

THE IMPACT OF ICT ON CUSTOMS

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Abstract

For several years, international organisations including the Organisation for Economic Co-operation and Development (OECD), the World Bank, the World Customs Organization (WCO), the World Trade Organisation (WTO) and the European Union, have considered and provided recommendations on the use of information and communication technology (ICT) to enhance trade facilitation and to improve the processes of customs administrations. Now, governments, the business community and individuals are looking to improve their respective financial situation as a matter of absolute necessity during the current global economic downturn. Trade is a key ingredient to bolstering economic performance, and customs services are one component of a nation's trading profile. Prudent management of ICT is a means to reap benefits that impact positively on the effectiveness of all customs operations, and hence the improvement of national finances. This paper provides some definitions of ICT and identifies the importance of its use in customs environments.

Introduction

To understand the impact of information and communications technology (ICT) on Customs requires consideration of at least three questions:

- What are the relevant aspects of ICT?
- What is 'Customs'?
- What benefits, costs, challenges and risks typify the interaction of modern technology and the core business of Customs?

These questions create the backdrop for this paper.

Winston Churchill (1874–1965) once said 'If you have an important point to make, don't try to be subtle or clever. Use a pile driver. Hit the point once. Then come back and hit it again. Then hit it a third time; a tremendous whack'.

The 'important point' here is aimed at decision-makers within Customs and it is this: ICT is no longer just an enabler, it is fundamental to the future of customs administrations which must acknowledge that technology is a key strategic business issue and accordingly, draft, gain acceptance for and implement corporate business strategies and plans that incorporate ICT.

Definitions

One definition of ICT is:

an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video-conferencing and distance learning.¹

That is an extremely broad definition and modern customs administrations make use of each component described within it. In the interests of brevity and in the spirit of Churchill's quote, the focus of this paper will be limited to computerisation as it relates to information exchanges between Customs and its stakeholders in international trade.

The Wikipedia definition of Customs is:

an authority or agency in a country responsible for collecting and safeguarding customs duties and for controlling the flow of goods including animals, personal effects and hazardous items in and out of a country. Depending on local legislation and regulations, the import or export of some goods may be restricted or forbidden, and the customs agency enforces these rules.²

It is interesting to contrast this layman's interpretation of the role of Customs with the full array of functions managed by customs administrations globally. Without being unkind to Wikipedia, it is important to note the missing bits of core business that can fall within the ambit of Customs: management of passenger movements, crew, transit, excise, means of transport, transport equipment, coastal and land border surveillance, partnerships with industry, with other government agencies and so on; the global role of Customs is complex and relatively poorly understood.

For the purposes of this paper, 'Customs' is viewed in its widest possible context.

Why adopt ICT solutions?

At this time of crisis in global financial markets, anything that can be done to save money and to mitigate moves towards protectionism would seem to be good policy. The costs associated with inefficient procedures and systems for the trading industry can be enormous. In a 2003 Policy Brief, the Organisation for Economic Co-operation and Development (OECD) reported that:

...surveys suggest that border-related costs such as the expense of supplying the required Customs documents or the surcharges arising from procedural delays when importing goods could total as much as 15% of the value of the goods being traded...³

The adoption of ICT technologies coupled with the adoption of best practice in customs administrations (as described in the WCO's Revised Kyoto Convention) can reduce these costs substantially and, in so doing, limit arguments in favour of restricted trade.

The World Bank, in its 2005 publication 'Customs Modernisation Handbook', suggested that:

it is widely acknowledged that an open trade regime will only foster trade integration when a range of complementary policies is in place. One of the most important complementary policies is to put in place a well functioning customs administration that provides traders with transparent, predictable, and speedy clearance of goods. Indeed, a poorly functioning customs administration can effectively negate the improvements that have been made in other trade-related areas.⁴

The handbook continues by explaining the critical importance of ICT as a means to improve the overall efficiency of Customs.

There are a great number of high-profile arguments, statements and even legally binding decisions in support of the widespread use of ICT in the business of Customs.

In January 2008, the European Union (EU) adopted a decision ‘on a paperless environment for customs and trade’ that requires all Member States to take:

...measures to increase the efficiency of the organisation of customs controls and ensure the seamless flow of data in order to make customs clearance more efficient, reduce administrative burdens, help to combat fraud, organised crime and terrorism, serve fiscal interests, protect intellectual property and cultural heritage, increase the safety of goods and the security of international trade and enhance health and environmental protection. For that purpose, **the provision of information and communication technologies (ICT) for customs purposes is...crucial...** (author’s emphasis).⁵

The legally binding decision goes on to add that:

the Commission and the Member States shall set up secure, integrated, interoperable and accessible electronic customs systems for the exchange of data contained in customs declarations, documents accompanying customs declarations and certificates and the exchange of other relevant information.⁶

Those words sum up the nub of the argument contained in this paper: ICT is a critical strategic measure for modern customs organisations to manage the complexities implicit in today’s global trading environment. The decision by the EU goes on to specify aspects of how to do this – but more on that later.

There are many other sources that make statements or resolutions in the same vein as those just quoted from the EU’s decision. It is impossible in a paper of this kind to explore any of these in any depth, but a very short summary is provided below:

- As part of its Trade Facilitation Program for the Central Asian Republics Economic Cooperation (CAREC), the Asian Development Bank (ADB) has said:

The use of information and communication technology (ICT) for automation of customs services and data-sharing helps reinforce the member countries’ customs legal reforms and simplification of customs procedures, and improve transparency and efficiency of customs services.

ICT also improves governance and reduces corruption by reducing direct interfaces between customs officers and traders in customs clearance. Adequate ICT infrastructure is essential for introducing modern customs practices such as risk management, post-entry audit, and single window.⁷

- In 2005, the OECD released a trade policy working paper that made a similar case for the importance of ICT for customs best practice. It reads in part:

...customs automation...is one of the most powerful tools to increase customs efficiency. It [the working paper] focuses in particular on the benefits and implementation costs of automation. It is part of a series of studies that analyse various aspects of trade facilitation and the objective is to contribute to discussions in the WTO Negotiating Group on Trade Facilitation. Based on cost estimations in customs related lending projects, the paper finds that the costs for implementing, maintaining and operating automated customs systems are substantial. However, the very great majority of WTO members have already implemented such systems and past experiences show that the financial benefits in many cases have exceeded the costs over time. Among the various lessons learned from successful implementation of automated customs systems, two are particularly worth highlighting. First, automation should not be considered a panacea for trade facilitation; and second, commitment and financial sustainability are prerequisites for successful customs modernisation involving automation.⁸

There are similar cases made by the Association of Southeast Asian Nations (ASEAN),⁹ Asia Pacific Economic Cooperation (APEC)¹⁰ and national customs administrations all making the same basic point. There can be little debate that there is global recognition of the role of Customs in overall trade performance, and within that, the role of ICT. The remainder of this paper is devoted to some consideration of the ‘how’ – what are the international standard instruments that enable this desirable interaction of customs core business with ICT?

What are the ICT solutions?

First, it needs to be said that ICT applications and wider systems cannot exist in a vacuum. There are major issues of political will, leadership, legal context, resources and policy that must be considered. A holistic approach to systems development is essential but the means to develop such an approach is beyond the scope of this paper.

The greater use of electronic systems throughout the supply chain has led to more information being available in an electronic format for use by Customs and other government agencies. In addition to this structured trade data, the internet provides Customs with an invaluable source of information for its control and enforcement functions across the board, including valuation, identity management, goods classification and track/trace activities. This is a changed environment, and it has demanded a new response. The World Customs Organization (WCO) has begun a wholesale review of its structure, instruments and overall strategic response to modern demands. This is termed ‘Customs in the 21st Century’ (C21)¹¹ and provides a draft strategy and action plan for customs administrations everywhere to adjust their national or regional strategic plans. C21 is entirely consistent with the concepts outlined so far in this paper.

The C21 document is based on ten critical building blocks, including the implementation of modern working methods, enabling technology, globally networked Customs and better coordinated border management. All of these building blocks have a link to the strategic use of ICT, for example ‘Globally Networked Customs’ envisions ‘seamless real-time and paperless flows of information and connectivity’ between separate customs administrations. The Co-ordinated Border Management building block touches upon the vitally important need for governments to improve collaboration amongst border agencies and makes specific mention of the electronic trade single window. There are many existing WCO instruments relevant to the use of ICT, some of which are described later, but the important fact is that with C21 there is recognition at the highest levels of Customs internationally that ICT is of critical importance to the future, coupled with enhanced risk management, integrity, capacity building, trade partnership and a professional culture.

The WCO SAFE Framework makes specific mention of the importance of ICT/e-commerce in paragraph 6.2:

Standards 7.1, 6.9, 3.21 and 3.18 of the General Annex to the Revised Kyoto Convention require customs to apply information and communication technologies (ICT) for customs operations, including the use of e-commerce technologies.¹²

This shows further recognition within the WCO of the importance of ICT to help achieve best practice. There are a number of other examples.

The WCO Data Model¹³ is a harmonised maximum set of structured data elements that enables a standard means of communication amongst all parties involved more broadly in the regulation of trade and border management. The data model is more than a list of data elements: it includes actual process and information models where the standard processes are based upon those described in the Revised Kyoto Convention, for example, entry of goods for import, export or transshipment. Another important component is the detailed Electronic Data Interchange (EDI) and XML¹⁴ message implementation

guidelines as it is important to have not only a standard for data representation, but also the means to create messages between Customs and trade, Customs and other government agencies, and between customs administrations as envisaged in C21.

The Revised Kyoto Convention includes a comprehensive set of guidelines associated with Chapter 7 on ICT. They cover all manner of information for customs decision-makers when computerising or upgrading existing infrastructure. They cover business needs, tendering, purchasing, systems development, main application areas, security, audit, authentication technologies and legal issues.

The Integrated Supply Chain Management Guidelines (to be read in conjunction with the SAFE Framework) describe the means to enable the advance submission of manifest data; this is a critical aspect of modern customs controls and implies the necessary legal and ICT enabling environment. These guidelines were published in 2005 and include substantial reference to the WCO Unique Reference number (UCR),¹⁵ another important instrument, although not truly an ICT matter in its own right.

The WCO UCR will become more important as a means for all supply chain parties to be able to interrogate data stores and track consignments online. This has a number of important implications such as the potential to link change of ownership of goods whilst in transit to relevant transport documentation.

The UCR's potential to link commercial and transport documentation offers the means for Customs to perform post-transaction audits more effectively, for example, cargo accounting reconciliations. The UCR is based upon an ISO standard unique reference,¹⁶ and the WCO is working with the ISO to ensure the standard is being upgraded to meet Customs requirements.

In alignment with the SAFE Framework of Standards, the WCO has used the Authorised Economic Operator (AEO)¹⁷ concept to boost the adoption of ICT techniques by industry. The AEO Guidelines are specific with respect to the importance of information technology for security measures but the more general message of the importance of keeping 'timely, accurate, complete and verifiable records relating to import and export' is relevant. There is more explicit reference to the importance of 'electronic data exchange capability' in the Guidelines as part of AEO requirements in the section on information exchange. The AEO Guidelines go on to say that prospective AEO's should be discouraged from 'continued reliance upon documents and hand signatures'.

Finally, the WCO has been active in the global development of the electronic trade single window concept. The WCO data model Version 3.0 (the current version due for final release later in 2009) caters for the data requirements of agencies beyond the customs domain such as human health and agriculture. There are moves to amend the SAFE Framework by the addition of a 3rd pillar 'Customs-to-Government' in recognition of the importance of collaboration. This issue has already been mentioned above in relation to 'Co-ordinated Border Management', which is a critical building block of C21 and seen by many as the definitive strategic issue facing Customs at present. An essential task in any moves towards an electronic single window is data harmonisation and in recognition of that fact, the WCO published its 'Single Window Data Harmonisation Guidelines' in February 2007 as a simple and practical guide to performing this vital activity. The United Nations has been active in this area as well, and there is universal adoption of its recommendation on the single window concept, including a widely quoted working definition. The Single Window has a very significant number of legal issues, both at the national level for the interaction of Customs with other agencies and at the international level. In November 2008, the WCO started a 'joint legal task force' with UNCITRAL, the United Nations' expert body on international trade law. This task force has a mandate to create a template for parties to evaluate the legal issues associated with the Single Window, and to develop suitable legislative, contractual or other legal infrastructure to support it.

Other than the WCO, there are international bodies with important roles in setting global standards that foster the better use of ICT by Customs and other supply chain participants. ISO has already been mentioned but another important body is the United Nations Centre for Trade Facilitation and e-Business,

or UN/CEFACT. In conjunction with the ISO, CEFACT has published the widely used ‘Trade Data Element Directory’ (TDED) which contains nearly two thousand separate data elements covering all parties involved in international trade such as retail, banking, transport, travel/tourism and insurance as well as Customs and other government agencies. Every data element in the WCO data model has been matched with entries in the TDED. In recent years UN/CEFACT has been developing a so-called ‘Core Components Library (CCL)’ of the critical aspects of data used in trade, as part of its Core Components Technical Specifications. The WCO is working with CEFACT to align its data structures with those of the CCL.

Standards for Internet-based data exchange are still under development or in their infancy. In particular, the ebXML initiative is under way to provide a full range of standards for electronic business and this work has been endorsed by UN/CEFACT and the WCO. The UN/EDIFACT standards – perhaps the best known of UN/CEFACT’s instruments – remain the dominant set of standards for defining data structures on a global basis for most types of business and government EDI documents used in international trade.

More information on this and many other UN/CEFACT instruments can be found at the CEFACT website, www.ece.org/cefact. The UN’s ‘Open Development Process’ implies that all its output is in the public domain at no cost.

The WCO and its members use CEFACT’s instruments on a daily basis to go about their core business, for example, country codes (Recommendation 3, also ISO 3166), trade INCOTERMS (Recommendation 5) and codes for measurement (Recommendation 20). Finally, there is Recommendation 33 on Single Window that was mentioned earlier.

The tools are in existence and the relevant standards-setting bodies are constantly upgrading them as needs be. The instruments described in this document are by no means a definitive list of global standards that can help Customs to better utilise ICT. Beyond international standards, there are many national and regional examples as well.

Conclusions

The development of paperless customs systems is seen as the crucial starting point for any country to influence the growth of e-commerce and thereby improve economic performance. The spread of ICT is an opportunity for customs administrations to strengthen their positions as the vanguard of strategic developments in all countries.

The International Chamber of Commerce (ICC) makes the case for the central role of Customs in the creation and fostering of a global e-commerce system by stating that:

Customs should pay special attention to their standards policies because they have the power to impose their requirements. These have special legal status and business people who have to observe customs standards, will tend, for convenience, to support their use in other interchanges. So customs become standards trend-setters and exercise considerable influence on international standards strategy.¹⁸

This is an important dimension to the customs role vis-à-vis ICT. At the beginning, it was argued that one issue stands out as the most important in this paper: that customs administrations must incorporate ICT into their strategic decision-making. This quote from the ICC adds weight to that by making the case that whatever Customs decides tends to set the standard for others to follow.

For its own part, and building upon the strategy outlined in the Baku Declaration,¹⁹ the WCO must ensure that its Strategic Plan addresses the strategic issues related to ICT in its broadest sense, as set out in this document. It is vital here to emphasise the fundamental significance of the Customs in the 21st Century Document, the Revised Kyoto Convention and the SAFE Framework of Standards. In this

context, the WCO will need to set the necessary priorities, trigger the required action plans and work with its Members to ensure the availability of resources.

The WCO will also have to increase its efforts to bridge the digital divide by coordinating its modernisation and capacity-building activities in the customs domain with other international organisations active in this field, particularly the Digital Opportunity Taskforce (DOT Force) set up by the G8 countries, and the United Nations Information and Communication Technologies Taskforce (ICT Taskforce).

Perhaps the last word on computerisation should be given to Robert X Cringely, of *InfoWorld* magazine: 'If the automobile had followed the same development cycle as the computer, a Rolls-Royce would today cost \$100, get a million miles per gallon, and explode once a year, killing everyone inside'. Hopefully, the global customs community can obtain the many benefits of ICT without flirting with such a terrible risk.

Glossary

application	A program or suite of programs written for a specific user activity.
authentication	The linkage of any entity in the physical world to its electronic identity. In data security, it refers to controls that either prevent or detect the tampering and/or accidental destruction of data, including message sender and receiver identity.
Authorised Economic Operator or AEO	Authorised Economic Operator (AEO) is defined in the WCO SAFE Framework of Standards as a party involved in the international movement of goods...complying with WCO or equivalent supply chain security standards.
Baku Declaration	A declaration on e-commerce adopted by the WCO Council at its 97th/98th Sessions in June 2001 that recognised the potential impact of e-commerce on the economic and social wellbeing of nations.
communication network	A system of interconnected communication facilities.
database	A collection of inter-related data stored so that it may be accessed by authorised users with simple user-friendly dialogues.
digital signature	A property private to a user or process that is used for signing messages over a communications link.
document	Any medium (including magnetic tapes and disks, microfilm and EDI/XML messages) designed to carry and actually carrying a record of data entries.
ebXML	Defined XML messages within standard business processes governed by mutually-negotiated agreements.
Electronic Commerce or e-commerce	Conducting business electronically, utilising a range of information formats and communication technologies.
Electronic Data Interchange or EDI	The transmission of data structured according to agreed message standards, between one computer system and another, by electronic means.
electronic forms	A document in which certain items have been pre-coded and into which variable information is entered.
information exchange	In the context of this document, the electronic exchange of information between computer systems.
Information Technology or IT	The management, acquisition, processing, storage and dissemination of vocal, pictorial, textual and numeric information by a micro-electronics-based combination of computing and telecommunications.

international standard	A formally recognised global standard agreed through a recognised international standard setting body, e.g. ISO, UN/ECE, the WCO.
Integrated Supply Chain Management guidelines or ISCM	An integral part of the WCO SAFE Framework of Standards which envisages end-to-end management of international supply chains through common control and risk management standards, sharing of intelligence and risk profiles and the routine exchange of customs data.
Internet	The global network linking computers from educational institutions, government, industry and individuals.
Internet Service Providers or ISP	Companies that provide access to the Internet, also called Internet Access Providers (IAP).
ISO	International Standards Organisation.
protocol	A formally specified set of conventions governing the format and control of inputs and outputs between two communicating systems.
SME	Small to Medium Enterprise (widely different definitions apply to these companies in different countries).
software	The programs, procedures and routines associated with the operation of a data processing system.
telecommunications network	See communication network.
UCR	The WCO Unique Reference number designed to identify goods at all stages in the supply chain.
UNCITRAL	United Nations Commission on International Trade Law (the core legal body in the United Nations responsible for international trade law).
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business (the United Nations body for trade facilitation).
UN/EDIFACT	United Nations Electronic Data Interchange For Administration, Commerce and Transport.
WCO Data Model	Maximum set of harmonised data elements required to cater for all government border regulatory needs.
World Wide Web or WWW	The graphical layer applied above the Internet. Where the standard Internet is text only, the Web is graphical in nature. Text and graphics, stored on servers, are transmitted via the network to client browsers where they are displayed.

Endnotes

- 1 SearchCIO-Midmarket.com, http://searchcio-midmarket.techtarget.com/sDefinition/0,,sid183_gci928405,00.html.
- 2 Wikipedia, <http://en.wikipedia.org/wiki/Customs>.
- 3 OECD Policy Brief August 2003, 'Trade facilitation: the benefits of simpler, more transparent border procedures', <http://www.oecd.org/dataoecd/35/50/8920454.pdf>.
- 4 http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2005/02/03/000090341_20050203145443/Rendered/INDEX/31477.txt.
- 5 Decision No 70/2008/EC of the European Parliament and of the Council of 15 January 2008.
- 6 Article 1, Electronic customs systems, Decision No 70/2008/EC, 15 January 2008.
- 7 ADB CAREC Regional Trade Facilitation Program, <http://www.adb.org/Projects/TradeFacilitation/ictcustoms.asp>.
- 8 OECD 2005, 'The role of automation in trade facilitation', OECD Trade Policy Working Papers 22, 17 October, OECD Trade Directorate.
- 9 TN/TF/W/105 26 May 2006, WTO (Submission by Singapore to WTO on behalf of ASEAN).
- 10 APEC Trade Facilitation Action Plan Scope.
- 11 See www.wcoomd.org.
- 12 WCO 'SAFE Framework of Standards, June 2007', http://www.wcoomd.org/files/1.%20Public%20files/PDFandDocuments/SAFE%20Framework_EN_2007_for_publication.pdf.
- 13 See WCO general website http://www.wcoomd.org/home_wco_topics_pfoverviewboxes_tools_and_instruments_pftoolsdatamodel.htm.
- 14 Extensible Markup Language – the language of the internet.
- 15 Refer to WCO Compendium Number 5 of 2005.
- 16 ISO 15459, Parts II and VIII.
- 17 See Authorised Economic Operator Guidelines, www.wcoomd.org.
- 18 ICC Guideline 34 – Information Technology Standards.
- 19 Declaration on e-commerce adopted by WCO Council at its 97th/98th Sessions in June 2001.

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