Over the years, core Customs automated systems and Electronic Data Interchange (EDI) facilities have been developed and operated based on national requirements. These requirements arose from national legislation and local operational needs. Even though all Customs administrations require the same information on the same goods, a multitude of forms, data elements and electronic templates were adopted in various countries at different points in time, resulting in non-uniform, non-standard usage and handling of information.

International standards for electronic data requirements, such as the UN Trade Data Element Directory (UN/TDED) and the UN EDI for Administration, Commerce and Transport (UN/EDIFACT), were developed but they were core and generic – not tailor made for Customs. There were no international data dictionaries in existence for the Customs domain that would both harmonize and simplify Customs data requirements.

If UN/EDIFACT standard electronic messages for Customs purposes, such as CUSDEC for the import and export goods declaration and CUSCAR for the cargo manifest, did represent an organized approach in this area, there were no underlying conceptual data models governing the ongoing maintenance of these messages.

To respond to the challenge of non-standard systems of data, the WCO developed a Data Model. It contains a collection of carefully selected items of information – referred to as data elements – that are standardized, based on globally accepted norms, and organized in order to minimize the effort and cost to trade. The Model explains the business of Customs in terms of data submitted by traders and transporters for clearing goods across borders.

To explain the flow of data between trade and government, the WCO Data Model relies on the pattern of procedures followed globally by Customs, which are described in the WCO Revised Kyoto Convention. The most recent version of the Model – version 3.0 – goes a step further and covers data requirements of other government agencies for their respective border procedures.

WCO Data Model connects trade stakeholders

In recent years, there has been increased activity around the WCO Data Model among WCO Members and international organizations. But if most Customs IT systems seem to be, by and large, compatible with the Model, the question of their full conformity remains open. This article presents the latest information available on the adoption of the Model by WCO Members as well as future developments of this major WCO tool.
Adoption will require:

- and its Single Window benefits
- to promote the concept of the Data Model
- to negotiate, the economy and finance
- to be responsible for trade facilitation
- to be regulatory agencies
- to be administrations and cross-border
- to be industry groups

Engagement with private sector and
- to be strategy that will include business
- to develop an implementation
- to be agencies if the Single Window is to be
- to be engagement with border regulatory
- to be involved in policy, IT and operations
- to be engagement with senior managers
- to be development of a business model and a
- to be software applications

This renewed interest has also arisen from:

- The growth in the number of projects
  to be to establish Single Window solutions.
- The entry into force in several countries
  of a mandate on advance cargo reporting,
  notably via the implementation of
  Authorized Economic Operator (AEO)
  programmes.
- The fact that providers of information
  technology (IT) solutions for regulatory
  trade compliance are trying to build
  ‘pipelines’ to support the seamless flow
  of trade data.
- The WCO initiative on Globally
  Networked Customs which envisages
  close cooperation between Customs
  administrations through real-time
  exchange of commercial information.

In all these initiatives, the WCO Data Model,
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Who is adopting the Model?

Directors General of Customs often ask the
question about the number of countries
that are ‘implementing’ the WCO Data Model,
that is to say who is adopting the
specifications of the Model. Unfortunately,
this is not a question the WCO can answer
with certainty yet.

Information collated by the WCO suggests
that different countries are at different
stages of adopting the Data Model. This was
assessed by WCO experts through capacity
building field missions. Moreover, the 20
to 30 delegates of the WCO Data Model
Project Team provide briefs periodically
on the status of adoption of the Model in
their respective countries.

Recently, the WCO conducted a global
survey on Single Window developments,
which revealed that 25 of the 60 respondents
have adopted a version of the WCO Data
Model. In addition, based on information
shared by UNCTAD with the WCO, and
analysis carried out by both organizations,
it appears that the ‘ASYCUDA World’ system
broadly uses data elements that are in line
with Version 3.0 of the WCO Data Model.

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It is, however, impossible to make an
informed assessment until formal conformance
testing is carried out by experts on
a country-by-country basis and validated
independently. The assessment would
typically involve semantic comparisons
between national data sets, code lists and
information structures with those recom-
manded by the WCO Data Model.

What does adoption involve?

Adopting the WCO Data Model means
replacing or modifying information
models, which are at the core of any IT
system.

The ideal time for any party to adopt the
WCO Data Model is when new systems
development or large-scale overhaul is
taking place. It is indeed possible for
countries to make gradual, incremental
changes to their software applications to
bring them in line with the WCO Data
Model. Such changes can be brought in at
the time when routine software upgrades
are being performed, for example.

The WCO Data Model has been developed
as the maximum framework. Therefore,
countries need not adopt the Model in
toto, but may customize it to create profiles
that are in full conformity with national
legislation and make adjustments within
the constraints of existing data policies
and practices.

One has to be aware of the impact of the
modification made in a Typical IT sys-
<table>
<thead>
<tr>
<th>Non-conformant</th>
<th>Compatible</th>
<th>Conformant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses proprietary data structures.</td>
<td>Largely follows the WCO Data Model but has few variations in usage.</td>
<td>Follows the WCO Data Model for all practical purposes of information exchange.</td>
</tr>
<tr>
<td>Does not follow international standards.</td>
<td>Variations in usage can be overcome with minor but significant adjustments using ‘adaptors’ or ‘translators’.</td>
<td>National models are nearly true subsets of the WCO Data Model.</td>
</tr>
<tr>
<td>Too many deviations from the WCO Data Model.</td>
<td>The larger the number of adaptors, the more expensive it is for the trader to maintain software applications and to operate.</td>
<td>Deviations from the WCO Data Model are either non-existent or are immaterial.</td>
</tr>
<tr>
<td>Work-around not possible to meet data exchange requirements.</td>
<td>Does not stop the country’s participation in international data exchange, but may be limited due to expensive and complicated work-arounds.</td>
<td>Translators and adaptors do not play a significant role.</td>
</tr>
<tr>
<td>Direct Trader Input is the predominant mode of entry.</td>
<td>Development of a Single Window would entail serious challenges and high levels of effort.</td>
<td>Offers cost savings to the trader in terms of information re-use and access to low cost compliance solutions.</td>
</tr>
<tr>
<td>Costly for the trader to operate and maintain.</td>
<td></td>
<td>Facilitates participation in Globally Networked Customs.</td>
</tr>
<tr>
<td>Major obstacle to participation in Customs-to-Customs information exchange.</td>
<td></td>
<td>Facilitates the building of a Single Window environment.</td>
</tr>
<tr>
<td>Single Window development is infeasible.</td>
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</tr>
</tbody>
</table>

Countries that are non-conformant should replace their IT systems, countries that are compatible should gradually implement the Model, and countries that are conformant should publish statements illustrating how their national model conforms to the WCO Data Model. For this purpose, the WCO has developed data harmonization guidelines aimed at producing national data sets that can work like a correlation table, which can be used as a statement of conformance.

**Transparency and collaboration**
Invariably, Customs administrations publish detailed information on the electronic interfaces to their Customs
and Single Window systems, allowing trade and transport actors to build their respective IT systems to interchange regulatory and operational data. Even though this type of information is publicly available, knowledge about functioning national systems is still very local and is limited to a few consultants who sell their services to enterprises that provide software solutions to local traders and brokers. Alignment of national systems with the WCO Data Model would render this type of information in globally recognizable notations and references.

The direct beneficiaries would be software solution providers who could simplify and rationalize their software solutions for international trade. Internal software development and maintenance costs could be reduced when the complex, country specific requirements are rationalized into a package of requirements based on the WCO Data Model which will, while varying from country to country, still greatly simplify the effort involved in the management of requirements. This will encourage software providers to develop packages that can be used around the world.

Indirect benefits will occur to traders who will not only have access to cheaper software solutions but also be able to re-use upstream information in the supply chain, thus reducing time and the direct costs of regulatory reporting.

Collaboration between governments and software providers would bring down the costs of acquisition of information for all users. The users of the WCO Data Model should work closely to supply commonly used technical information to each other for mutual advantage. Interested parties could come together to solve business and technical challenges through the adoption of the Data Model, and thereby take advantage of technological advancements to further speed-up the deployment of IT solutions.

Derived products
The WCO Data Model Project team has developed several ‘profiles’ from the WCO Data Model. These profiles are forms, templates or other regulatory documents that are produced automatically by the system. For example, the Single Administrative Document, forms used by the International Maritime Organization (IMO) Convention on Facilitation of International Maritime Traffic, templates for electronic TIR Carnets and similar regulatory documents are being produced as profiles of the Data Model. The calculation of the value of a transaction is also covered. Additionally, it will help in ensuring uniform interpretation of the WTO Agreement on Customs Valuation.

Future development
Future development of the WCO Data Model involves publication of annual releases aimed at overcoming problems reported by individual countries adopting the Model. In relation to any new versions, it has been suggested that there should be no big-bang approach but rather an annual incremental growth of the Data Model.

It is recognized that adding any new functionality to the WCO Data Model should be based on agreed criteria, for example it should simplify reporting for trade, or it should remove obstacles that prevent a country from adopting the Model. In other words, projects to update the Data Model will be taken-up in manageable, annual cycles. Such an approach would further deepen the engagement of countries interested in upgrades.

Experts anticipate that the WCO Data Model will remain stable since no major change is foreseen to the core of the Model, even as new functionalities and features are added.

More information
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