the information and control involved in cargo shipments, providing technical solutions. According to CHAMP's website, Cargospot Handling "*efficiently manages cargo handling operations and offers the ability to share data electronically with the operating carrier*". Services for airlines are numerous and include preparation of warehouse loading instructions, manifest printing, customs reporting and consignment delivery and processing.

Ideally, these services prevent air carriers from the need to develop and implement their own complex IT interfaces and lead to cost-saving benefits relating to customs such as:

- Faster processing of customs and other administrative requirements;
- Accelerated ability to react to changes relating to e.g. security processes;
- Reduced support and maintenance costs for IT systems;
- Interoperability with various administrative systems.

Sources: IATA[76]; CHAMP and The Air Logistics Handbook: Air Freight and the Global Supply Chain (2013) by Michael Sales

Benefits and drawbacks

For the same reasons explored in more depth in the airport case study, the costs and benefits are difficult to quantify, depending, for example, on the starting point before the (new) systems were introduced and the unique experiences of the stakeholders interviewed.

For an industry which has speed at the heart of its offer, it is unsurprising that **faster processing times** should be routinely cited as a benefit of electronic customs systems. As expressed by a representative of the industry: "We are fully supportive of automation across the globe as it brings more **data reliability and more predictability and reduces costs** (in the medium to long term)" The latter is achieved namely through the reduced need for manpower and administration (i.e. people handling paper) resulting from a move to automation. At the 2014 Air Cargo

[76] For example: http://www.iata.org/whatwedo/ops-infra/Pages/ground-handling.aspx

Handling Conference, electronic systems were promoted as being crucial to achieve: 'Data quality, data integrity, and data transparency'[77].

These benefits are not without costs and drawbacks. Indeed, the introduction/adaptation of (new) electronic customs procedures is resource intensive, requiring significant investment in IT systems. For example, one representative of the industry explained "ICS has however meant a big and expensive system development and training effort programme for all concerned including the 28 member states." Some carriers referred to the extra "burden" imposed by these systems which, they argued, were not matched by corresponding benefits. In this context, we frequently heard it is problematic (and a significant cost burden) to have to engage with 28 *different* national systems.

Our research also revealed there were barriers to realisation of potential benefits. According to one interviewee, the realisation of the benefits of e-Customs systems are prevented by the fact that there is still not a "true electronic customs environment" in the air cargo industry. While supporting documents (such as the air waybill) can be supplied in paper, the full potential of a more efficient customs operation is prevented. Furthermore, were heard that even where systems are electronic there is manual input into these systems. One carrier informed us that their IT air cargo system is "semi-automated and requires much user input and involvement. Ideally, everything would be automated but this is not the case."

Another problem faced by carriers is that while the regulatory burden falls on them to provide information that is true and correct on declaration forms, they are not the gatekeepers of this information per se. As expressed by one interviewee: "Most of the information required to advance data reporting to Customs is contained on the house air waybill (HAWB). In about 90% of cases the HAWB is drawn up by the freight forwarder and the carrier has limited means to always check the accuracy of the data." As expressed by one carrier interviewed: "We find it not right that – as a carrier – we do not own the required shipment information, but we are still held responsible [for it] by the EU authorities."

Future plans

In terms of where the industry is going and where many would like to see it go there are **two important trends** which both signal the desire for further simplification:

Firstly, from representatives in the industry there is a **push for full digitisation** wherever possible (e.g. the adoption of electronic air waybills) in order to fully realise the benefits of a paperless environment.

Secondly, and perhaps more importantly, stakeholders interviewed would welcome **centralised clearance** as this would remove the need to (re)submit information and interact with 28 systems in the EU Member States (and undertake all the costs associated with this).

When asked about the **prospects of a single window** the overall consensus was that – although there might be significant cost savings (both time savings and messaging cost savings from no longer submitting the same information multiple times) – the likelihood of major developments in this area in the short to medium term were viewed as low.

[77] Air Cargo Handling Conference 2014 http://evaint.com/our-events/air-cargo-handling-conference-2014

Conclusions

There are a number of lessons that can be drawn from the experiences of the air cargo industry:

- The costs and benefits of e-Customs systems are not the same for all actors involved, but rather depend on the information requirements (and reporting responsibilities) prior to the development and implementation of e-Customs systems, the capacity of existing systems, etc.
- For example, freight forwarders – who rely on speed - were likely to favour electronic customs systems, including the trans-European systems (NCTS, ICS and ECS) since it leads to faster processing times and more (although not fully) automated systems.
- On the other hand, we found airlines were less likely to be positive about developments which they viewed as burdensome with little tangible benefit in the short- to medium-term.
- We found that integrated handling solutions have been developed and are used by airlines as a mean of circumventing some of the complexity of the supply chain.
- We heard the importance of critically assessing the information requirements and responsibilities presented by new systems. For example, carriers are liable for providing information that is true and correct but they are not necessarily privy to full information on the contents of the goods they carry (see also sea cargo case study for similar problem).
- In terms of the limitations of the systems, we heard that:
    - Parallel paper-based systems (for supporting documents) prevent the full realisation of benefits.
    - The continued fragmentation in customs and related processes, and requisite needs for economic operators to deal with 28 different systems, is costly.

Case study on industry – The automotive sector

This case study on the automotive industry is intended to examine the customs dealings of a complex and multifaceted sector that is highly active in terms of import and export and both finished products and intermediate goods[78]. Among other issues, the case study examines the effects for the industry of recent changes to customs processes and procedures, particularly regarding costs and benefits of new and / or harmonised processes.In addition to information available in the public domain, the case study includes interviews with selected economic operators involved in customs processes and procedures.

Background

The industry's use of customs

The automotive industry mainly imports a mix of spare parts and raw materials, while it exports mainly spare parts and finished cars. Between 60% and 70% of spare parts imports typically take place between companies of the same group (i.e. subsidiaries, parent or sister companies). Raw materials are usually imported from third parties outside the EU. Firms we spoke to imported and exported to countries within and outside of the EU.

The value of exports is usually much higher than the value of imports for car manufactures, as the value added in the assembly process is considerably larger than the value of the raw materials imports in isolation. Additionally, they perform more customs procedures for exports than imports.

Status of e-Customs procedures for the industry

According to interviewees in the automotive industry customs declarations are submitted almost exclusively electronically in most Member States of Northern and Western Europe. In Germany, for instance, the use of electronic customs became mandatory following a law passed by the German Federal Government in 2008. However, interviewees mentioned that in some countries in Southern and Eastern Europe, such as Poland, Slovakia, Hungary and Portugal, customs declarations are handled using a mixture of electronic and paper-based methods.[79] For example, some interviewees mentioned that some Member State authorities require data to be provided in the form of Excel spread sheets. While these are technically electronic, their interoperability with other electronic systems used by the companies, such as for inventory tracking and invoicing, is limited.

It was also mentioned that not all customs operations are fully electronic; some elements that are being processed on a paper-based system. For example, while declarations submitted to customs authorities may be done electronically, hard copies of supporting documents (e.g. records or returns) are often required. These normally do not easily link to usual record-keeping practices for commercial purposes.

[78] For more detailed information about the customs dealings of the sector, refer to the European Automobile Manufacturers Association, url: http://www.acea.be/statistics/tag/category/imports-of-motor-vehicles.

[79] We note that the stakeholder who mentioned this simply stated that "customs declaration [are] handled in a mixture between electronic and paper based. All other documentation has to be presented [in] paper-based [formats] to the authorities but in some cases PDF files will be accepted." In the pharmaceuticals case study, one stakeholder mentioned invoices as one of the document types that is sometimes required to be shown and or kept in paper format.

Furthermore, as evidenced in interviews with traders, outward processing licensing was also described as still being done "manually".

Technology

Electronic systems and their users (direct and indirect)

Interviewees confirmed that the main trans-European systems employed are ECS and ICS (for exports and imports, respectively) and NCTS (for transit relating to both exports and imports) and were aare of them at a high level. However, stakeholders tended to be more familiar with the national e-Customs environment. For instance, stakeholders frequently mentioned ATLAS (*Automatisiertes Tarif- und Lokales Zoll-Abwicklungs-System* / Automatic Rate and Local Customs Clearance System) in Germany and AGS2 (*AanGifte Systeem van de Douane 2* / Customs Reporting System 2) in the Netherlands.

The main concern for stakeholders is their internal software that links their own commercial systems with the various interfaces in each Member State. Traders sometimes purchase these software solutions from specialist third parties. For example, one stakeholder mentioned that his firm uses a general "master system" provided by SAP and adapts that system so that it is interoperable with the national e-Customs environment in that stakeholder's Member State.

Traders had mixed views on the development of in-house IT systems. One stakeholder argued that developing internal software was considered prohibitively expensive, even for large car manufacturers. However, another stakeholder commented that updating an internal, in-house system was relatively straightforward. This stakeholder estimated that his firm invested between €250,000 and €500,000 to update internal IT systems to interact with the national e-Customs environment managed by the customs authority. While we appreciate that this is not a negligible sum, it shows that the development or adaptation of systems in-house can be commercially viable.

Interviewees mentioned that other systems such as the Binding Tariff Information database (EBTI-database), TARIC, and the Duty Suspension databases were very useful for them.

Promotion and communication

Training and advice provided to stakeholders

It was reported to us that companies had to take most of the initiative in terms of training and development costs. More details about the burden of these costs are provided below. Evidence from some stakeholders lead us to conclude that the guidance provided by customs authorities on how to follow procedures has not always been adequate in the past. Moreover, some companies have noted that they would be informed about changes in the customs procedures only shortly before they were implemented, increasing the costs of meeting their obligations in time.

The requirement for substantial training, however, may be linked to a large degree to how user friendly internal IT systems are. One stakeholder said that most of the training required internally to use his company's e-Customs interface was done "on-the-job" and that the system had a very simple system of drop-down menus, making extensive training on the system unnecessary.

The need for training, then, is partly dependent on the economic operator's efforts in designing a user-friendly interface for their IT systems. The development of these systems to comply with customs legislation, of course, depends on being alerted by the relevant EU and national authorities about the changes required, what the minimum functionality for the IT systems to achieve is, etc. Interviewee evidence suggests that receiving this kind of communication in time may make it somewhat easier to plan and build user friendly IT systems which in turn require less training. Where this information is not forthcoming in sufficient time, this is less likely to be possible.

Industry involvement in system development and implementation

Interviewees responses on whether they feel that they have been sufficiently involved in the development and implementation of systems for e-Customs are somewhat mixed.

On the one hand, some interviewees considered that companies have generally not been involved at the initial stages of these developments. According to them, it would have been beneficial for all parties if their input was taken into account.

On the other hand, another stakeholder stated that companies were involved in the initial stages of development and that this has been more or less successful. According to this stakeholder, during the transition stages to a newer version of the national electronic customs system, stakeholders from his firm and the industry at large had had an opportunity to give feedback on the their needs and how the e-Customs environment should function. This stakeholder's particular experience was with feedback in e-Custom's impact on import, export, warehousing, and various user notifications. On warehousing, while the system is not set to be rolled until 2016, the stakeholder believed that the views of companies have been listened to. Furthermore, they have had an opportunity to participate via user acceptance testing (UAT).

To some degree, then, the extent of industry involvement in system development and implementation will be determined at the national level. From the interviews conducted, it appears that stakeholders are more aware of and interact more with national customs authorities and their initiatives, national customs authorities act as a key liaison between the European Commission (EC) and EU level initiatives and the economic operators. This could potentially be remedied by the EC working more closely with national customs authorities to ensure proper communication of different aspects of e-Customs, such as existing and future initiatives, minimum requirements for IT systems, etc. Alternatively, the EC could engage directly with economic operators.

Benefits

Stakeholders considered that the main benefits that they have perceived from the implementation of e-Customs were:

- Lower overall costs for customs operations;
- Greater accuracy in customs declaration;
- Improved control over customs information;
- Better coordination in some practices across Member States that eases compliance (e.g., classifying goods according to a standardised and

common database across the entire community has reduced the administrative cost for traders);

- Reduced discretion for individual customs officials within the same customs authority and more uniformity in the way that all products are treated. This has been seen as positive because it partially reduces the uncertainty of conducting customs procedures.

One stakeholder indicated that his firm invested between €250,000 and €500,000 in their internal IT system.[80] This system interacts directly with the e-Customs environment in the firm's Member State and produces data sent to third-party customs services providers to manage customs operations in other Member States on the firm's behalf. This IT investment, however, is more than offset by staff cost savings.[81] Previously, the automotive stakeholder said that the firm had 10 full-time staff working in the firm's customs operations, with a salary of around €40,000 per year. Electronic customs systems have made the firm's customs operations far simpler and more streamlined, allowing the firm to reduce headcount in customs operations from 10 to 4 and the remaining staff spend half of their time on customs operations and half of their time on other tasks. Therefore, the e-Customs environment has allowed the firm to go from 10 full-time headcount to the equivalent of 2 full-time headcount, reducing staffing costs by €320,000 per year. Costs to train staff on using these systems, according to the stakeholder, were negligible.[82]

Assuming a life of 3 years for the IT investment, the stakeholder in question saw a net cost reduction between €153,333 and €236,667 annually. If the IT investment were allocated over a longer 10 year lifespan, the stakeholder in question enjoyed a net cost reduction between €270,000 and €295,000 annually due to the efficiency gains of electronic customs systems.

Table 10: Annual large firm-level cost impact from electronic customs systems

	Assuming 3 year IT lifespan		**Assuming 10 year IT lifespan**	
	Low	High	Low	High
IT investment	€ 83,333	€ 166,667	€ 25,000	€ 50,000
Staff costs for customs-related functions	-€ 320,000	-€ 320,000	-€ 320,000	-€ 320,000
Net cost	-€ 236,667	-€ 153,333	-€ 295,000	-€ 270,000

Source: Extrapolations based on stakeholder interviews

[80] A different stakeholder in the same industry estimated that it would cost around €50,000 per interface to upgrade internal systems to be compatible with e-Customs interfaces in a Member State (see "drawbacks" section of this section). Based on the figures presented in the main text, this would reflect investment for connection with between 5 and 10 interfaces.

[81] Feedback from providers of IT services at ports / Port Community Systems reinforces this point, as they were able to reduce human resources expenditure thanks to e-Customs.

[82] This contrasts with a different stakeholder that argued that "training a member of the staff would require about 5 days for NCTS and 1 day for ECS/ICS [for]... as many as 50 employees [at a large automotive manufacturer]" (see "drawbacks" section below). Assuming an annual salary of €40,000 and 250 working days in a year, training on NCTS, ECS, and ICS would cost around €48,000 for 50 employees at a large firm. Thus there would still be a net cost reduction from e-Customs.

Note: Due to limited data available, the figures are intended to illustrate the order of savings rather than provide precise estimates.

Economic operators also highlighted the quality assurance benefits of using e-Customs, particularly in relation to errors in customs declarations. One stakeholder mentioned that his firm had errors in 1 out of 10 declarations submitted previously, but the various components of the e-Customs environment has led to "virtually zero" errors. Fewer errors lead to lower administrative costs as there are fewer re-filings and fewer differences between the customs declaration and the actual features of the consignment.

In addition, electronic systems are considered to have a much better capacity to deal with the communication with customs authorities regarding specific consignments. According to the interviewees, the volume of these types of communications has increased and become more complex in recent years. This is largely due to communications regarding the passage of goods within the EU. Economic operators cited the ability to track a shipment of goods through the supply chain from point of entry to destination (or from origin to point of exit). Economic operators also cited general communications with the customs authority with respect to making customs declarations upon entry/exit.

Companies in many Member States have benefited from faster processing. However, this experience has not been uniform. Traders in some Member States have noted that the time required to clear customs has increased in recent years, consequently increasing some of the cost borne by firms, at least in the short term. This is explained in more depth below, but it largely relates to an increase in inspections coupled with the continued use of paper-based procedures for some aspects of the clearing and release process.

Companies generally had a positive view of NCTS and felt that other systems that are specific to each Member State would benefit from the same level of harmonisation. This system is viewed as the first customs interface system to be implemented across Europe with such positive results.

Drawbacks

All respondents emphasised that one of the biggest disadvantages from the existing systems is the wide heterogeneity across Member States. They considered that it would be very beneficial for trading firms if all system interfaces employed similar standards.

A stakeholder in the automotive industry said his firm pays third-party providers up to around €10,000 per month per Member State to handle aspects of their customs operations in other Member States. He was of the opinion that these functions could be brought in-house at a negligible cost if differences among Member States were eliminated. Therefore, we estimate that firms could benefit from around €120,000 lower administrative costs for each Member State in which they conduct customs operations per year if differences among Member State customs requirements were eliminated.

One interviewee estimated that customising internal systems to make them compatible to each new electronic interface costs about €50,000. The training costs might be significant. It was estimated that training a member of the staff would require about 5 days for NCTS and 1 day for ECS/ICS. Large car manufacturers might require training for as many as 50 employees to use these systems.

Interviewees reported that there has been an increase in the number of consignment examinations by customs authorities of several Member States. Stakeholders considered that many of these are inefficient, as the same cargo may be examined repeatedly by different officials. One interviewee reported that it can take up to three times longer to finalise certain customs procedures electronically than it when it was paper based. This statement and its conclusions could not, however, be corroborated in other interviews. One stakeholder commented that he felt controls, enquiries, and examinations had increased as customs operation become increasingly electronic, but that this was on the whole a good thing. Furthermore, this same stakeholder indicated that the increase in customs inspections did not lead to delays at the point of entry/exit, rather the time to see goods through the customs process had been reduced overall.

Regarding ECS and ICS, interviewees described how the information required by these systems was already contained in other systems, resulting in inefficiencies and imposing an additional cost burden to firms. The interviewee did not specify which data was duplicated or how (i.e. through which systems). We have no quantitative data to estimate what this additional cost burden might be.

Finally, some companies expressed unease regarding the number of changes introduced recently. Each change requires an investment on the part of the company. This fact might explain why some of them may be reluctant to fully embrace the developments in e-Customs procedures. We note, however, that although there were companies who were positive about the benefits of e-Customs in spite of the costs, there still may be scope to bundle future developments so that companies can benefit from synergies or economies of scope in the joint development of complimentary systems (to the extent that this is technologically and politically feasible).

Conclusions

In light of the above evidence, we make the following conclusions about the state of e-Customs in the automotive industry:

- While e-Customs has both EU and national level components, many stakeholders were more aware of national initiatives and were less familiar with EU-level initiatives. This points to the importance of national customs authorities in transmitting the priorities, requirements, and implementation of e-Customs to economic operators. National customs authorities' central position in the transmission of policy also determines to some degree how much economic operators benefit from e-Customs – or, indeed, if economic operators feel the benefits do not outweigh the costs.

- National governments also play a key role in the transition to electronic customs. Some governments (e.g. in Germany) have demanded the transition to electronic customs via legislation, while others have not. Proactive buy-in from national governments, we conclude, could facilitate the transition to a fully electronic customs environment across the EU.

- The usefulness of and need for training on the use of e-Customs depends partly on EU efforts, partly on national customs authorities, and partly on operators themselves. Economic operators are ultimately responsible for ensuring that internal systems are user friendly and fit for purpose in linking up to the national and pan-European e-Customs architecture, but clear communication from European bodies and especially national customs authorities facilitates the development of systems.

- On the whole, e-Customs has delivered net cost savings. Of course, economic operators have needed to invest in IT systems to link-up with the various components of the e-Customs environment, but stakeholder responses suggest that this has been more than offset by cost savings through e-Customs simplifying and reducing the time required to submit a customs declaration, reducing the number of human resources required for customs compliance, and reducing errors on customs declarations.

- Despite these net cost savings, stakeholders have identified additional improvements or changes to further implementation of various components of the e-Customs environment that would result in more benefits to economic operators:

    - Existing differences among Member States in the requirements for filing customs declarations is, in our view, the chief complaint from economic operators. Economic operators acknowledge progress made towards harmonisation, but see continued and maximum harmonisation as a key priority for future policy initiatives. In their view, this could save considerable resources and make the overall customs compliance process simpler. Interviewees expressed a positive view towards initiatives that provide a unified interface to prepare customs procedures in all Member States avoiding submitting duplicate information, such as the Cassandra project.[83]

    - Any changes to components of the e-Customs should be announced early and economic operators should be consulted prior to development and implementation. We note that some stakeholders considered that they were consulted adequately and well in advance of changes to their national e-Customs components, and that these stakeholders also had largely positive views of e-Customs. Those with more negative views tended to also feel that they were not adequately consulted beforehand. Again, this is to some degree up to national customs authorities to adequately transmit EU-level policy decisions.

    - Economic operators felt that while each individual component of the e-Customs environment was functioning adequately, there was unnecessary duplication of information. They argued that better implementation and interoperability among individual components (both at the national and EU level) could reduce duplication, which would result in more efficient operations and lower administrative costs.

[83] http://www.cassandra-project.eu/

Case study on industry – The pharmaceutical sector

A case study on the pharmaceutical industry is intended to examine the customs dealings of a complex and multifaceted sector that is highly active in terms of import and export and both finished products and intermediate goods. Among other issues, the case study examines the effects for the industry of recent changes to customs processes and procedures, particularly regarding costs and benefits of new and / or harmonised processes. In addition to information available in the public domain, the case study includes interviews and written correspondence with selected economic operators involved in customs processes and procedures.

Our findings for the case study on the pharmaceutical sector are presented below. We focus particularly on the background of e-Customs and general customs use in the pharmaceutical industry, interviewees' experiences, training, and perceived influence on the e-Customs environment, and perceived benefits and drawbacks of the use of e-Customs in the pharmaceutical industry. In light of this evidence, we present our conclusions.

Background

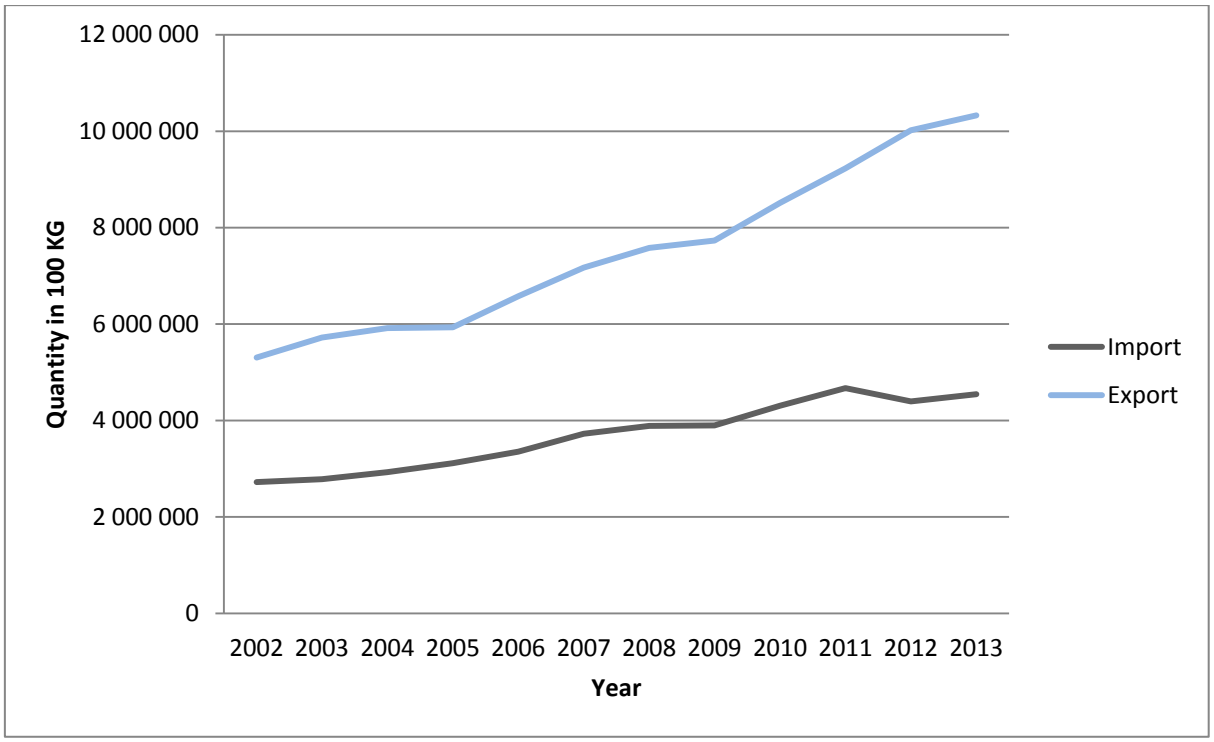
Customs operations in the pharmaceutical industry

The pharmaceutical industry imports and exports a mix of raw materials (especially active pharmaceutical ingredients [APIs]). Firms that we interviewed were involved in exporting and importing from their Member State to other Member States in the EU as well as countries outside of the EU.

One key feature of the pharmaceutical industry is that little or no duty is paid for the import of many goods, in particular raw materials. This creates a unique set of issues, particularly relating to the identification of duty exempt goods. We discuss these issues in more detail below.

Interviewees did not identify whether they were more active in importing or exporting. In general, the EU28 exports more medicinal and pharmaceutical products to countries outside of the EU28 in volume and value terms than it imports. This would suggest that it is likely that economic operators submit more declarations for exports rather than imports — as was the case in the automotive industry — but we note that the volume of trade is not a perfect indicator of the number of declarations submitted (the number of consignments declared might be larger or smaller).

Figure 19: Volume of imports from and exports to extra-EU28 to/from the EU28 in medicinal and pharmaceutical products



Source: Eurostat

Status of e-Customs procedures for the industry

As with the automotive industry, pharmaceutical companies based in Northern and Western European Member States largely deal with customs electronically. This is less the case in Southern and Eastern Europe, but stakeholders felt that the transition in those regions was well under way. For instance, one stakeholder mentioned that in Spain there is a law compelling companies to transition to using electronic customs by January 2015 (although he acknowledge that the deadline may be pushed back).

Where customs operations are transitioning to electronic formats, stakeholders highlight that this does not necessarily mean the paper-based methods and evidence of customs compliance on paper documents have disappeared entirely. As an example, one stakeholder noted that in Latvia customs authorities (as well as auditors) often require paper versions of certain documents, such as invoices, even if they were originally filed electronically. This stakeholder mentioned that although the move towards electronic customs was welcomed and more attractive than a paper-based system, a paper-based system still held some advantages over a fully electronic customs system. Reinforcing this argument, the stakeholder stated that while electronic systems could crash with the result that information is lost, this is not a problem in a paper-based system or with back-up paper copies.

Technology

Electronic systems and their users (direct and indirect)

As with the automotive industry, interviewees were more familiar with components of the national e-Customs environment. Interviewees were familiar with ECS, ICS, and

NCTS at the high level, but had a more detailed knowledge of their national systems, such as AGS2 (*AanGifte Systeem van de Douane 2* / Customs Reporting System 2) in the Netherlands and S4 in Spain. One e-Customs component that all pharmaceutical companies were very familiar with was the TARIC database, given the importance of duty status of consignments. We will discuss this in more detail below.

Most of the pharmaceutical companies we spoke to developed an in-house piece of software to engage with the national and EU systems. The software took the form of an add-on to their existing IT "master system", which in each case was SAP. These IT add-ons came from third-party developers. For one stakeholder with an annual company turnover of around €50 million, an SAP IT add-on with sufficient functionality costs between €30,000 and €40,000 to purchase and train staff on its use. From this, we estimate that an adequate system in pharmaceuticals could cost companies around 0.06% and 0.08% of annual turnover.

Some stakeholders used third-party customs related services providers, particularly when trading outside of their local Member State. They still need to develop some IT functionality to compile relevant data fields in appropriate formats, but stakeholders estimated that an IT system for interacting with third-party customs related services providers costs less than an IT system for handling customs completely in-house. In most cases, such an IT system simply compiles and aggregates required information into a text file, which the third-party providers can then automatically use to fill in customs documents in different Member States.

In addition, stakeholders in some Member States mentioned that a customs operator is a regulated profession and that each individual, rather than the company, needs to be certified to submit customs declarations and engage with other aspects of the customs compliance process. One stakeholder cited the need for the customs operator to be certified as the primary motivation for outsourcing some customs operations rather than do them in-house.

Promotion and communication

Training and advice provided to stakeholders

Relatively little training and advice has been provided to economic operators in the pharmaceutical industry, but on the whole stakeholders did not feel that they required much training or advice to successfully navigate the e-Customs environment.

An interviewee mentioned that even without formal training in the declarations process, he believed that the process is relatively straightforward for those responsible for dealing with customs. For instance, the stakeholder mentioned that that within thirty minutes of reading free DG TRADE online documentation he would be able to complete a declaration form. This demonstrates the ease with which declarations can be made by competent staff dealing with customs.

One area where stakeholders raised some issues with "advice" provided by authorities was on the classification of some APIs. We discuss this in more detail in the "drawbacks" section of this chapter, but we note here that stakeholders did not feel it was clear how to raise complaints, concerns, or requests with the customs authorities, which in turn led them to feel the communication with customs authorities was not sufficiently two-way.

Industry involvement in system development and implementation

Several interviewees indicated that national customs authorities have been receptive of and give due consideration to the views and needs of the industry when formulating and implementing policy. For instance, one stakeholder from a large multinational pharmaceutical company mentioned that the functional and technical specifications of e-Customs components at the national level generally match requirements as a result of consultation with traders and third parties.

This stands in contrast to the view of a stakeholder at a smaller pharmaceutical company. This stakeholder felt that there was an important distinction between larger companies and smaller companies in 1) the extent to which they can impact the design of systems and 2) the information flow about the e-Customs policy environment more generally.

With regards to the first point, it was this stakeholder's view that smaller companies have little influence over development and implementation, and that smaller companies are often compelled by legislation to transition to systems that they might not have adopted of their own accord. It is important to note that this particular stakeholder still felt that the transition to largely electronic customs operations was positive for his firm and the industry as a whole.

Additionally, this stakeholder from the small pharmaceutical company added that they do not receive information on the general customs policy environment and e-Customs from EU or national customs authorities but from trade bodies and service providers, including systems development and implementation. This stakeholder's company depends on their third-party customs related service provider ("REPRISE") and the local pharmaceutical trade association for information on customs developments. Without communication from them, this stakeholder commented, the company would not be aware of priorities and changes in the policy environment. The extent to which this is a function of the company's size, the Member State in which the stakeholder is located, or the general approach of the company to accessing customs is not clear. Larger companies in other Member States did not report relying on third-parties for information on the customs policy environment.

Benefits

Stakeholders considered that the main benefits that they have perceived from the implementation of e-Customs were:

- Better coordination in some practices across Member States that eases compliance (e.g. classifying goods according to a standardised and common database across the entire community has reduced the administrative cost for traders);
- Fewer errors on customs declarations;
- Better information for tracking consignments within the EU;
- Net cost savings.

The most common benefit cited by pharmaceuticals companies is the use of TARIC, Combined Nomenclature (CN) and the European Customs Inventory of Chemical Substances (ECICS[84]). These three databases are used variously by pharmaceutical

[84] Information entered on ECICS does not require any legal basis which can potentially create confusions in terms of duplication of chemicals leading to incorrect tariff

companies to complete their customs declarations. Although all economic operators will interact to some degree with TARIC and CN, standardisation and easy access to a centralised classification databases used across the EU is of particular importance for companies in the pharmaceutical sector, as most of what the sector imports and exports incurs zero duty or a reduced rate of duty. Common databases for classifying consignments have made the customs declaration process easier and more cost-effective.

In combination with common classification databases, the use of various e-Customs components (e.g. ECS and ICS) results in fewer errors. We received the same feedback from stakeholders in the automotive industry, but the accuracy of customs declarations appears to be especially relevant for pharmaceuticals companies from a commercial — in addition to compliance — perspective. If customs declarations do not contain the correct 4 digit addition to the TARIC code that identifies products are incurring zero or reduced duty, pharmaceuticals companies will pay duty in excess of their statutory obligations. All stakeholders interviewed acknowledged that this was the case, and one stakeholder mentioned that it is extremely difficult to reclaim money if too much duty was paid. Even if a company does receive the money in return, there can sometimes be delays, which may in turn cause cash flow problems.

Stakeholders were also sanguine about e-Customs enabling them to track consignments at different points in the supply chain with more accuracy (e.g. through NCTS). This has generated efficiencies in their supply chain operations. By way of comparison, stakeholders mentioned tracking goods through the supply chain was considerably more difficult under paper-based methods. This is particularly important for pharmaceutical companies as they sometimes ship products that require special conditions, such as refrigeration, while in transit and must ensure that they arrive to different points in the value chain on time.

On the whole, the use of e-Customs has presented net cost savings to companies. As mentioned above, one stakeholder noted that his company had invested between €30,000 and €40,000 on an add-on to their SAP master system that would allow the company to interact with the e-Customs environment. The same stakeholder mentioned that his company would save the same amount over the year due to reduction in administrative costs. In other words, the stakeholder estimated that the costs of IT system investment would be recovered over the first year of operation, but that the ongoing benefits would be enjoyed going forward.

Although we were not able to acquire any data to quantify with more precision the cost savings generated by e-Customs, we note that all stakeholders maintained that the use of e-Customs simplified their customs compliance processes and delivered cost savings. Words such as "cost effective" and "keeping costs down" were used when describing the benefits of e-Customs.

Drawbacks

Although stakeholders held largely positive views on e-Customs, they did highlight some areas for improvements or drawbacks to existing arrangements. They were:

- Heterogeneity among fields and formats in customs declarations across Member States;

classifications.
http://ec.europa.eu/taxation_customs/resources/documents/cefic_trade_facilitation.pdf

- Unclear channels to communicate with European authorities;
- Lack of a single window / centralised clearing.

Similar to the automotive industry, the most common shortcoming identified by pharmaceutical stakeholders was the heterogeneity of requirements in different Member States. Nearly all of the stakeholders cited differences among Member States as a key shortcoming in the current state-of-play, one reason for outsourcing their customs operations to a third-party.

Some pharmaceuticals stakeholders did not know how to raise any concerns, comments, or questions to the relevant European authorities. In the context of a smaller pharmaceutical company, as mentioned above, the stakeholder received most communication through trader associations or third-party customs services providers and was not aware of how to make sure the needs of his firm (and other smaller firms, like this one) heard in the policy making process.

Finally, pharmaceutical companies expressed strong support for a single window, although most did not identify the concept by that name. One stakeholder argued for an integrated system that can be used by a number of different authorities, including sanitary and phytosanitary, security, etc. Another interviewee from a large pharmaceutical multinational, who was aware of the single window as a concept, commented that while a single window would certainly be useful, perhaps even more important would be the introduction of centralised clearing of goods entering or exiting the EU through multiple points, which would be very important to a large multinational company.

Conclusions

Based on the above evidence, we can draw the following conclusions about e-Customs in the pharmaceutical industry:

- As with the automotive industry, stakeholders in the pharmaceutical industry were more aware of national initiatives and were less familiar with EU-level initiatives. This leads us to believe that national customs authorities are key in transmitting EU customs policy and is a key liaison between the European Commission and economic operators.
    - Smaller companies, however, are not always "plugged in" to developments with their national customs authorities, and instead rely on local trade associations or third-party customs related services providers to keep them abreast of policy and /or technical developments. Although the evidence we have here related only to smaller pharmaceuticals companies, it is likely to be the case for smaller companies in general. This points to the potential importance of engaging with trade associations or customs brokers to transmit policy to smaller companies.
- National governments also play a key role in the transition to electronic customs. This is through setting deadlines for the transition to e-Customs (e.g. January 2015 in Spain) and through designating customs brokers as a regulated profession.

- e-Customs has delivered a number of benefits, including:
    - Better coordination of practices among Member States. Chief among these is the common classification databases, including TARIC, CN, and ECICS. This is of great commercial importance to pharmaceutical companies as many of the products they trade are either zero duty or reduced duty.
    - Connected to the above, fewer errors on customs declarations. In addition to lowering general administrative costs and improving customs compliance, fewer errors also means the correct 4 digit add-on to the TARIC code that identifies duty status is accurately reported.
    - Better tracking of goods through the supply chain. This is important for pharmaceutical companies as some products they ship require special conditions, such as climate control shipping, or are otherwise time sensitive with respect to delivery.
    - Lower administrative costs.
- Although stakeholders argued that on the whole e-Customs provided benefits, they did identify some drawbacks or areas for improvement:
    - Different requirements for customs declarations in different Member States was the top area for improvement mentioned by Member States (similar to the automotive industry). Stakeholders in the pharmaceutical industry called for greater harmonisation of the fields and formats required for making electronic customs declarations.
    - Some stakeholders were of the view that they had little influence over the policy making and system specification process. One stakeholder at a smaller company argued that there was a divide between larger and smaller companies, and that in general smaller companies had less influence. We note, however, that this is not necessarily peculiar to or attributable to the European Commission or specific aspects of the e-Customs environment as such. This particular stakeholder commented that his firm did not have the resources to follow developments in the customs environment on their own.
    - Additionally, some stakeholders are unaware of how to voice their concerns at the European level. In one instance, a stakeholder felt that a product should be eligible for reduced or zero duty but, at the moment, it is not. This has considerable commercial implications for the company.
    - Finally, stakeholders called for more to be done in developing a single window. However, the development of centralised clearance of goods at multiple points of exit / entry was perceived as more of a priority by one stakeholder.