行政院所屬各機關因公出國人員出國報告書

（出國類別：進修）

參加「世界關務組織資料模型第 3 版訓練課程」

服務機關：財政部關稅總局

姓名職稱：分析師　林清和

派赴國家：比利時布魯塞爾

報告日期：99 年 6 月 15 日

出國期間：99 年 4 月 5 日至 4 月 10 日

行政院及所屬各機關出國報告提要

出國報告名稱：參加「世界關務組織資料模型第 3 版訓練課程」

出國計畫主辦機關：財政部關稅總局

出國人：分析師　林清和 電話：(02)25505500 轉 2326

出國類別：□1 考察 ☑2 進修 □3 研究 □4 實習 □5 其他

出國期間：99 年 4 月 5 日至 10 日

出國地區：比利時布魯塞爾

報告日期：99 年 6 月 15 日

關鍵詞：世界關務組織、資料模型

內容摘要：關稅總局刻正積極辦理「優質經貿網絡」-「關港貿單一窗口」及「預報貨物資訊」計畫之規劃作業，其中資料調和爲前述兩項規劃作業之重點工作項目，整體通關(含預報貨物資訊)及簽審資料項目將依據 WCO Data Model Version 3.0 進行資料調和，故資料模型第 3 版之取得及全盤瞭解，將影響整體計畫進度。

據瞭解 WCO 已於本（99）年 2 月中旬發送 Data Model Version 3.0 予各會員國，惟限制複製副本，且 WCO 亦未正式販售，因我國非屬會員國，無法取得第一手資訊，爲瞭解新版資料模型之完整內容，故特別遠赴比利時布魯塞爾參加訓練課程，以取得相關資料。

目　錄

壹、緣起及目的

一、何謂世界關務組織資料模型（WCO Data Model）

（一）UN/EDIFACT 簡介

我國自 83 年實施海空運貨物通關自動化以來，即採用聯合國 UN/EDIFACT（United Nations/Electronic Data Interchange For Administration, Commerce and Transport）之 EDI（Electronic Data Interchange）電子資料交換標準作爲通關訊息格式迄今。

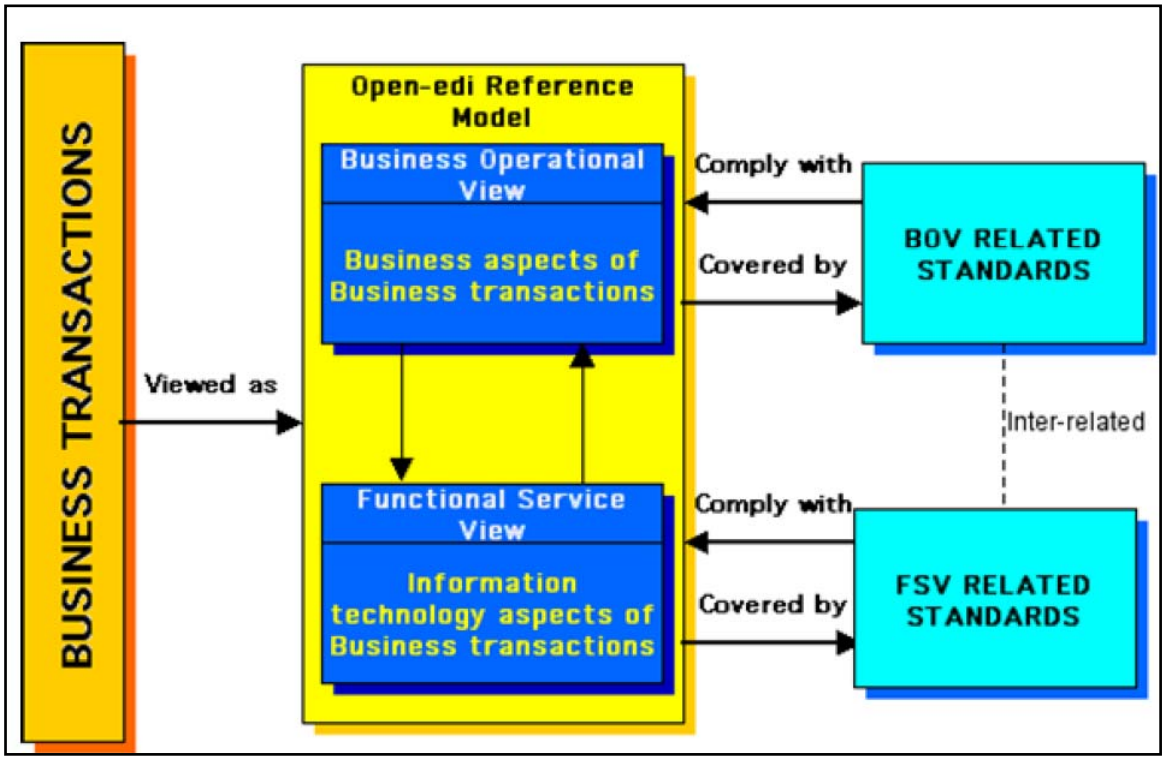
UN/EDIFACT 乃爲國際通用之電子資料交換標準，係由 UN/ECE（UN/Economic Commission for Europe）轄下之（UN/CEFACT United Nations Centre for Trade Facilitation and Electronic Business）所發展及維護，用以描述電子通訊交換的資料格式，該標準針對在電腦應用系統之間所傳送的資料訊息，訂定結構化的排列規則與共通訊息的標準架構。

UN/EDIFACT 不僅包含通關訊息格式，亦範圍亦涵括政府機關之申辦與回覆、商業交易及物流運輸等訊息格式。

（二）UN/CEFACT 建模方法論（UMM）

惟 UN/EDIFACT 之發展與維護過程並未採用模型化或稱建模（Modeling）之方法及工具，UN/CEFACT 爲因應網際網路（Internet）電子商務之蓬勃發展，爲避免商業規格及語意之誤解及誤用，遂發展關於業務流程和資訊模型建構的方法論-「聯合國電子化標準資訊建模方法論(UN/CEFACT Modeling Methodology, UMM)」，作爲軟體開發程序中最初之工作階段的標準化建模

程序，其最終目的爲發展 XML-based 之 ebXML（electronic business XML）標準。



圖一、UMM Open-edi Reference Model

（三）WCO 資料模型簡介

一言以蔽之，資料模型應可視爲一種電子資料交換之訊息標準。

WCO 資料模型亦遵循 UN/CEFACT 之 UMM 建模方法論，以設計出電子資料交換之訊息標準，而過程則採用模型化的工具或方式來歸納及推演出 EDI 的訊息建置指引（Message Implementation Guide, MIG）或 XML（eXtensible Markup Language）的檢核綱要（Schema）。

WCO 第 1 版及第 2 版資料模型皆專注於海關專用之通關訊息，惟第三版後爲因應政府單一窗口（Single Window）觀念之成型，遂增如其他簽審及航港機關之資料項目。

二、WCO Data Model 之演進

（一）七大工業國（G7）Data Model

1996 年在法國里昂舉行之七大工業國（G7）領袖高峰會議，各國領袖普遍認爲通關資料混淆、冗贅且無一套制度標準已變成貿易非關稅障礙，因此倡議調和及減少通關資料項目，以提升跨境貨物暢其流並降低貿易成本，爰開發 G7 Data Model。

1998 年在英國伯明罕 G7 高峰會時，英國海關受 G7 外交與財政部長之託，實施及測試 G7 Data Set 及電子訊息之通關雛型。G7 國家海關亦將按各自計畫建立 G7 Data Set 之通關雛型。G7 通關雛型將測試 G7 Data Set 及電子訊息是否符合進出口貿易資料之需求，評估貿易系統在傳送、接收、處理及回應訊息的能力，測試進出口報單分享共同資料結構的概念範圍，測試出口資料在不需矯正下能夠充作進口報單之程度，且提供海關與廠商確實之成本及利益。

在亞太經濟合作會議（APEC）中，1998 年發表之「電子商務行動藍圖」（Blueprint for Action on E-Commerce）中，宣示將推動貿易無紙化（Paperless Trading）之工作，盼會員體採取共同行動，以電子科技替代有關貿易管理、貨物通關、國際運輸之書面文件，訂定已開發會員體於 2005 年，開發中會員體於 2010 年或儘早達成貿易管理、貨物通關、國際運輸等環節無紙化之目標。

另外， G7 於 2000 年 7 月召開之財長會議通過關務專家小組報告，將進出口通關資料項目簡化爲 124 項[The G7 Date Sets Ver.17.0（as of

December 2000）]，進行電子報關文件之標準化工作，並推動通關單一窗口系統。

嗣爲使其擴大至世界關務組織之 161（現已增至 176）個會員及國際貿易組織應用及維護，G7 將其轉交由世界關務組織管理。

（二）WCO Customs Data Model V1.0

世界關務組織審查後，於公元 2001 年 12 月公布第 1 版之通關資料模型 (WCO Customs Data Model Version V1.01)；2003 年 10 月 1 日發行指導手冊。

WCO Customs Data Model 第 1 版之資料項目集範圍包括艙單、進口、出口 3 種，其中進口艙單包含 81 項、出口艙單包含 64 項、進口－1 段式，包含 113 項、進口－兩段式之第 1 段包含 84 項；第 2 段包含 100 項、出口－一段式，包含 100 項、出口－兩段式之第 1 段包含 47 項；第 2 段包含 72 項。轉運及轉口部分則尚未包含至此版本內。

（三）WCO Customs Data Model V2.0

2005 年 7 月 WCO 復公布 WCO Customs Data Model Version 2.0，除簽審方面之資料外，一般貨物通關資料幾乎已全部包括；2006 年 11 月 WCO 發行 WCO Customs Data Model Version 2.0 指導手冊。

通關資料模型第 2 版亦分一段式與二段式報關，資料項目集範圍包括進口艙單、出口艙單、進口報單、出口報單共 4 種，其中進口報單 1 段式包含 155 項、出口報單 1 段式包含 137 項、23 進口艙單包含 122 項、出

口艙單包含 95 項。

除第 1 版之艙單及報單資料項目外，第 2 版則新增運送報告以及依據一般轉運公約（Common Transit Convention）之轉運資料集。它也包括了其他國家政府機關(OGA)的資料，並使用了 UN/CEFACT 建模方法論來合併商業資料模式。

世界關務組織通過包含在「維護程序」章節之維護通關資料模式的規則及程序，此維護程序也包括了每 3 年將通關資料模式更新至最新版本。

（四）WCO Data Model V3.0

資料模型第 3 版與第 2 版最大差別是納入政府單一窗口（Single Window）之概念將 Customs 專用字眼拿掉了，即第三版亦納入其他簽審及航港機關之資料項目，故第三版不僅適用於海關，亦適用於所有貿易簽審機關。

WCO Data Model 第 3 版之資料項目集範圍包括進口艙單、出口艙單、進口報單(含一段式及二段式)、出口報單(含一段式及二段式)、運送報告（Conveyance Report）、轉運與轉口（Transit）及訊息回覆（Response）等 7 種訊息，其中包含 400 項基本資料項目及 5 種 Super Class - Document（28 項）、Government（6 項）、Location（43 項）、Party（112 項）、TransportMeans（15 項）等，共計 604 項之資料項目。

且 WCO 全球貿易安全與便捷標準架構（Framework of Standards to Secure and Facilitate Global Trade, 簡稱 SAFE 架構）」之預報貨物資訊（Advance Cargo Information）之資料項目亦包含在第 3 版資料模型中。

第 3 版資料模型亦介紹由 UN/EDIFACT 發展，適合政府單一窗口跨境資料交換使用之 GOVCBR（Government Cross Border Regulatory message）

訊息，其結構係由 CUSREP（Conveyance Report）、CUSCAR（Cargo Report）、CUSDEC（Goods Declaration）、CUSPED（Periodic Goods Declaration）、SANCRT （Sanitary Certificates）及 PAXLST（Passengers list）等訊息格式所組成，不僅適合跨境轉運進出口 B2G、G2B 之申辦及回覆，亦適合 G2G 跨國資料交換。

圖二、WCO Data Model v3.0 手冊封面

三、赴 WCO 總部受訓之目的

本總局刻正積極辦理「優質經貿網絡」-「關港貿單一窗口」及「預報貨物資訊」計畫之規劃作業，其中資料調和爲前述兩項規劃作業之重點工作項目，整體通關(含預報貨物資訊)及簽審資料項目將依據 WCO Data Model Version 3.0 進行資料調和，故資料模型第 3 版之取得及全盤瞭解，將影響整體計畫進度。

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貳、訓練過程紀要

本次訓練課程係針對私部門(Private Sector)所舉辦，除本人來自海關公部門外，其他皆來自私人機構，原本報名參加人數共 15 名，詳細名單如附件 1，因有 1 名迦納籍學員不克出席，故實際參加此次訓練課程僅 14 人，我國出席人員除本人外，另有「關港貿單一窗口及預報貨物資訊規劃委外服務案」之資策會規劃團隊林俊宏專案經理一同參加，其他參加學員主要來自歐盟成員國共 10 人，另有南非籍及迦納籍學員各 1 名。

本次訓練課程之時間表如附件 2，出國各日時程分述如下：

一、4 月 5-6 日：搭乘班機經荷蘭阿姆斯特丹飛往比利時布魯塞爾。

二、4 月 7 日：

早上約 08:30 步入 WCO 總部，於一樓接待中心櫃台報到，填寫課前問卷及保密切結，經安全檢查後，步入地下一樓約可容納 40 人之中型圓桌會議室，課程提供一內部訓練網站 IP(192.168.254.250)，學員以自行攜帶之筆記型電腦連結內部網路後，即可直接瀏覽本次課程相關資料。

內部訓練網站之資料內容即爲 WCO Data Model V3.0 資料光碟（DVD）之部分內容，包括 Home、Instruction、Business process models、Information models、Data sets、Electronic messages 及 Code lists。

09:00 由負責本次教育訓練之英國 Premier Airtime Ltd 公司總經理 Norbert Conchin 先生開場，並由各學員進行自我介紹，說明本身背景及此行之期望等。

09:30 即進入訓練主題，由 WCO 技術官員（Technical Officer）印度籍 Satya Prasad SAHU 先生講授以下內容：

（一）WCO Data Model Programme outline（附件 3）。

（二）WCO Data Model Introduction and background（附件 4）。

（三）Business Process Modelling（附件 5）。

（四）Data Harmonization（附件 6）。

（五）Information Modelling（附件 7）。

（六）WCO Data Model; Implementation（附件 8）。

（七）WCO Data Model & GOVCBR（附件 9）。

三、 4 月 8 日：

本日課程由 WCO 技術官員澳洲籍 Gareth Lewis 先生及印度籍 Satya Prasad SAHU 先生分別講授，其中 Gareth Lewis 先生之講授內容如下：

（一）WCO Data Model Instruments SAFE/RKC（附件 10）。

（二）WCO Data Model; WCO Legal Instruments（附件 11）。

（三）WCO Data Model； SINGLE WINDOW（附件 12）。

（四）WCO Data Model Co-ordinated Border Management（附件 13）。

（五）Customs in the 21st Century Globally Networked Customs（附件 14）。

而印度籍 Satya Prasad SAHU 先生則講授以下內容：

（一）WCO Data Model XML Guidelines Part I（附件 15）。

（二）WCO Data Model XML Guidelines Part II（附件 16）。

四、 4 月 9-10 日：啓程返國。

圖三、WCO 總部外觀

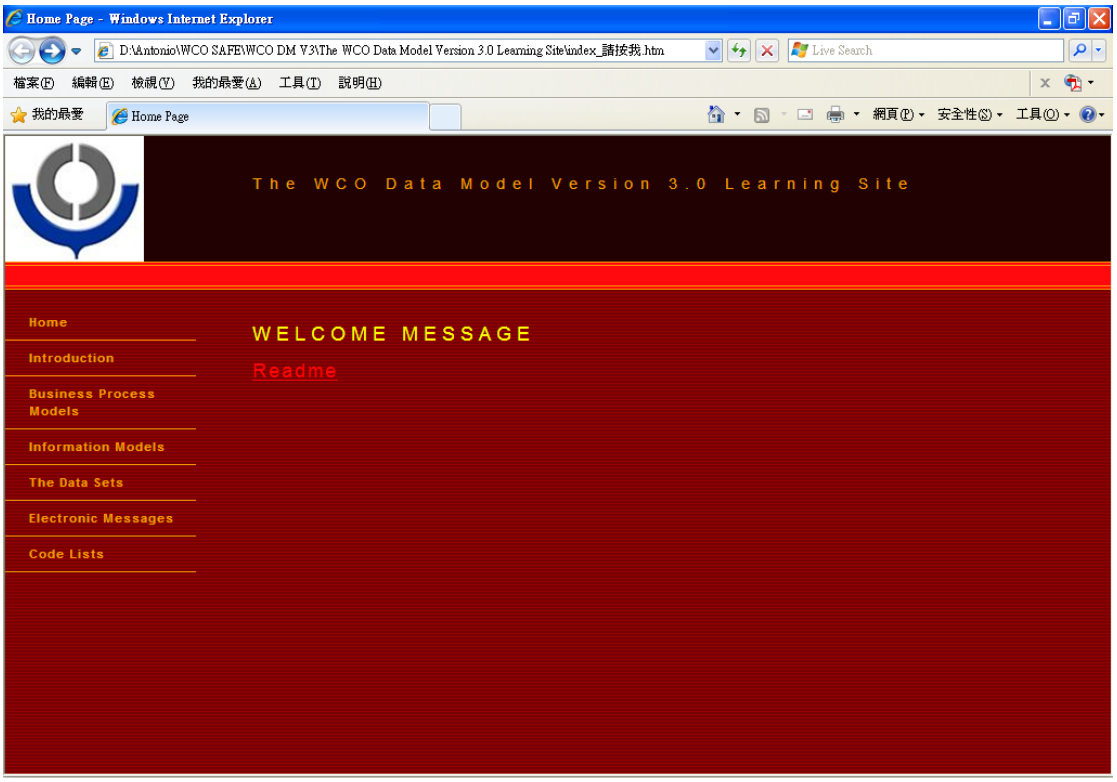
圖四、WCO 總部地下一樓會議室(訓練教室)

參、結論與心得

一、本次受訓之最大收獲

兩天的訓練課程快速且緊湊地結束，由於語言及口音的隔閡，許多簡報資訊並無法在課堂上即時理解，幸好本次訓練課程提供內部訓練網站，即自行下載本次課程包含 WCO Data Model V3.0 之資料項目集(Data Set)、類別圖（Class Diagrams）、EDI 訊息建置指引（MIG）及 XML 檢核綱要（Schema）等相關資料，有助於「關港貿單一窗口」及「預報貨物資訊」兩計畫之資料調和作業，實為此行最大收獲。

回國後，因 WCO Data Model V3.0 之資料龐大不適合以電子郵件傳遞，即以訓練網站之內容為藍本製作成光碟供資料調和組相關人員參考，並將資料項目集、EDI 訊息建置指引及 XML 指引等印製成冊以方便查閱。



圖五、WCO 訓練網站模擬光碟首頁

二、WCO Data Model V3.0 正式發行時間

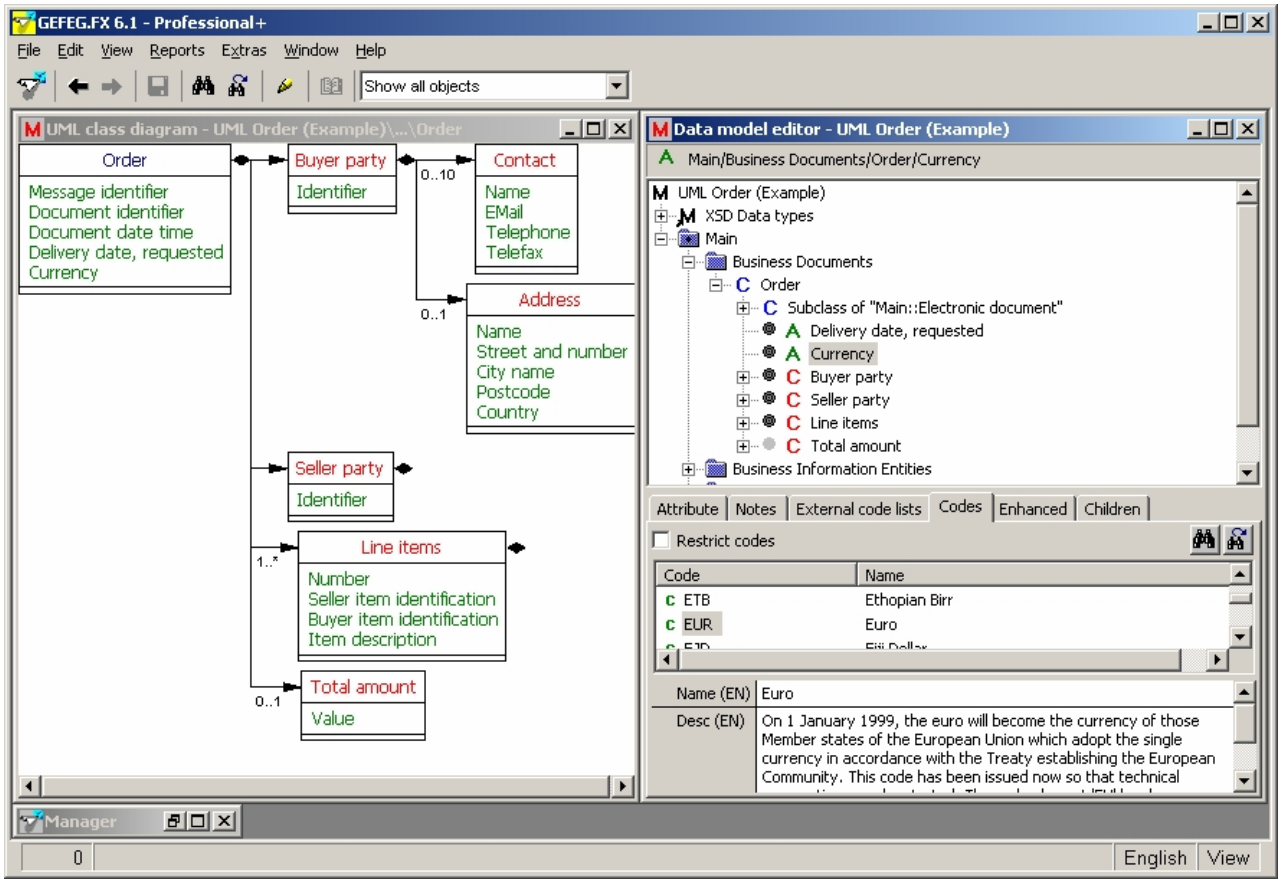
本次取回之 WCO Data Model V3.0 訓練課程內容，經評估應可達原版 DVD 光碟之 85%，不足之部分應可於購置原版 DVD 光碟後補足。

會末總結時，上課學員皆強烈反應課程費用太昂貴，亦對無法取得正式版頗有微詞，因大部分學員來自與該國海關業務相關之資訊顧問公司，一致認爲 WCO 既然要推廣資料模型第 3 版，才會舉辦訓練課程，惟迄今仍不正式出版，如何全盤瞭解以進行關務相關之資訊顧問工作，實在很難回去跟公司及客戶交待。

WCO Administrateur Techique 部門之主管 M. Schmitz 先生則努力安撫與會學員情緒，說明 WCO 現階段政策僅能提供會員國正式版 DVD 光碟，無法提供給上課學員，而何時販售則必須由 WCO Customs Co-operation Council 大會討論通過，並請學員儘量於課程問卷表達意見，將會反應問題給 WCO 高層，如果順利的話，將可於 6 月 24-26 日之 WCO 大會通過後正式販售。

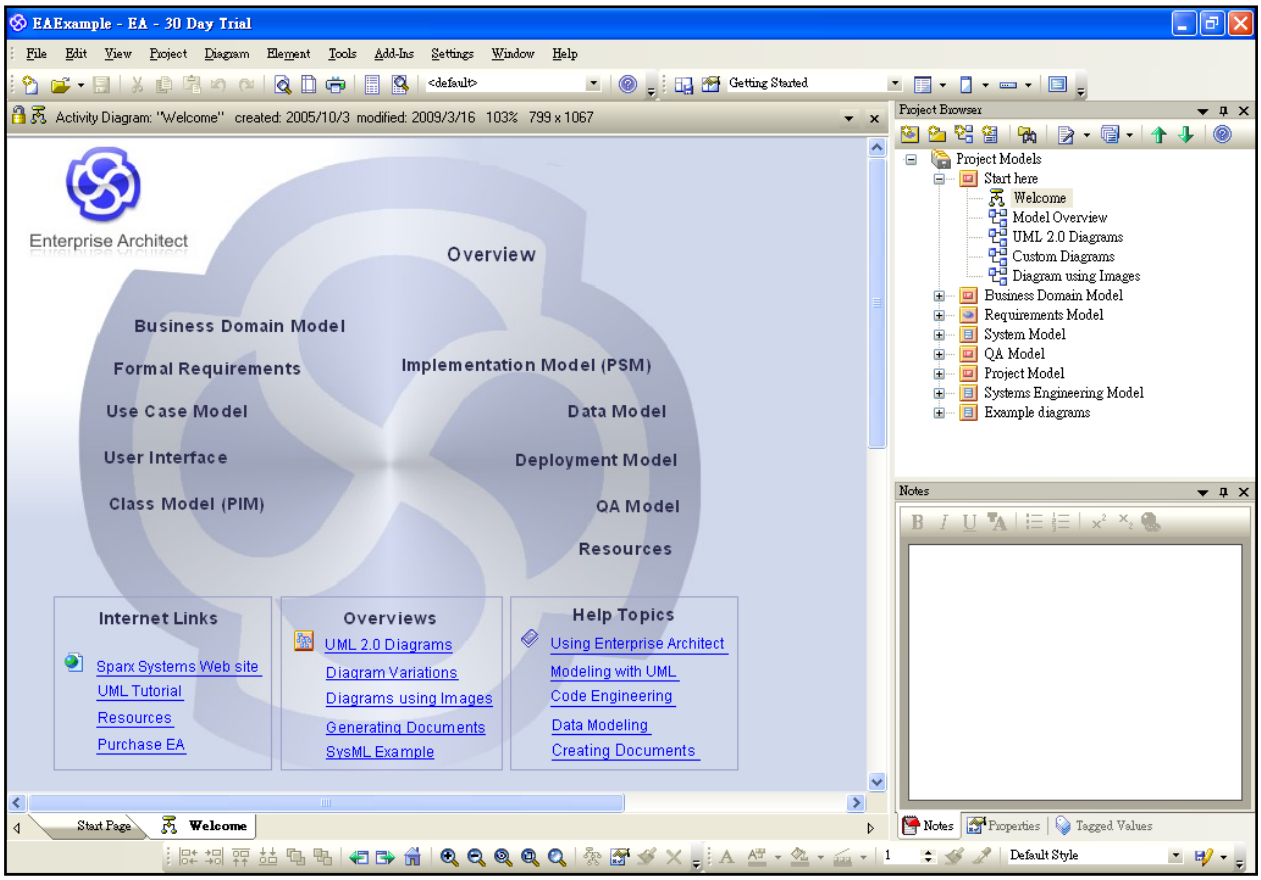
三、WCO Data Model 開發工具

在課程中介紹資料模型第 3 版使用之開發工具主要有 2 種，一爲資料模型化之工具軟體-GEFEG，爲德國軟體公司所發展之訊息開發工具，該工具可以非常清楚地描述一般類別圖（Class Diagram）及階層式（Hierarchical）類別圖；二爲 XML 訊息之工具軟體-XML Spy，其廣泛用於 XML 訊息內容及 Schema 之編輯設計、雙向轉換、除錯測試及語法驗證等。



圖六、資料模型化之工具軟體-GEFEG

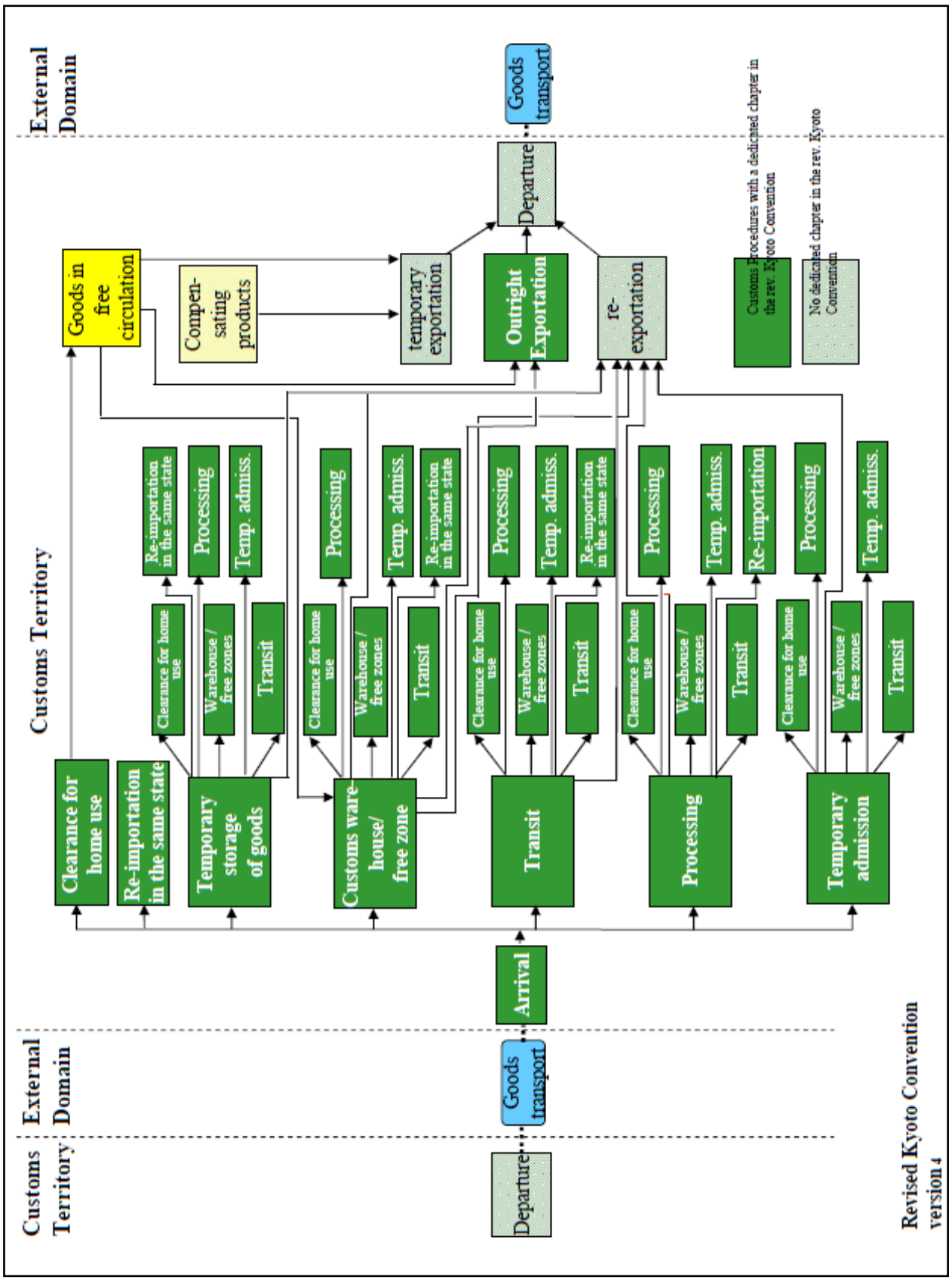
來自南非之學員 Anton Stone 亦推薦一套來自澳洲之資料模型化工具-Enterprise Architect（EA），查 UN/CEFACT 網站提供之 UMM 範例亦由 EA 來展示，本總局陳簡任稽核木榮及張股長嘉元於 2009 年出席 APEC 單一窗口能力建構會議時，主辦國澳洲亦使用該軟體爲教導資料調和之工具，經下載試用版測試，發現其資料模型化功能相當完備，亦爲不錯選擇。



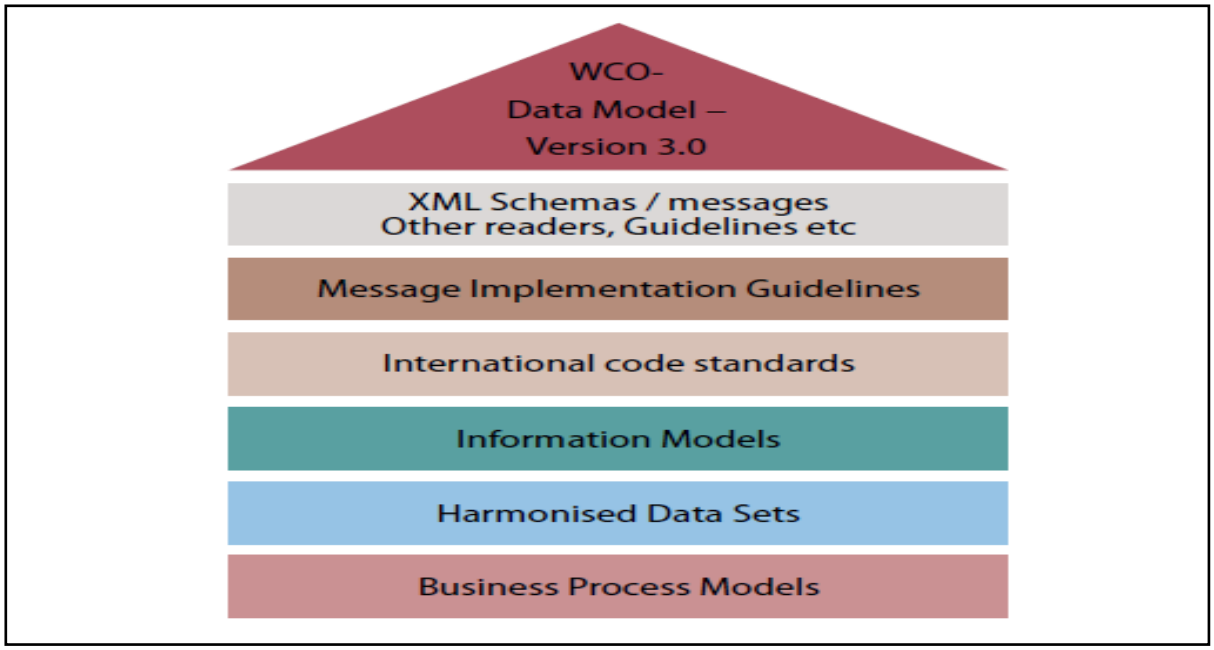
圖七、資料模型化工具-Enterprise Architect（EA）

四、WCO Data Model 建構步驟

修正版京都公約（Revised Kyoto Convention, RKC）要求各國海關在確保法令執行無虞下應使用最少之資料項目，而 WCO Data Model 產生之 Business Process 流程，基本上根據 RKC 之 Global Model 所衍生，如圖八所示。



圖八、Global Model of Revised Kyoto Convention



圖九、WCO Data Model V3.0 建構之步驟

WCO Data Model 產生步驟如圖九所示，各步驟詳細說明如下：

步驟一：根據 RKC 之 Global Model 及利用 Business Process Modeling 產生 Use Case Diagram 及 Activity Diagram。

步驟二：調和所有通關及簽審資料項目，以產生資料項目集。

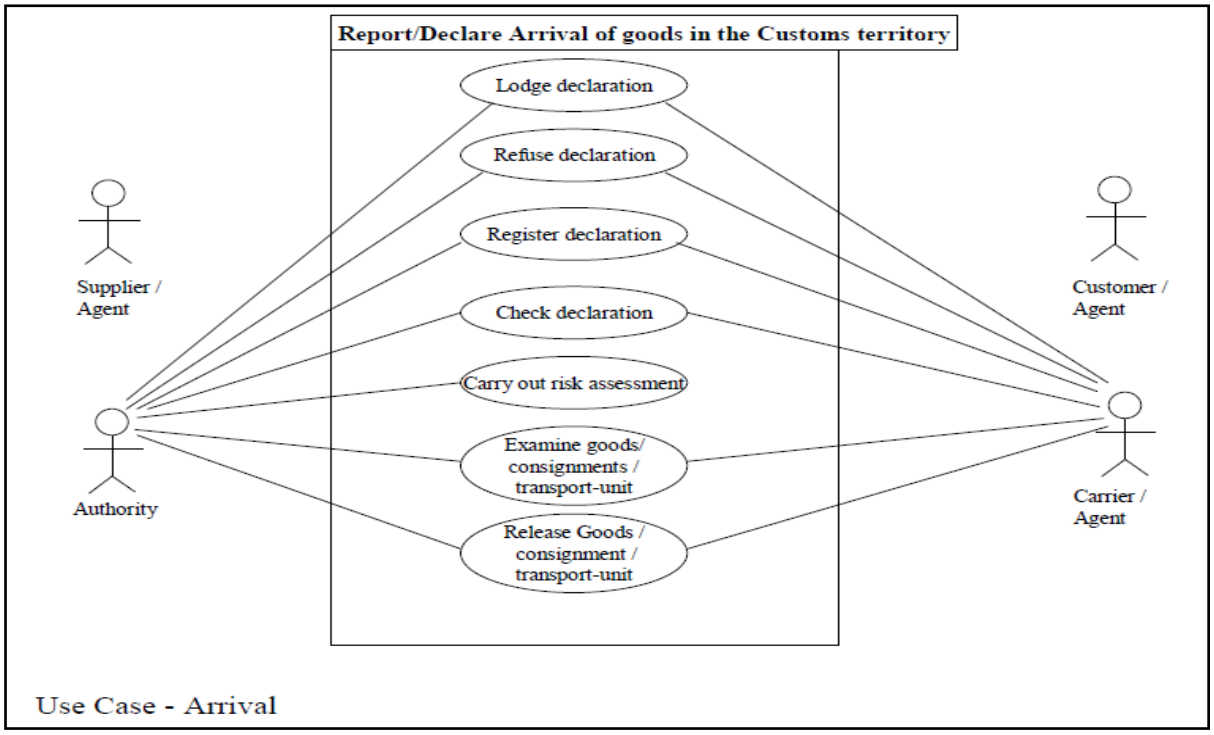
步驟三：進行 Information Modeling，以產生類別圖（Class Diagram）及階層式（Hierarchical）類別圖。

步驟四：參照國際代碼標準，如 UN/EDIFACT、UN/CEFACT、 ISO、IATA、及 IMO 等國際組織之代碼標準。

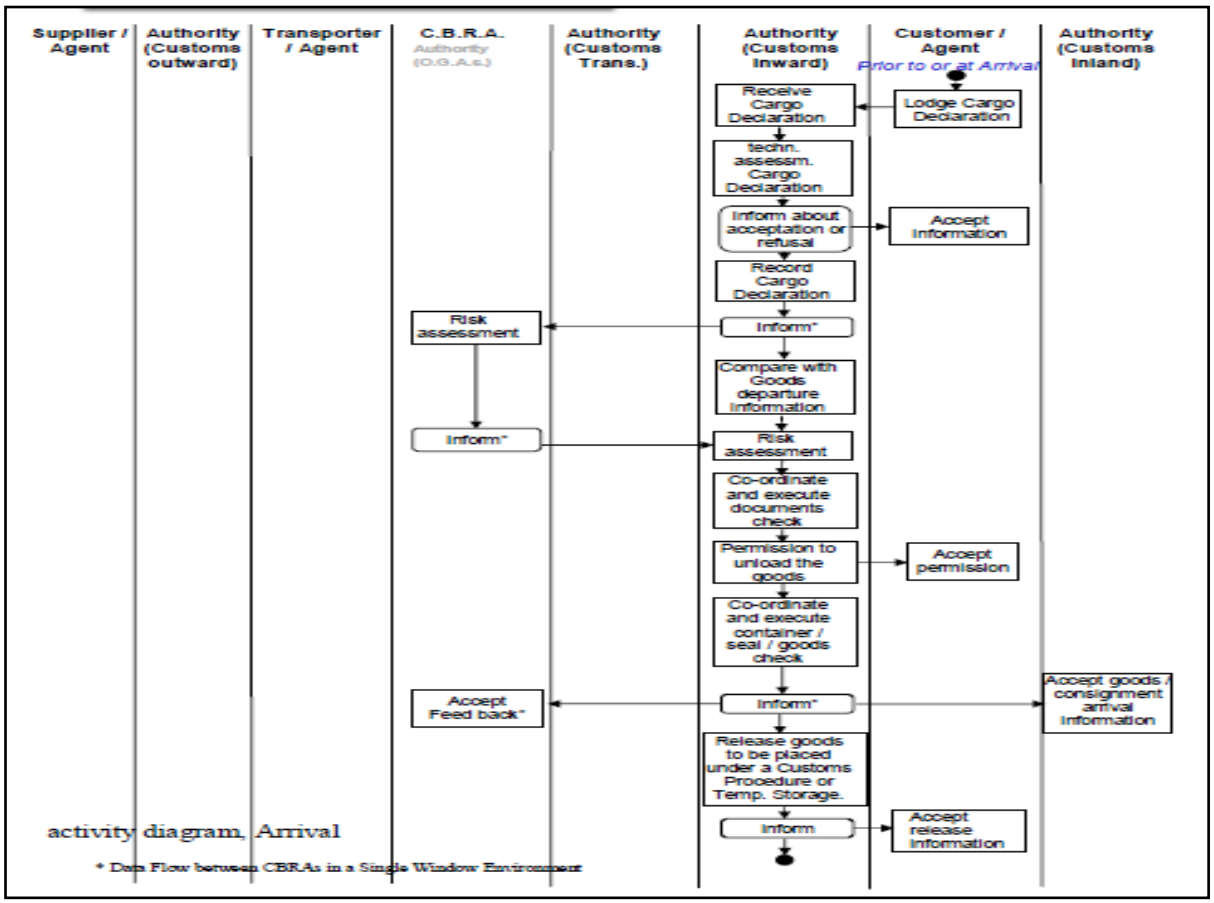
步驟五：產生 EDI 訊息建置指引。

步驟六：產生 XML 或其他訊息建置指引。

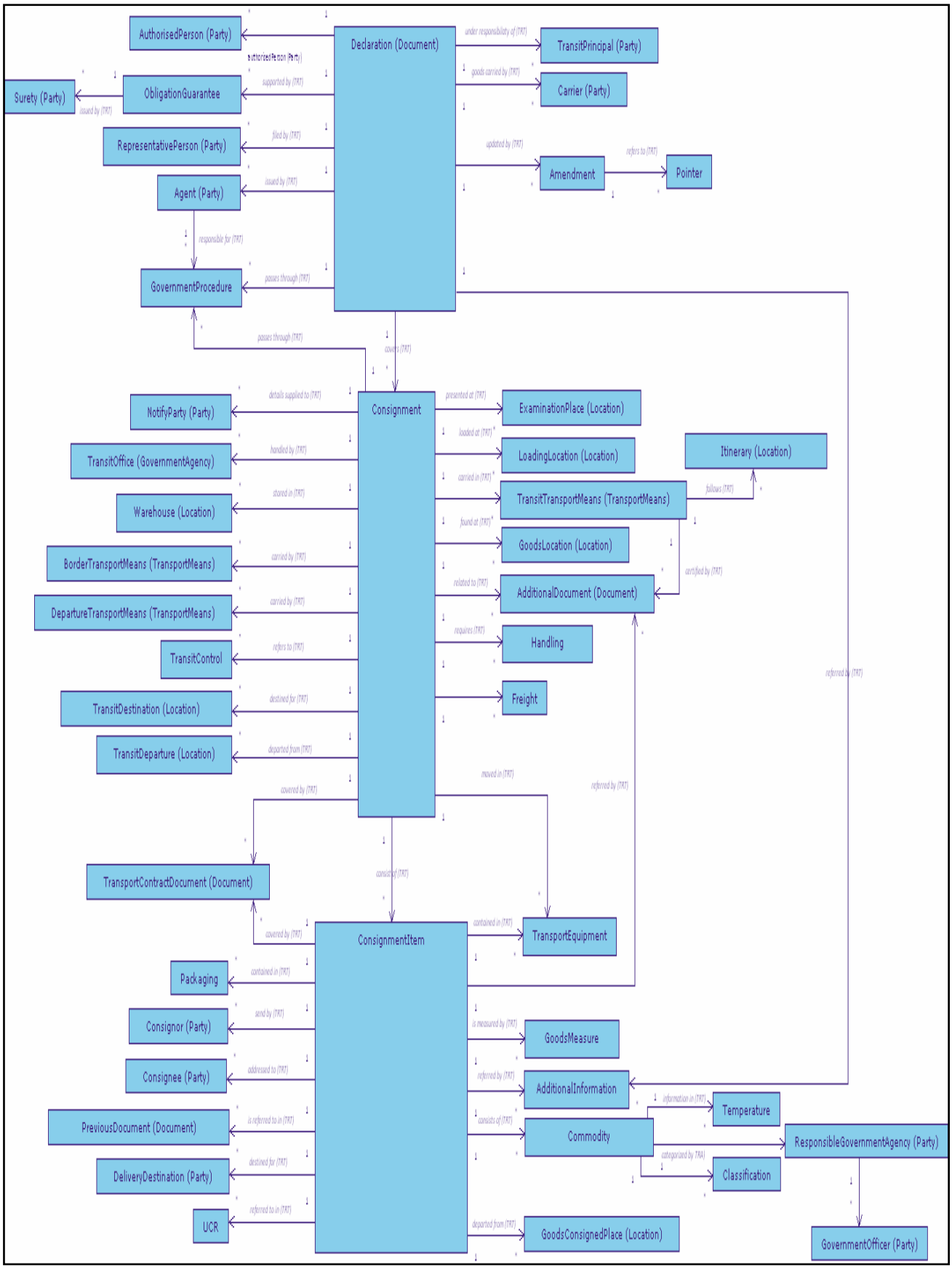
步驟七：即完成 WCO Data Model。



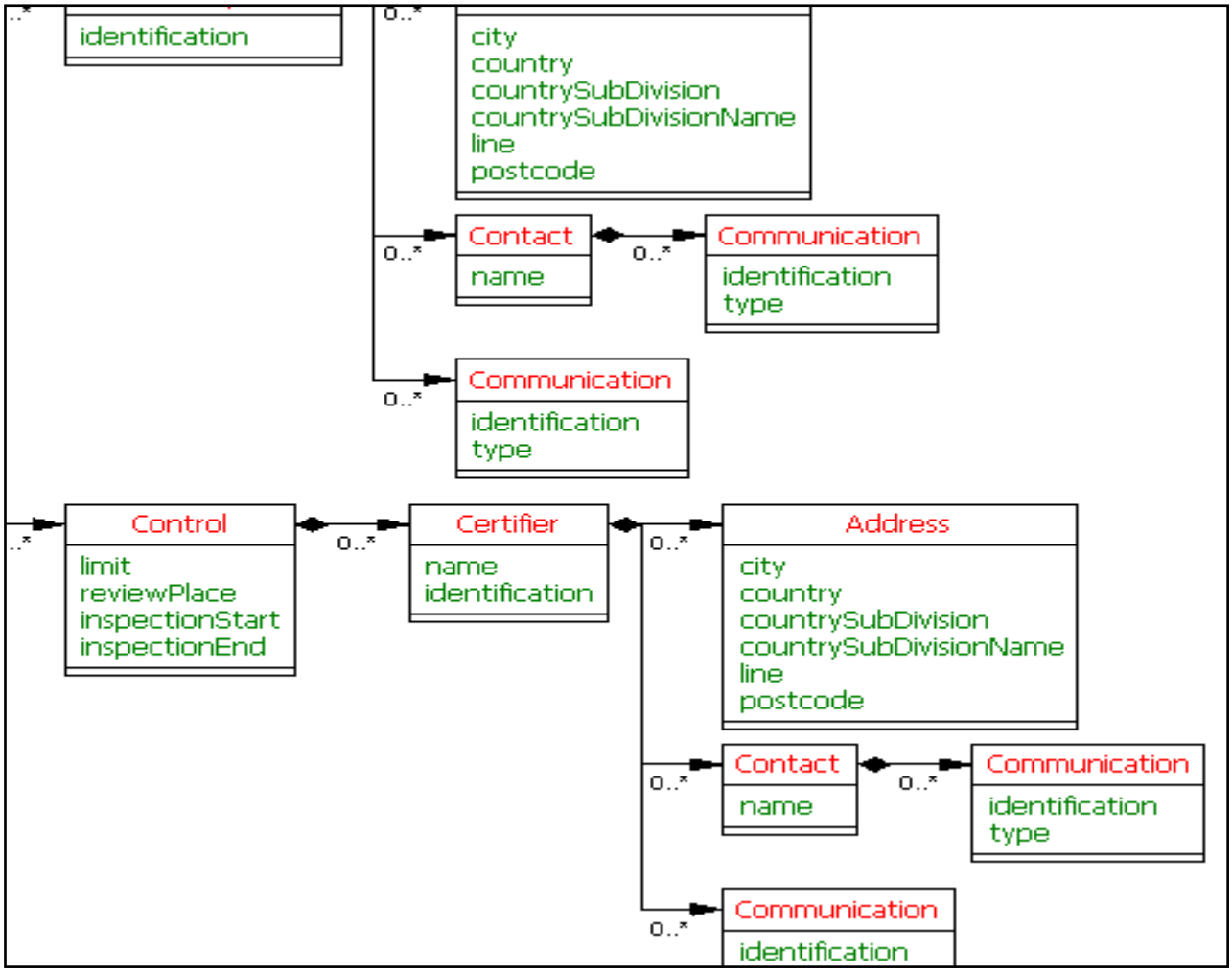
圖十、貨物入境之使用案例圖(Use Case Diagram – Arrival)



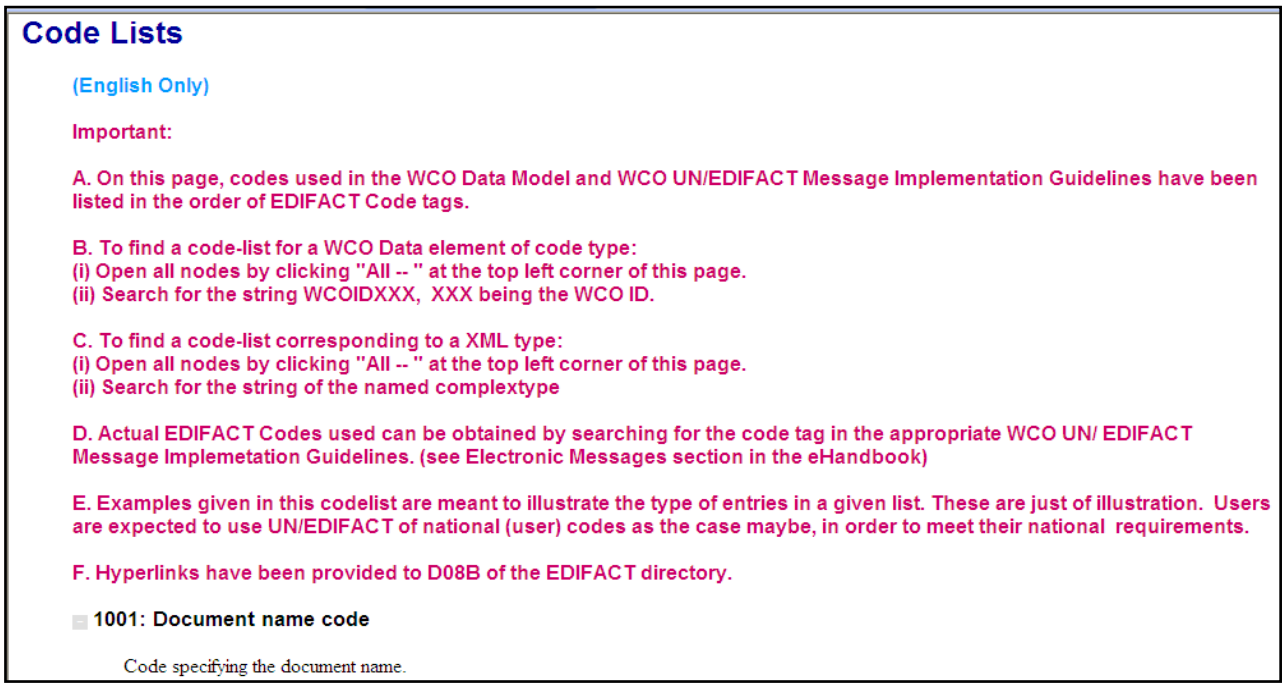
圖十一、貨物入境之活動圖(Activity Diagram, Arrival)



圖十二、類別圖（Class Diagram）



圖十三、階層式（Hierarchical）類別圖



Code Lists

(English Only)

Important:

A. On this page, codes used in the WCO Data Model and WCO UN/EDIFACT Message Implementation Guidelines have been listed in the order of EDIFACT Code tags.

B. To find a code-list for a WCO Data element of code type:
(i) Open all nodes by clicking "All -- " at the top left corner of this page.
(ii) Search for the string WCOIDXXX, XXX being the WCO ID.

C. To find a code-list corresponding to a XML type:
(i) Open all nodes by clicking "All -- " at the top left corner of this page.
(ii) Search for the string of the named complextype

D. Actual EDIFACT Codes used can be obtained by searching for the code tag in the appropriate WCO UN/ EDIFACT Message Implemetation Guidelines. (see Electronic Messages section in the eHandbook)

E. Examples given in this codelist are meant to illustrate the type of entries in a given list. These are just of illustration. Users are expected to use UN/EDIFACT of national (user) codes as the case maybe, in order to meet their national requirements.

F. Hyperlinks have been provided to D08B of the EDIFACT directory.

1001: Document name code

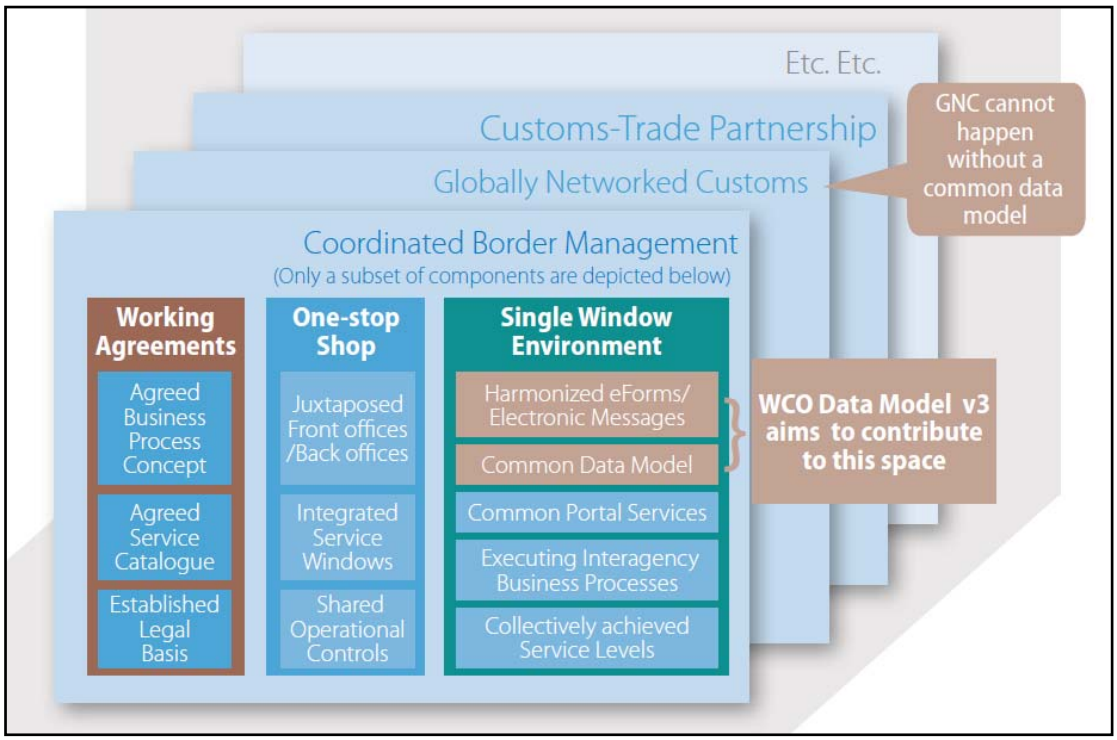
Code specifying the document name.

圖十四、Code Lists

五、我國應用 WCO Data Model V3.0 之方法

自 91 年迄今，我國海關之資料項目對 G7 Data Set 及 WCO Data Model 進行調和，皆是以通關資料項目直接對應 G7 及 WCO 資料集之方式比對，而非以 WCO Data Model 之建構步驟從 Business Process Modeling 及 Information Modeling 進行模型化分析。

如何解決我國與 WCO Data Set 無法成功比對之資料項目，亦是另一項重要課題。如果可以順利對應到 WCO ID，則代表應該可以套用 WCO 之類別（Class）及 XML Schema；而對應不到時，如何處理就是一項大難題，目前的方法是以 UNTDED 代碼取代，未來如何套用 UN/CEFACT Core Component 之類別及產生對應之 XML Schema 仍有待研議。

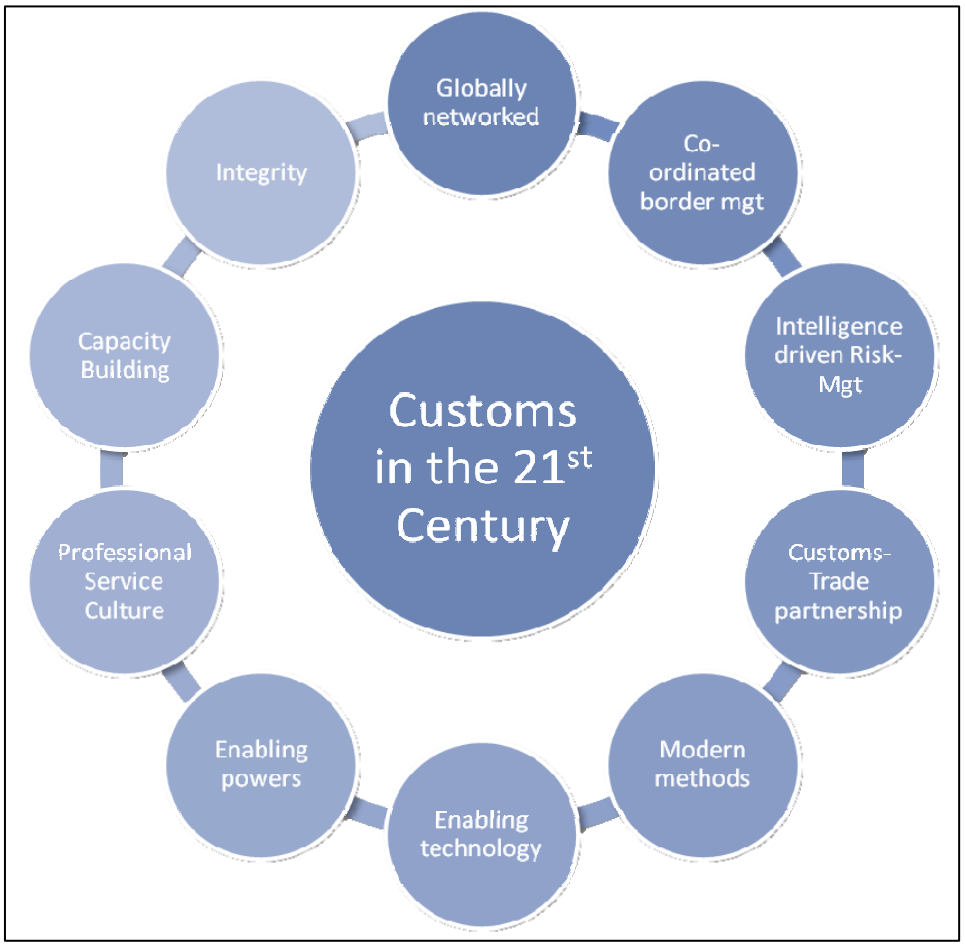


圖十五、政府單一窗口環境與 WCO Data Model v3 之關係圖

六、WCO 21 世紀海關發展策略

WCO Customs Co-operation Council 大會於 2008 年 6 月通過 21 世紀海關發展策略之決議（Resolution on the Role of Customs in the 21st Century），包含 10 大策略方向（詳附件 14），如圖十六所示。

其中最優先應建立的策略爲”Globally networked Customs”及”Coordinated Border Management”，其與 WCO 揭櫫之 SAFE 標準架構、優質企業(AEO)、貨物追蹤唯一參考號碼(UCR)及單一窗口(Single Window)觀念相呼應，又第三版資料模型亦推展 GOVCBR 之訊息格式作爲跨境 G2G、G2B 及 B2G 訊息標準，值得密切觀注其發展。



圖十六、WCO 21 世紀海關發展策略示意圖

肆、建議事項

一、冀望我國可成爲 WCO 觀察員或正式會員

因政治因素我國無法成爲 WCO 觀察員或正式會員，而我國出席 WCO 關稅估價技術委員會(TCCV)皆以 WTO 會員名義參加，本次參加訓練課程僅能以私部門之名義受訓，衷心盼望有朝一日我國可以成爲 WCO 觀察員或正式會員，即可名正言順的出席相關會議及取得第一手資料，惟目前主客觀環境可能尚未成熟，未來仍需靠大家的努力，才有辦法達成。

伍、參考資料

1．91 年版貿易無紙化專題研究報告

2．94 年版我國與 WCO 通關資料項目比較研究報告

3．95 年版 WCO CDM V2.0 研究報告

4．96 年版資料項目比較研究報告-新出口通關系統

5．97 年版資料項目比較研究報告-新進口通關系統

陸、附件

附件 1、受訓學員名單

附件 2、訓練課程時間表

附件 3、WCO Data Model Programme outline 簡報

附件 4、WCO Data Model Introduction and background 簡報

附件 5、Business Process Modelling 簡報

附件 6、Data Harmonization 簡報

附件 7、Information Modelling 簡報

附件 8、WCO Data Model; Implementation 簡報

附件 9、WCO Data Model & GOVCBR 簡報

附件 10、WCO Data Model Instruments SAFE/RKC 簡報

附件 11、WCO Data Model; WCO Legal Instruments 簡報

附件 12、WCO Data Model； SINGLE WINDOW 簡報

附件 13、WCO Data Model Co-ordinated Border Management 簡報

附件 14、Customs in the 21st Century Globally Networked Customs 簡報

附件 15、WCO Data Model XML Guidelines Part I 簡報

附件 16、WCO Data Model XML Guidelines Part II 簡報

附件 1

受訓學員名單

Project title : 01 - SAFE
Date : 10 - 11 March 2010
 # Trainees : 15

#	Client ID	Company / Organization	Genre	Name	Surname
1	PSCH/105	COTECNA Inspection SA	Mr	Ali	Umer
2	KAAT/036	MIC DATEN VERARBEITUNG GES MBH	Mr.	Stefan	Derntl
3	KANL/40	HERBALIFE INT. OF Luxembourg, NETH. BRANCH	Mr.	Willem	Kooper
4	CSDK/10-249	Intracom IT-Services Denmark A/S	Mr.	Staffan	Anderberg
5	KADE/10-258	SIEMENS AG	Ms.	Doris	Douglas
6	CSTW/10-259	IDEAS,Institute for Information Industry	Mr.	CHUN HUNG	LIN
7	KAGH/10-260	Ghana Community Network Services LTD	M.	Jonathan	OFORI
8	KAGH/10-260	Ghana Community Network Services LTD	M.	Elliot Fiifi	ANSAH
9	KAZA/10-262	Clidet N°967 (Pty) Ltd	Mr.	Anton	Stone
10	KATW/10-263	DGOC Taiwan	Mr.	Ching-Ho	Lin
11	CSBE/10-264	Vivansa	Mr.	Jacques	Piret
12	CSSE/10-265	KGH Customs, Government Consulting	Mr.	Christer	Andersson
13	CSBE/10-266	Accenture NV	Mr	Kevin	Van Bael
14	KAGB/10-267	Crown Agents	Mrs.	Valentina	MINTAH
15	KAAE/10-268	Jumash Air and Sea Cargo LLC	Mr.	Abdou	Mohamed Maloum
16					
17					
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19					
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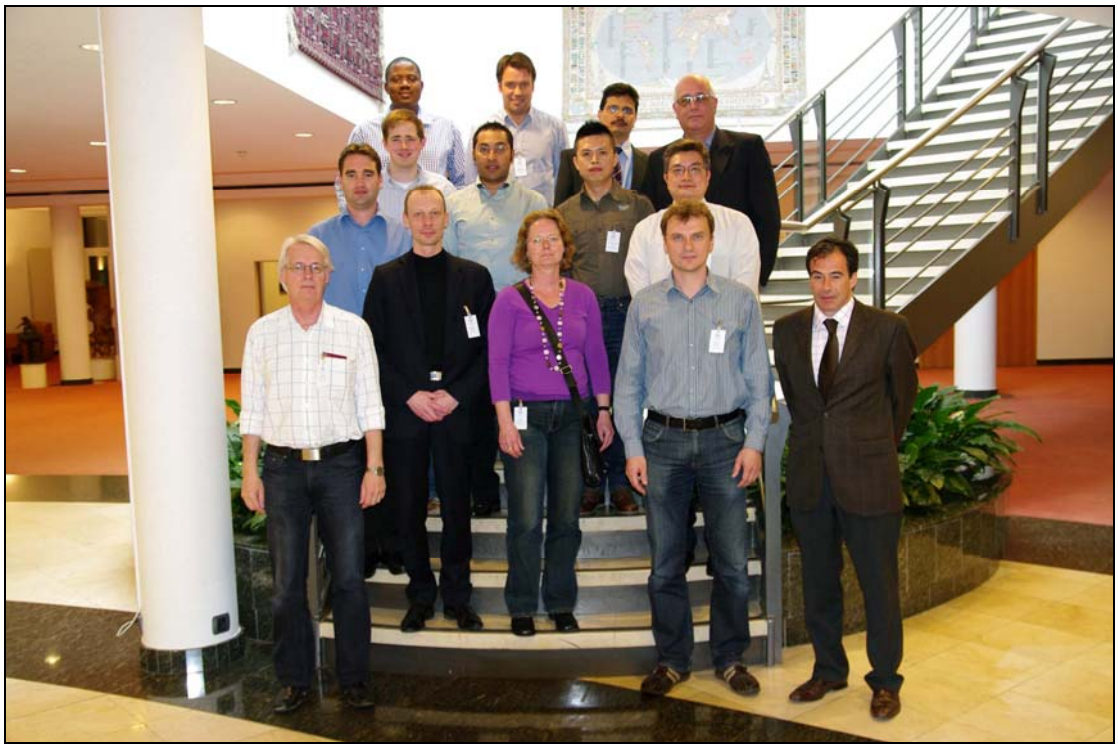
21					
22					



附件 2

訓練課程時間表

WCO TRAINING COURSE

The WCO Data Model

07 and 08 April 2010 – WCO Headquarters, Brussels

WORLD CUSTOMS ORGANIZATION
ORGANISATION MONDIALE DES DOUANES

TRAINING TIMETABLE

WEDNESDAY 07 APRIL 2010

08:45 – 09:00 **Registration**

09:00 – 09:15 **Welcome – Introduction of participants and facilitators**

09:20 – 11:00 **Program outline**

Brief History of the WCO and the Current Strategic Environment
Brief History of the Data Model – from G7 initiative to WCO
Walk-through of WCO Data Model Version 3.0

Coffee break

11:20 – 13:00 **Key concepts of business and information modelling**
Relationship between Data sets,
Business Process Models information models and electronic messages

Lunch

14:00 – 14:30 **Data Naming Convention; Dictionary Entry Names; Relationship between the WCO Data Model, UNTDED, UN/EDIFACT and UN/CEFACT Core Component Library.**

14:30 – 16:10 **The Data Sets – what are they, how are they put into practice?**

Mapping regulatory forms with WCO Data Model Version 3.0 – Illustration

Coffee break

16:30 – 18:00 **The Data Model Handbook (Version 3.0), the Data Model Compendium and other documentation – What are they and how are they used to their best advantage?**

Illustrations - Continued

Networking cocktail

THURSDAY 08 APRIL 2010

09:00 – 10:30

Revised Kyoto Convention – Chapter 7 (Information Technology)
Kyoto Data Principles
Integrated Supply Chain Management Guidelines
SAFE Framework of Standards

10:30 – 11:00

EDIFACT Message Implementation Guidelines – the Customs messages, how are they constructed, how are codes managed?

Coffee break

11:20 – 13:00 **EDIFACT Message Implementation Guidelines (Continued)**
Including XML Schema specification and XML Guidelines

Lunch

14:00 – 14:30 **Version 3.0: General Remarks and Benefits**

14:30 – 16:00 **WCO Version 3.0, data harmonization and single window**

Coffee break

16:20 – 17:20 **Management of the Data Model – A description of the project team, current priorities and the way ahead.**
How can industry work with the WCO to develop the Data Model as a cooperative effort?

17:20 – 18:00 **Evaluation / Presentation of Certificates / Close**

附件 3

WCO Data Model Programme outline

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model

Programme outline

World Customs Organization

1

Goal of this Programme

- Familiarisation with the WCO Data Model
- Relevance of the WCO Data Model in the automation of Cross-Border trade
- Understand the principles of
  - Data Harmonisation
  - Single Window
  - Using the Data Model Contents

2

Program Outline (1)

- Introduction and background
- Introduction to the WCO
- Introduction to the WCO Data Model
  - history and background, basic principles, intern. standards, components,
- Business Process modelling
- Information Modelling

3

Program Outline (2)

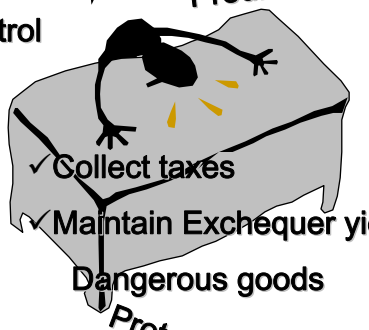
- Data Model Vrs. National Specifications
- The Data Sets, Business process models, Information models and electronic messages
- Data Harmonisation & Single Window
- Messaging in EDIFACT (GOVCBR)
- Messaging in XML
- Data Maintenance Process

4

Program Outline (3)

- Customizing the WCO Data Model
- Data Mapping
  - SAD
  - Kimberley Process Certificate
  - IMO FAL Form 1
  - CITES

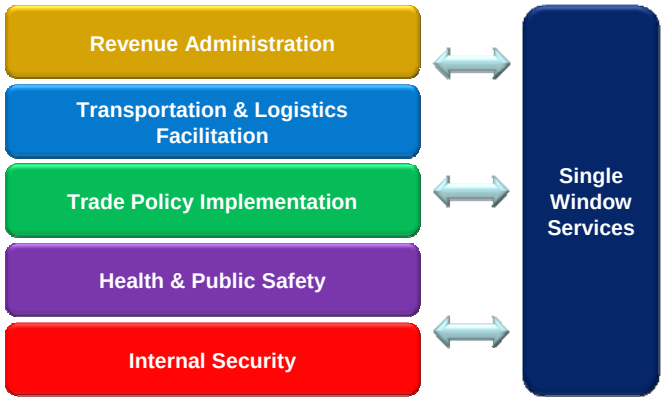
Customs Environment



Customs Profile

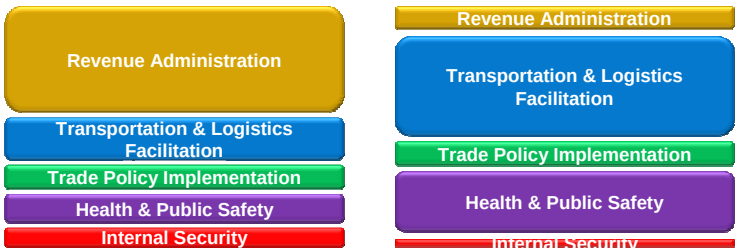
- Legislative mandate/ expertise in border control
- International business & transport partnership
- Information management & risk identification
- Investigation & prevention of border offences
  - Smuggling (arms, drugs, controlled or prohibited goods)
  - Money laundering
  - Illegal movement of dangerous materials
- All goods & containers, conveyances, crew & passenger traffic

Customs Functions & Single Window Services



The choice of services for Single Window would depend on the national customs

What is the priority?

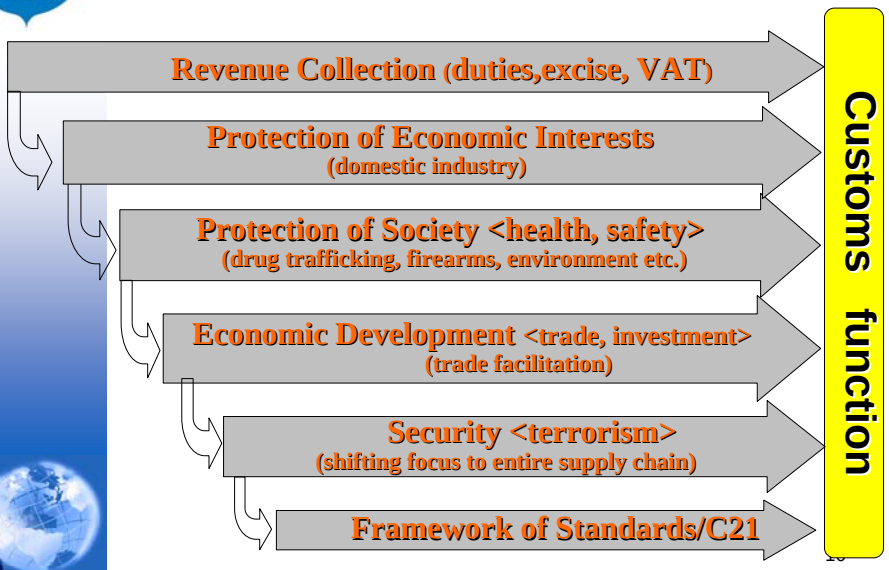


Coverage of Cross-border movements by subject & mode

Mode →	Air	Sea	Road	Rail
Goods				
Conveyances				
People				

9

Evolution of Customs



Summary

- Enjoy this experience as you learn
- Understand the trade facilitation versus control balance
- See how automation and better information management can help both
- The WCO Data Model is a key instrument in this international effort

CROSS-BORDER TRANSACTIONS ON THE FAST TRACK

Questions ?

World Customs Organization

附件 4

WCO Data Model Introduction and Background

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model

Introduction and background

World Customs Organization

Oh no, not again the Data Model

Cross-Border Regulatory Agencies

Data Model

WCO Data Model : In a nutshell

…provides a maximum framework of standardised and harmonised sets of data and standard electronic messages to be submitted by trade for Cross-Border Regulatory Agencies such as Customs to accomplish formalities for the arrival, departure , transit and release of goods in international cross border trade.

History and Foundation

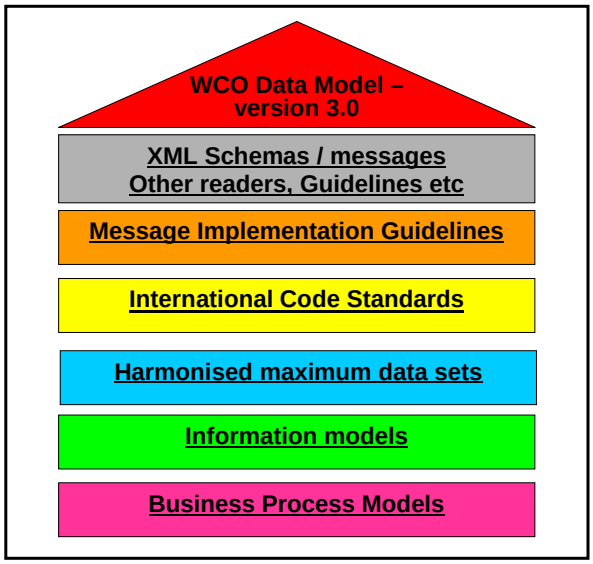
- Began with the G7 initiative
  - G7 Version 21 became WCO Version 1.0
    - Limited to Customs “ordinary goods”
- Moved to the WCO
  - Exposure to more countries and trade
- WCO Customs Data Model Version 1.1
  - Post 11/9 enhanced security requirements
- WCO Customs Data Model Version 2.0
  - Full Customs and transport for release at border
- WCO Customs Data Model Version 3
  - Initial SW – customs, marine safety, statistics, agriculture, food safety, environment
  - Patch 3.1 2010
- Version 4 ; to be determined by members

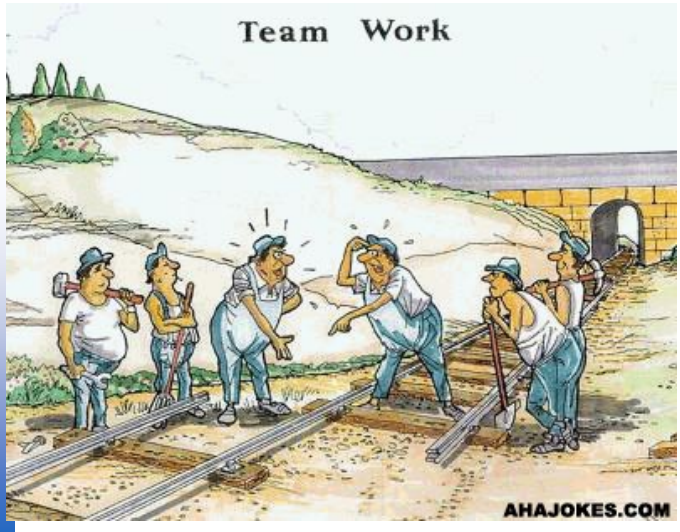
Kyoto Customs Data Principles

- Common data sets and uniform electronic messages for cargo report, import, and export declarations for the release of “ordinary goods”
- Maximum data requirements for the routine exchange of information between Customs and the trader
- Countries to require as little information as necessary for Customs control purposes
- Release on minimum information

WCO Data Model components

Data Model





The WCO Data Model is not developed in total isolation. Trade, Transport and partner Cross-Border Government Agencies were involved. But our result is a better one!

Data Model: Building Blocks - International Code Standards

- HARMONIZED SYSTEM
- UCR

- ISO 3166 COUNTRY CODES
- ISO 4217 CURRENCY CODES
- ISO 6346 CONTAINER CODES

- UN/ECE RECOMMENDATIONS
  - No. 5 - INCOTERMS
  - No. 7 – REPRESENT. OF DATE AND TIME
  - No. 16 - UN/LOCODE
  - No. 28 – MODE AND TYPE OF TRANSPORT
  - No. 20 - UNITS OF MEASURE
- UN/EDIFACT

Data Model Hierarchy/Relationship

United Nations Trade Data Elements Directory - UNTDED
Master, global reference/dictionary of data element names, definitions, and coding
Maintained by the UN Center for Electronic Business and Trade Facilitation - UN CEFACT

The WCO Data Model (WCO DM) v 3.0
Single Window requirements of participating administrations
A subset of the UNTDED

Country specific SW Import, Export, and Transit Requirements
A subset of the WCO DM

WCO SAFE Framework Data Elements
A subset of WCO DM

Country specific security reporting requirements
A subset of WCO Framework

WCO Data Model Ver. 3 - Update

- **Basic elements finalised in June 2008 :**
  - The Data Set
  - Business Process Models
  - Overall Information Model

Derived from that:

> Documentation – Guidelines/Readers on the WCO Data Model. (Almost finalised)

> Production of information models for different customs' procedures (Finalised)

> Electronic EDIFACT message based on the WCO Data Model (Proposed UNSM GOVCBR designed, first assessment past, final assessment Rome end of April)

> Mutual alignment between UN CEFACT's CCL and Data Model (last phase)

> XML messages to reflect the theme of GOVCBR (finalized for review).

> Communication Plan – how to promote the Data Model V 3 (last phase)

WCO Data Model Ver. 3 - Prospects

- A number of administrations are preparing to use the WCO Data Model Version 3.0
  - NL currently base their new system on Version 3
  - TH, KR, IL, NZ, CA are considering using it in their new projects
  - Many other members actively considering using it
- e-TIR e-ATA
- UPU - Electronic messaging modernization
- Other international initiatives proposing to use it:
  - ISO 28005 (Standard for electronic port clearance)
  - ASEAN Single Window
  - ITAIDE
- A WCO Recommendation on the WCO Data Model will help promote its use!
- New efforts underway to promote customization

Data Model V3: what it caters for

The Data Model contains sufficient legally required data elements required and approved by our Member administrations and other Cross Border Regulatory Agencies involved, for export, import and transport of Cargo, Goods, Means of Transport and Cross-Border movement of Crew.

Data Model V3, what it does not cater for (I)

Not yet included are:

- Requirements for specific Customs procedures as mentioned in RKC such as:
  - Re-importation in the same state
  - Inward processing
  - Outward processing
  - Processing of goods for home use
  - Temporary admission
  - Postal traffic

Data Model V3, what it does not cater for (II)

Not yet included are:

- specific transactions/goods movements such as
  - military goods transported with a special BOAR or 302 form
  - cars (racing/rally) with a Carnet de Passage en Douanes
  - goods transported under the ATA convention *
  - postal consignments with a CN document *
  - goods transported by rail using railroad documents
- all information to conduct a Customs Post Audit Control as such.

Data Model, Benefits

- ✓Enables the various information systems to work together in the most effective way possible
- ✓Promoting safe and secure borders
- ✓Offering authorised traders end to end premium procedures
- ✓Contributing to rapid release
- ✓Eliminating redundant and repetitive data
- ✓Reducing the amount of data
- ✓Reducing compliance costs
- ✓Promoting greater Customs co-operation

Data Model, Benefits II

- ✓aligned export and import data requirements
- ✓created a single electronic structure
- ✓more effective exchange of information between export and import
- ✓export information reused at import
- ✓includes data requirements of partner cross-border regulatory agencies
  - └> Single Window environment
    - └> traders to submit information only once

Fully fledged version 3

- ➢ Cross-Border Regulatory Agencies such as Customs
- ➢ Conveyance report
- ➢ Cargo report (manifest)
- ➢ Goods declarations
  - – import and export,
  - – normal and simplified procedures
- ➢ Transit (incl. e-TIR)
- ➢ Response message (not only for Customs)

Fully fledged version 3 II

- Covers only those processes directly related to release (Trade calls this “clearance”)
- Includes Cargo, Means of transport & crew and goods
- “Single Window Environment”
  - Includes Customs’ requirements
  - Includes “Agriculture” which = SPS, Veterinary, Food Safety (e-Cert)
  - Includes Marine Safety requirements (ISPS)
  - Includes Statistical requirements
  - Includes Environment protection (Hazardous Waste)
  - Includes Immigration requirements (crew)

Fully fledged version 3 III

- WCO Guidelines on “WCO Data Harmonisation and Single Window V2”
- Message Implementation Guidelines for EDIFACT and XML (XML Guidelines plus schemas plus example messages)
- WCO Data Model maintenance procedure
- Customs Business Process Models
- Information models
- Implementation review
- Etc. etc.

Example of "CBRA" Data: e-Cert

Exchange standard for sanitary & phyto-sanitary data of export produce that:

1. **meets the access requirements of foreign markets,**
2. **complies with international inter-governmental legal standards,**
3. **speeds up border processing,**
4. **protects participating governments & traders against fraud,**
5. **is reliable, flexible and extensible,**
6. **is simple to use and easy to adopt,**
7. **incurs low implementation and operation costs.**

E-Cert and WCO DM

- **Inclusion of e-Cert data elements in WCO DM to include requirements for agricultural reporting.**
- **E-Cert is not strictly at point of export/import*, but is considered because of the data overlaps.**
- *** It is a classic permit that is approved prior to export**

Response

- Based on the existing UNSM CUSRES (and V2.0 WCORES) messages
- Made it as generic as possible to be used by all CBRAs
- Discussion led by UK, Netherlands, Finland and Germany

Customs' Transit

- Increased scope beyond that of Version 2.0 that was largely based on the EU's NCTS
- Includes e-TIR, North American and Australian transit requirements
- Does not yet include other forms of temporary admission at this stage such as ATA carnets
- Discussion led by UN/ECE, IATA, the EU Commission, Canada, the US and Australia

ebXML

- New business issue from Version 2.0
- Covers complex data issues including structure, modelling, QA, naming rules, alignment with UN Core Component Library and XML schemas
- Discussion led by India, Hong Kong, Sweden, Ireland and UN/CEFACT

Our end deliverable is non-confusing and un-ambiguous

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Questions

World Customs Organization

附件 5

Business Process Modelling

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model;
Business Process Modelling

World Customs Organization

Business Process and Information Modelling

Unified Modelling Language (UML®)

business info

- Simple Business Process Model
- Use Case Diagram
- Use Case Description
- Activity Diagram
- Sequence Diagram
- Class Diagram

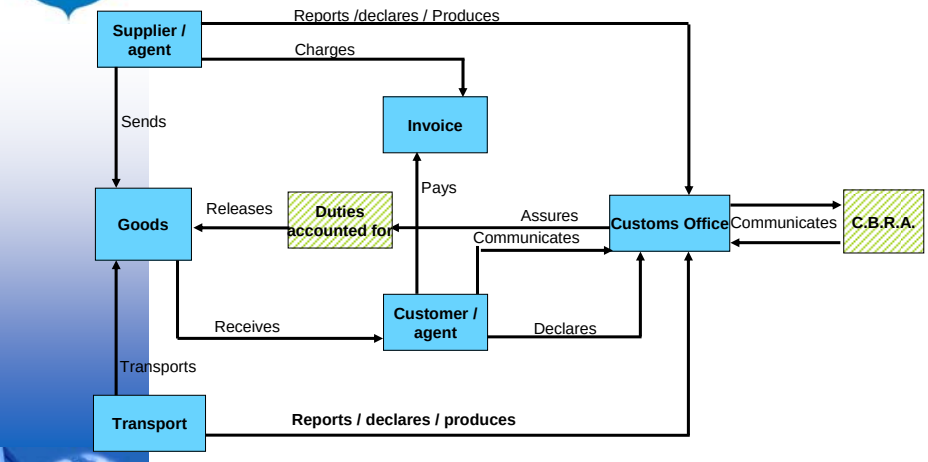
Revised Kyoto Convention

Added detailed steps

above mentioned models

WCO Data sets.

Business Process Modelling



Simple Business Process Model (290104)

Business Process Modelling

Supplier: Consignor, Invoicer, Payee, Seller
Agent: Customs Agent, Customs Broker, Declarant, Bank, Credit agency, PSI Company, Insurer
Transporter: Freight forwarder, Carrier
O.G.A.: Other Government Agencies such as Health, Immigration, Veterinary, Agricultural.
Customer: Buyer, Consignee, Invoicee, Orderer

The diagram including the grey boxes give an overview of the Customs Business Processes on a high level. The processes reflected in the grey coloured boxes are out of scope for further modelling based on Data Set Version 1.1, thus without the OGA requirements and Duties Accounted For. Duties Accounted For and communication with the OGAs is no part of the messaging between client and Customs.

This diagram only covers a single transaction and not combined transactions. A combined transaction needs to be broken down in single transactions.

Supplier / Agent: In commercial transaction the supplier is the seller of the goods and in most cases also the declarant of the customs declaration.

Goods: Goods is the consignment/shipment, which is declared with the customs declaration

Invoice: Invoice represents any document to be used as a basis for calculating the customs value. Supplier also provides Customer with other additional documents such as certificates of origin, import/export licenses etc., which can be / have to be used when making a customs declaration

Customer / Agent: In commercial transaction the customer is the buyer of the goods; in this model also represents the delivery address of the goods

Transport represents the actual occurrence of moving the goods from supplier/seller to consignee/buyer. Transport information contains data related to the means and mode of transport and possible incidents during the transportation.

Customs office; This box represents the various Customs Offices as there are Customs Office Inland, Customs Office Outward, Customs Office of Transit and Customs Office Inward. The Customs officer or customs automated system receiving and verifying customs declarations, calculating and charging for possible duties and taxes, making customs decisions and interchanging data with other customs' and administrations. The Customs Offices process information and communicate with the relevant OGA's

OGA; see before.

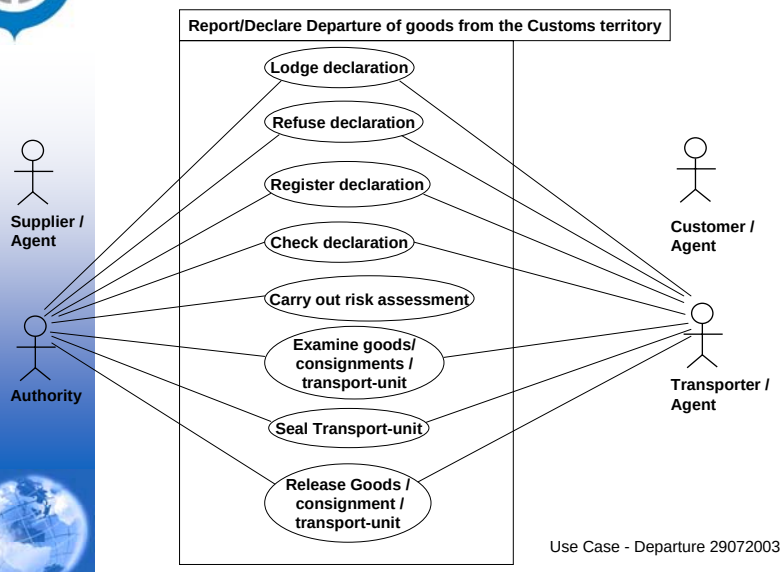
Simple Business Process "description"

Business Process Modelling

Unified Modelling Language (UML®)

- Simple Business Process Model
- Use Case Diagram
- Use Case Description
- Activity Diagram
- Sequence Diagram
- Class Diagram

Business Process Modelling



Use Case - Departure 29072003

Business Process Modelling

Unified Modelling Language (UML®)

- Simple Business Process Model
- Use Case Diagram
- **Use Case Description**
- **Activity Diagram**
- **Sequence Diagram**
- **Class Diagram**

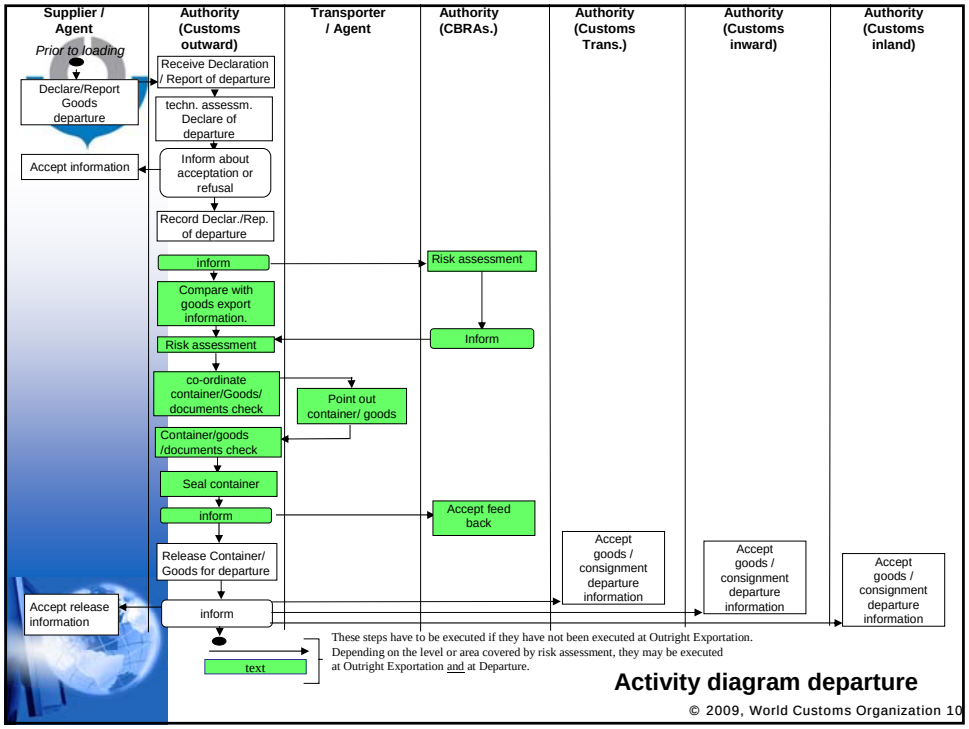
Name	**Departure of goods from the Customs Territory**
Traceability Ind.	
Actors	Supplier: Consignor, Invoicer, Payee, Seller Agent: Customs Agent, Customs Broker, Declarant, Bank, Credit agency, PSI Company, Insurer Transporter : Freight forwarder, Carrier Authority: Customs, Other Government Agencies such as Health, Immigration, Veterinary, Agricultural. Customer: Buyer, Consignee, Invoicee, Orderer
Description	The necessary arrangements are made to enable goods - and the means of transport for commercial use- to leave the Customs territory
Pre-condition	Goods were subject to an outright Exportation declaration.
Post-condition	Goods -and the means of transport for commercial use- have left the Customs territory.
Scenario 1	**Starts when** Goods arrive at the Customs Office of departure -Prior to departure Supplier/Carrier/Agent declares/reports all goods for outward transport to Authority (Customs office outward) by means of a cargo declaration/declaration of departure/notification* -Authority (Customs) carries out a technical assessment on the format and content of the cargo declaration / declaration of departure / notification -Authority (Customs) informs Supplier/Carrier/Agent about the acceptation or refusal of the cargo declaration/declaration of departure/notification -Authority (Customs) records the cargo declaration/declaration of departure/notification -Authority (Customs) informs Authority (OGA)*2 -Authority (OGA) performs risk assessment *2 -Authority (Customs) compares cargo declaration/declaration of departure/notification with Goods export information -Authority (OGA) informs Authority (Customs) *2 -Authority (Customs) carries out risk assessment*2 -Authority (Customs) co-ordinates container/goods/documents check *2 -Authority (Customs) informs Supplier/Carrier/Agent*2 -Supplier/Carrier/Agent points out the container/goods*2 -Authority (Customs) executes container/goods/document check -Authority (Customs) seals container *2 -Authority (Customs) informs Autority (OGA) about the results of the container/goods/documents check*2 -Authority (Customs) releases the container/goods (and the means of transport) for departure -Authority (Customs) informs Authority (Customs office of transit /Customs office inward/Customs Office inland) -Authority (Customs) informs Supplier/Carrier/Agent -Supplier/Carrier/Agent accepts the release information **Ends when** Goods (and the means of transport for commercial use) leaf the Customs territory.
Alternative scenarios	*3

Use Case Description Departure 8

Business Process Modelling

Unified Modelling Language (UML®)

- Simple Business Process Model
- Use Case Diagram
- Use Case Description
- **Activity Diagram**
- **Sequence Diagram**
- **Class Diagram**



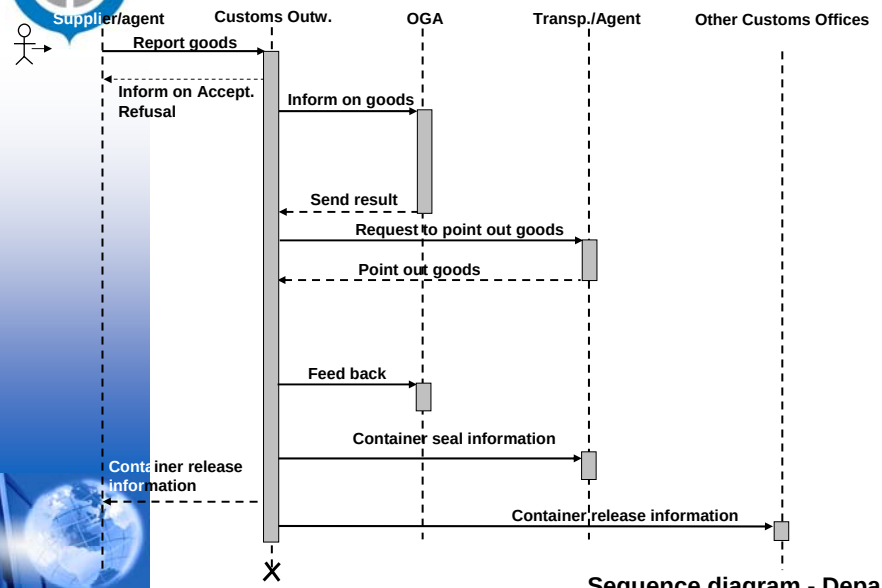
Activity diagram departure

Business Process Modelling

Unified Modelling Language (UML®)

- Simple Business Process Model
- Use Case Diagram
- Use Case Description
- Activity Diagram
- **Sequence Diagram**
- **Class Diagram**

Business Process Modelling



Sequence diagram - Departure

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Questions?

World Customs Organization

附件 6

Data Harmonization

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model

DATA HARMONISATION

World Customs Organization

SW Data Harmonisation

- Essentially to do with “standards”
- Aim is to reduce redundancy, duplication and ambiguity
- Capture/Define/Analyze/Reconcile
- WCO Data Harmonization Guidelines V2
- UNTDED

SW Data Harmonisation

- **Capturing – a simple (and real) example from the US ITDS:**
  - **Port of Unloading (Loc. where goods are removed from a ship)**
  - **Port of Unlading (where consignment is taken off the airplane)**
  - **Port of Unloading Domestic/Foreign**
  - **Port of Unlading Domestic/Foreign**

SW Data Harmonisation

- **Defining & Analyzing**
  - **All are "the location where the goods are removed from the conveyance"**
  - **Loading/Lading are synonymous**
  - **"Foreign/Domestic" determined by transaction – export implies "foreign"**
  - **Locate existing coded & free text means of how such a location might be represented (UN, ISO, Domestic Codes)**

SW Data Harmonisation

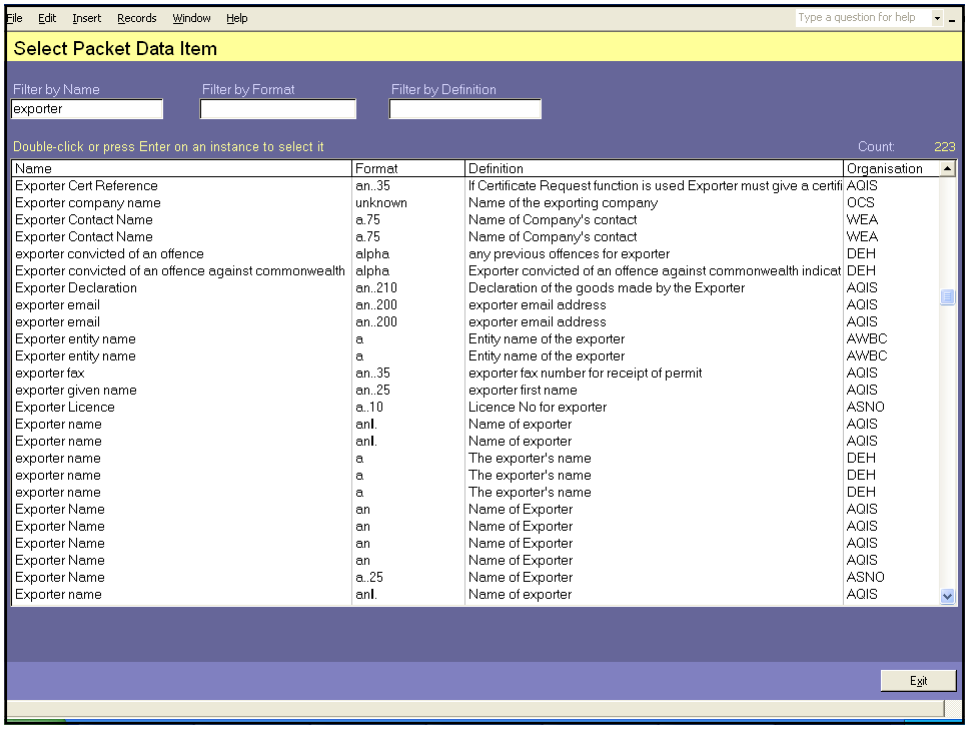
- **Reconciling**
  - Agree on one name (say “unloading”)
  - “Foreign/Domestic” can be eliminated
  - In UNTDED = “Place of Discharge”
  - Used in this way in WCO DM (Ref. 3225)
  - 6 data representations become 1

One country’s experience the AU SDS

- 41 Government Agencies
- 7,649 data elements collected
- 275 paper forms
- Reduced to 3993 with the elimination of “same as” elements within agencies
- Harmonised to 718 prior to agency review
- After first quick review = 650

One country's experience the AU SDS

- 22 Agencies collect the name of the exporter
- On 118 different forms
- Used 212 times on those 118 forms
- Described in 61 different ways
- Required in 16 different formats, ranging from 20 to 300 characters in length
- The Australian SDS standardised to one data element (Exporter Name) of 70 pos. length.



Good Practice in Data Management?

- One organisation:
- One data concept
- One business application
- Used in 17 different contexts
- 3 field sizes: 128, 250 & 2560!
- Standard definition 128
- Av. data length reported=17 chars.

Next steps

- SW developments to be aligned with the WCO Data Model, (such as ASEAN, APEC, Peru, US, Canada, Korea……)
- International organizations to act as enablers (eg: WCO, UN/ECE, APEC, IATA, IMO)
- Data harmonization to continue apace with the use of the 'WCO Customs Data Harmonization and SW Guidelines" and R34 when complete
- WCO Member countries to implement Data Model where possible

Conclusion

- Solutions are available
- Political will and commitment VITAL
- Governments to accede to relevant instruments
- Industry support to generate political will and continued commitment
- Co-ordination and Co-operation with business and within Government essential
- Have the essential Legal amendments in place
- Start now, to have it operational 5 years from now.

CROSS-BORDER TRANSACTIONS ON THE FAST TRACK

Questions ?

World Customs Organization

附件 7

Information Modelling

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model;
Information Modelling

World Customs Organization

Information Modelling

Unified Modelling Language (UML®)

- Simple Business Process Model
- Use Case Diagram
- Use Case Description
- Activity Diagram
- Sequence Diagram
- **Class Diagram**

What is Data Modeling?

- The act of exploring 'data-oriented' structures. It is a process for:
  - Formally defining data elements and relationships
  - Producing abstractions for representing and accessing data
    - Range from high-level 'conceptual' to physical data models
  - Establishing the formal meaning of related and structured data
  - Creating the blue-print for a modern information system !!
- Follows a life-cycle starting with:
  - Discovery – Designing – Documentation – Communication – implementation – Ongoing maintenance

Why is it Important?

Data Model ↔ Blueprint
Data Model ↔ Communicator

- If a system is a Building then a data model is its blueprint and business processes are a way of using the building.
  - Especially crucial for electronic interfaces for document and data exchange
  - Establishes unvarying underlying structures
    - These are more stable than process-defined views
- Corporate Data Model is a key artifact in Systems Development lifecycle
- Corporate Data Model is an investment. It is
  - Logical structures that help organize information for the long term
  - The thought invested in planning a structure
  - Flexible enough to suit *changing* process-possibilities
  - An insurance against re-work and retro-fitment costs
  - Reference model for Trader and Other Government Agencies

'Data Modelling' & Database Design

Domain // Conceptual

Identify domain entity types, attributes

- Establish Standard naming conventions
- Map with industry domain models
  - International data Standards
    - Data definitions
    - Data representations
    - Code-lists
- Choose modeling techniques
  - E-R Diagrams
- UML Models
- Identify relationships
  - Industry Domain standards
  - WCO UML Model
- Develop external messages
  - International Standard messages / EDIFACT/ XML

WCO DATA MODEL

Database Design // Physical

- Apply data model patterns (object-relational?)
- Detailed design – assign table spaces and keys
- Normalize – De-normalize
  - (Balance between low data redundancy and high performance)

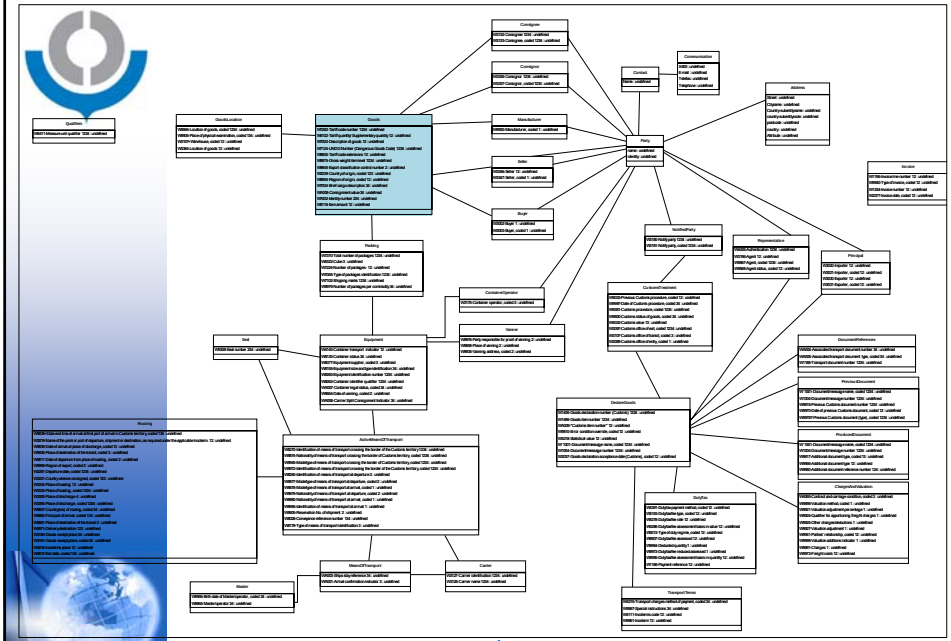
Who should be concerned?

- Experts on Procedures
  - Regulatory forms and information management for trade and taxation
  - Domestic legislation & International convention
  - Business objects (holders of data) work together with business rules that govern the use of the data
- Business process specialist
  - Data that is required for each process
- Business Intelligence specialists
  - They are always interested in corporate metadata
- Risk Management/ Targeting Specialists
  - Get a better understanding for building new risk profiles
- Database Architect Designers
  - Conceptual Data Model is the basis for Physical data base implementations
- Software architects
  - Application developers / Model-driven development
- EDI and XML specialists
  - Development and implementation of electronic messages

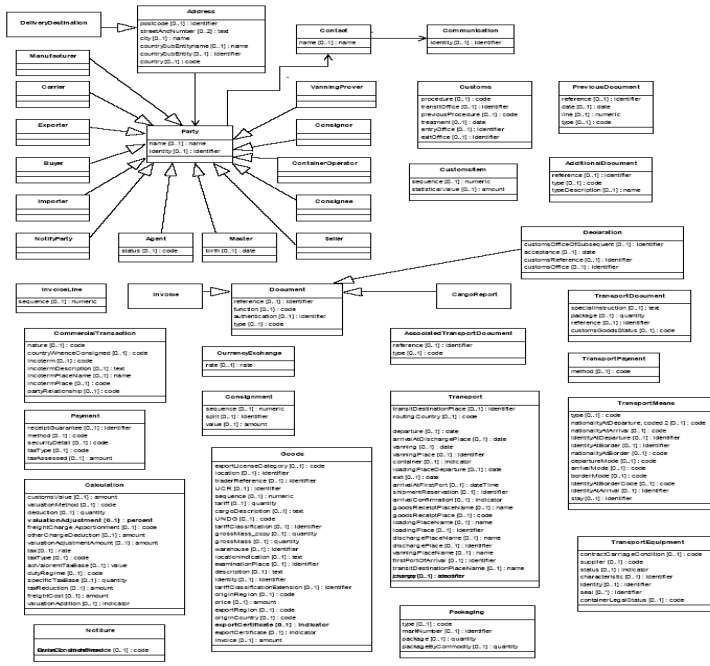
Information Modelling

So an information model contains

- A classification (grouping) of data elements into subsets where each subset has a clear definition that represents a ”real-world” concept (object, class)
- Relationships between concepts (objects, classes)



Rough model 1st draft



Class diagram : (Analysis) - WCO Data Model class diagram

Rough model 2nd draft

Information Modelling

What / How we did

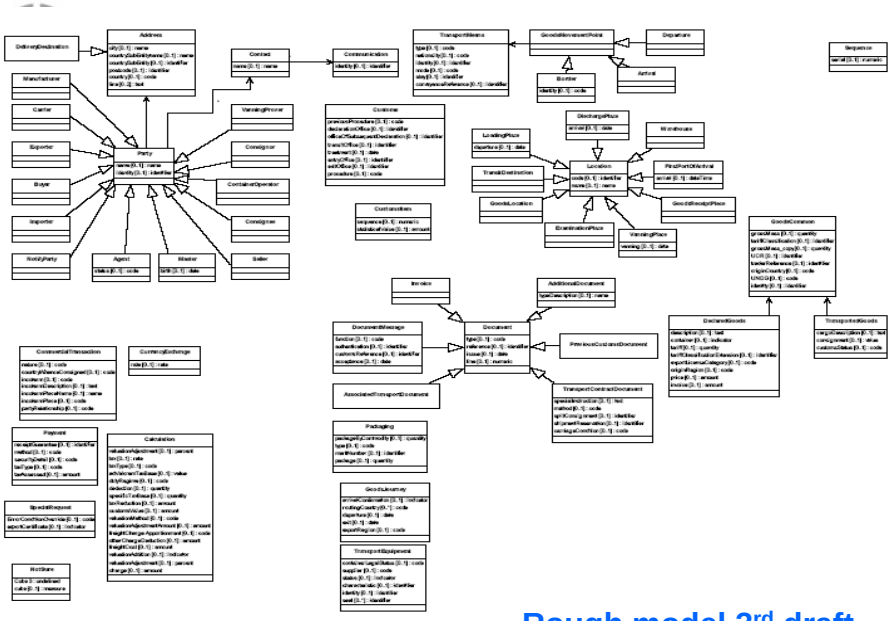
1. **Identified key concepts (sometimes by a brainstorming session) – these are potentially the classes in your model.**
2. **Classified data elements according to which concept they most closely relate to. Introduced necessary new concepts if and deleted redundant concepts.**
3. **Identified relationships between concepts.**
4. **Check, rethink, redo….**

Modeling in WCO Data Model

- Identification of simple and generic business processes
  - Using Revised Kyoto Convention (RKC)
  - To describe domain boundaries and scope –
  - Detailed enough to describe functionality but not specific enough
  - Only relevant high-level templates used
- Regulatory forms and EDI messages used as basis
  - Starting with G7 Countries Version 1.0
  - Subsequent versions built based on Data Maintenance Request
  - Driven by coverage of business processes
    - Version 1.0 covers import and export of goods and cargo
    - Version 2.0 additionally covers European transit and conveyance
    - Version 3.0 additionally covers all transit, Response and OGA
- Data Set developed based on Data Maintenance Request processing
  - Consisting of domain attributes
  - Organized according to object classes/ procedures in which they are used
  - Organized by procedures in which they are required

Modeling in WCO Data Model -contd

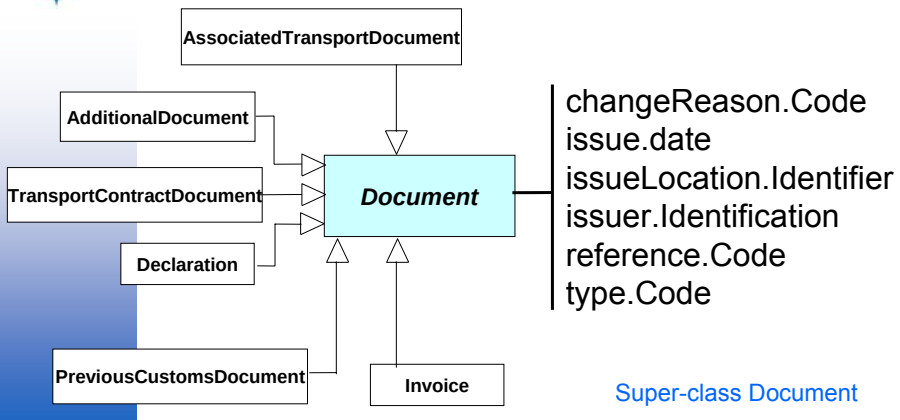
- UML modeling - Tool → Objecteering / UML 2 based
  - Classes/ attributes entered
  - Overall class diagrams is developed
  - Procedures –wise Class diagrams are developed
  - Associations (cardinality) re-defined based on Declaration as the root-class
  - Association names assigned
  - Re-used Super classes identified
- Message development - Tool → (GEFEG FX) (UML support available)
  - Classes/ Attributes entered
  - Core Data Types defined
  - Hierarchical Model developed for each procedure
  - Overall Hiearchical Model developed
  - EDIFACT Message developed based on overall model (GOVCBR)
  - XML profiles dev
- XML messages developed based on XML Spy



Class diagram : WCO Data Model class diagram

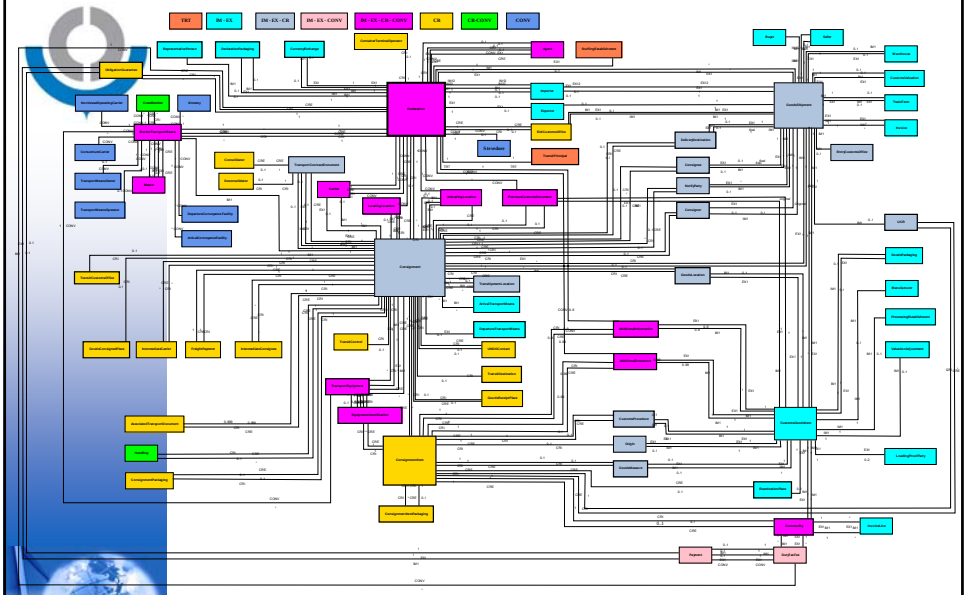
Rough model 3rd draft

Information Modelling



Super-class Document

Simplification of Document requirements



Version 2 Class diagram : Overall multi link diagram

Information Modelling

- An example of a small customs process – see zip file

"Example: Transit (TRT) files"

on the list of presentations

How to use WCO Data Model

- Develop a national database of:
  - Border regulation laws/ codes
  - Government Agencies interested in border regulation
    - Cross-border Regulatory forms
  - Regulatory data in electronic messages
  - Code-lists
  - Data used in procedures/ administrative data
    - Derived from running databases
- Produce mapping between national databases and international standards
  - WCO Data Model
  - UNTDED & UNCEFACT - Core Component Library (CCL)
  - Note – WCO DM is being aligned with UNCEFACT CCL and
- Use WCO Data Model definitions, representations and code lists
- Use WCO EDIFACT and XML structures
  - Preferably, use WCO element naming
- Use extensions of WCO DM if absolutely necessary as per national legislations
  - Submit data maintenance requests to WCO Data Model project team

Information Modelling

Essentially…

- **Modelling is a small part SCIENCE, a large part ART – do not underestimate the ”gut reaction”**
- **Try it, test it, reconsider, ask ”silly” questions, reconsider, debate.**
- **In the end:**
  - **Does it make sense?**
  - **Are definitions and concepts clear?**
  - **Are there a reasonable amount of attributes and relationships in/with a class?**

Information Modelling

Final thoughts

- There is some evidence that, unfortunately (???), the act of modelling (classification, naming) is often more valuable than the actual resulting model.
  - Model your own process/ document/ message (with reference to the WCO Data model), you will probably gain some valuable insights.
  - Always co-operate on models
  - Do not attempt to show everything in one diagram
  - Have fun

Information Modelling

REMEMBER;

“It’s only a model”

“A model is never perfect”

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Questions?

World Customs Organization

附件 8

WCO Data Model; Implementation

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model;
Implementation

World Customs Organization

Data Model, Implementation

- Bilateral or multilateral basis
- After close consultation with trade
- Collaboration with colleague Cross-Border Regulatory Agencies (SW environment)
- Over time, not overnight
- Government, trade & transport to align long-term business and investment plans

2

Data Model, Implementation

- To assist Members to implement the WCO Data Model;
  - Documents have been produced
    - Informative material for:
      - The CEO/ DG (Head of Customs Service),
      - The CIO (Head of IT)
      - For the IT Project Manager

      (On ePrimer)
    - WCO Data Model – Basic Principles (On ePrimer)
    - Framework for Conformity (On ePrimer)
    - Recommendation concerning the use of the WCO Data Model (On ePrimer)
  - WCO Single Window Web pages (On WCO public website)

  http://www.wcoomd.org/sw.htm

Data Model, Implementation

SUMMARY

- The Data Model is one of many WCO TF and security-related instruments
- It is a “work in progress”
- It exists within the context of the RKC and other instruments/principles
- It caters for B2G and G2G exchanges
- It caters for G2B response messages
- It is now in the SW environment
- It is the only Data Model with authorised legal Cross Border requirements

I hope I did not overload you with information on the WCO Data Model

5

CROSS-BORDER TRANSACTIONS ON THE FAST TRACK

Questions?

World Customs Organization

附件 9

WCO Data Model & GOVCBR

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model
& GOVCBR

World Customs Organization

Prior to GOVCBR

- "mono" functional messages EDIFACT standard:
  - CUSREP - Reporting Means of transport crossing the border (vessel, aircraft) entering and leaving
  - CUSCAR - Reporting of cargo export and import
  - CUSDEC - Declaration of goods export and import
  - CUSPED- Periodic goods declaration
  - SANCRT - Reporting of sanity certificates
  - PAXLST- Passengers list
- The "multi" functional GOVCBR can serve the purpose of all messages except the PAXLST

The GOVCBR

- Proposed to be an United Nations Standard Message according EDIFACT rules
- The first UN EDIFACT message developed from data model and a business information model
- A single message to make a Whole-of-Government Cross-Border Single Window feasible.
- To be used by all relevant Cross-Border Regulatory Agencies such as Customs (SW parties) .
- A multi functional message that can be used for Import, Export and Transit purposes and for Response messages.

The GOVCBR

- A flexible EDIFACT compliant message
- Helps compose specific messages for a specific purpose
- "Mini" message for a simplified procedure or a "compound message" for an export = import message)
- Submission of the legally required data only once (a key condition for a SW)
- The message can be transmitted in several parts.
- Caters for the legal requirements for:
  - Customs and Statistics.
  - Immigration (Crew),
  - Environment protection (Basel Convention),
  - Marine Safety,
  - Agriculture,
  - Food safety

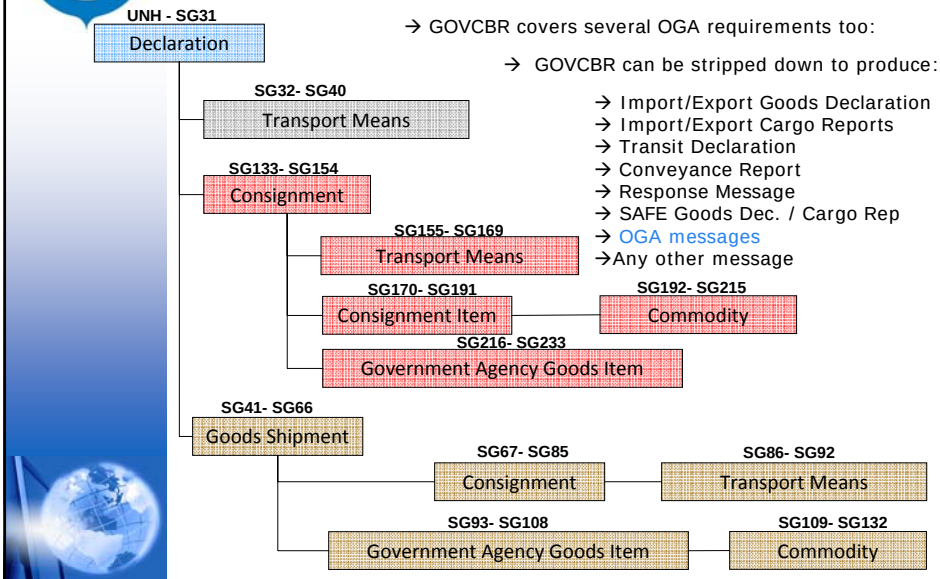
STRUCTURE OF GOVCBR

→ GOVCBR message represents the whole of the Data Model

→ GOVCBR covers several OGA requirements too:

→ GOVCBR can be stripped down to produce:

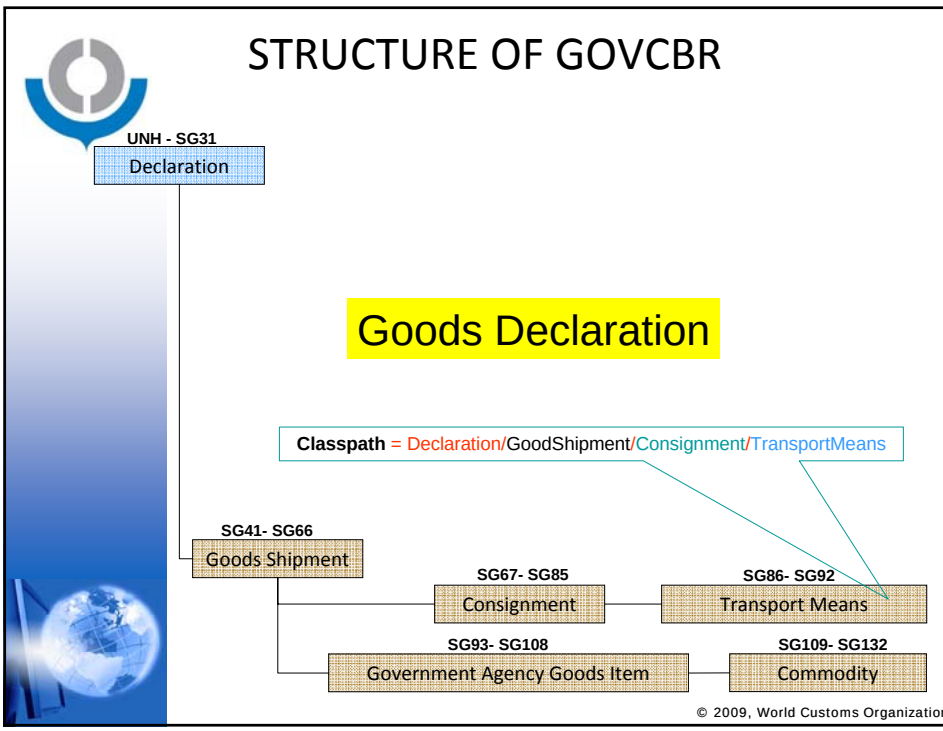
→ Import/Export Goods Declaration
→ Import/Export Cargo Reports
→ Transit Declaration
→ Conveyance Report
→ Response Message
→ SAFE Goods Dec. / Cargo Rep
→ OGA messages
→Any other message



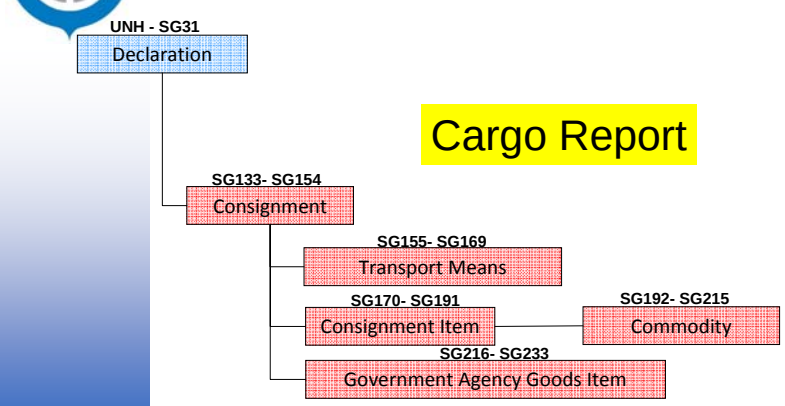
STRUCTURE OF GOVCBR

Goods Declaration

Classpath = Declaration/GoodShipment/Consignment/TransportMeans

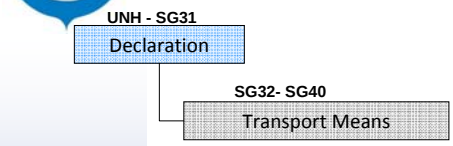


STRUCTURE OF GOVCBR



Cargo Report

STRUCTURE OF GOVCBR



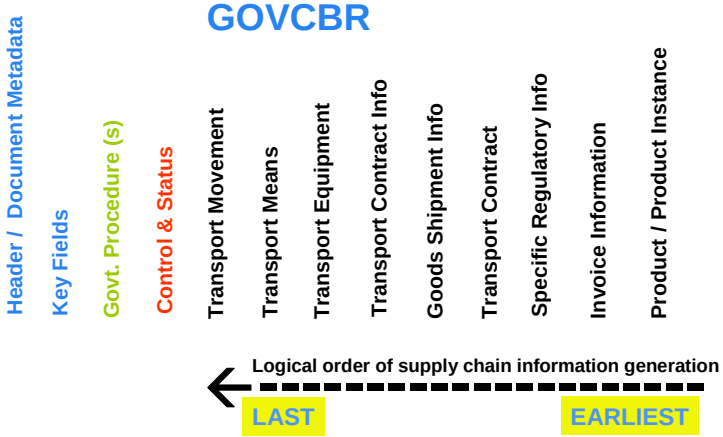
Conveyance Report

Conveyance Report

Principles of Single Submission

- Submit information only once:
  - Submitted information in parts -
    - In 'small' messages – or snippets
    - At the earliest available opportunity
    - From the responsible party that has it first
  - Use of multiple transmissions
    - Use 'key fields' to link-up different transmissions
    - Maintain data integrity and authentication
      - Ensuring that legal requirements are met in this regard.
  - Time-variant data may be re-submitted
    - It may changes during the transaction

GOVCBR

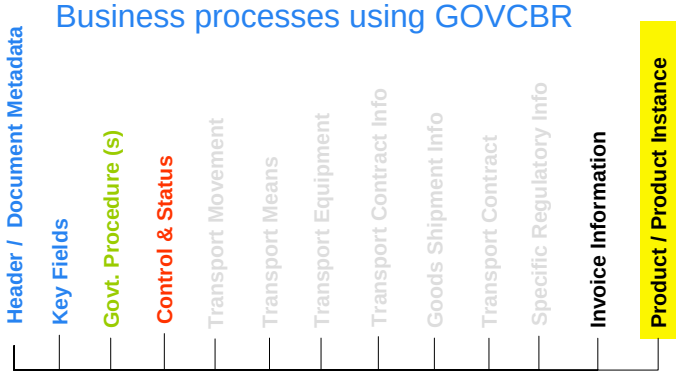


→ Implications for Information Management in a SW

→ Ideas for SW business processes

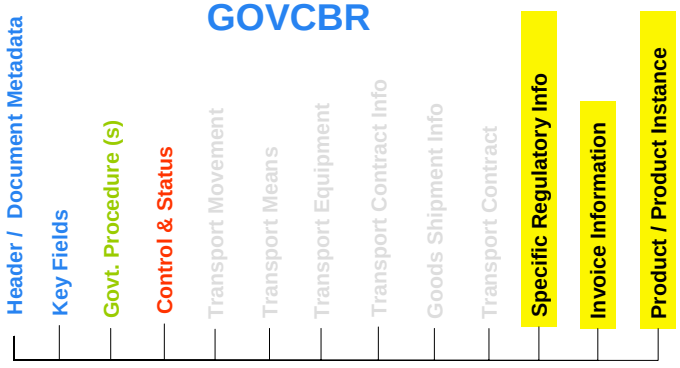
→ **Small Messages for SW using GOVCBR**

Business processes using GOVCBR

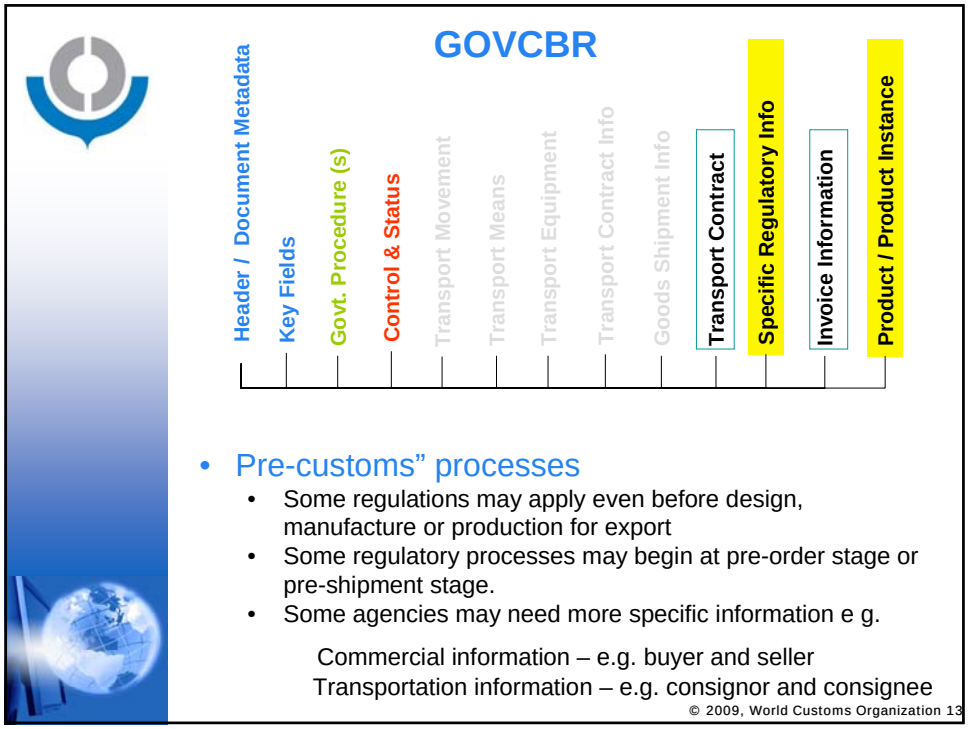


- Regulatory & tariff information
  - Query on regulatory regimes for a commodity
    - Duties & taxes by duty/tax type
    - Regulatory requirements for import or export etc.
  - Vital part of “Informed regulatory compliance” strategy
  - Better to implement using XML & web services

GOVCBR

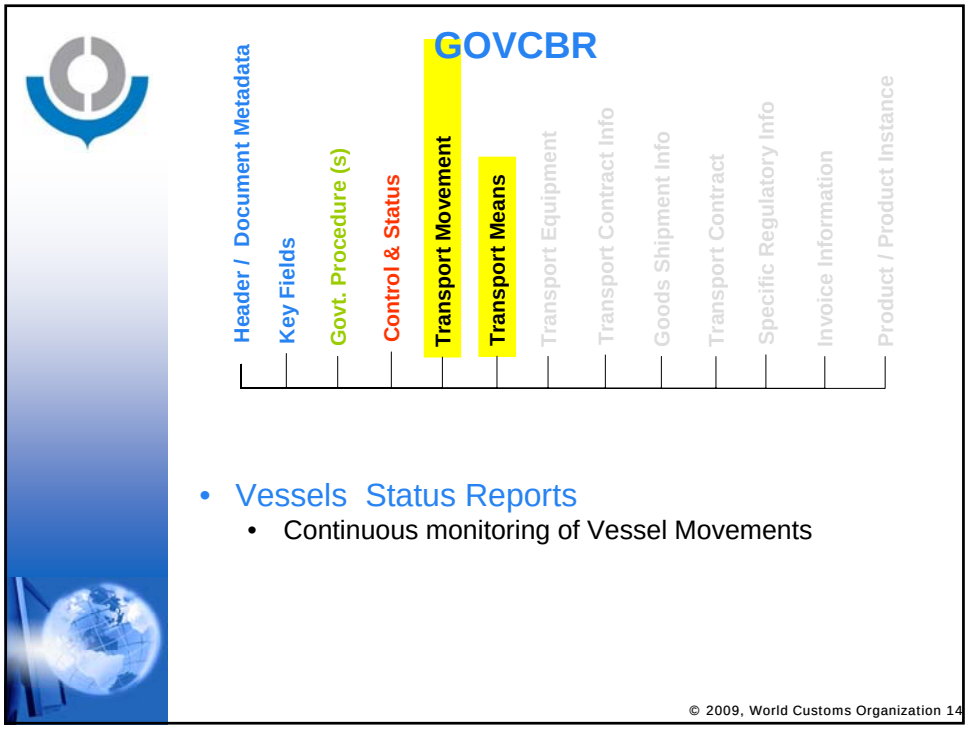


- “Pre-customs” processes
  - Pre-authorization of commodities
    - By cross-border regulatory agencies
  - Application and issue of
    - Licenses, permits, certificates, others (LPCO)

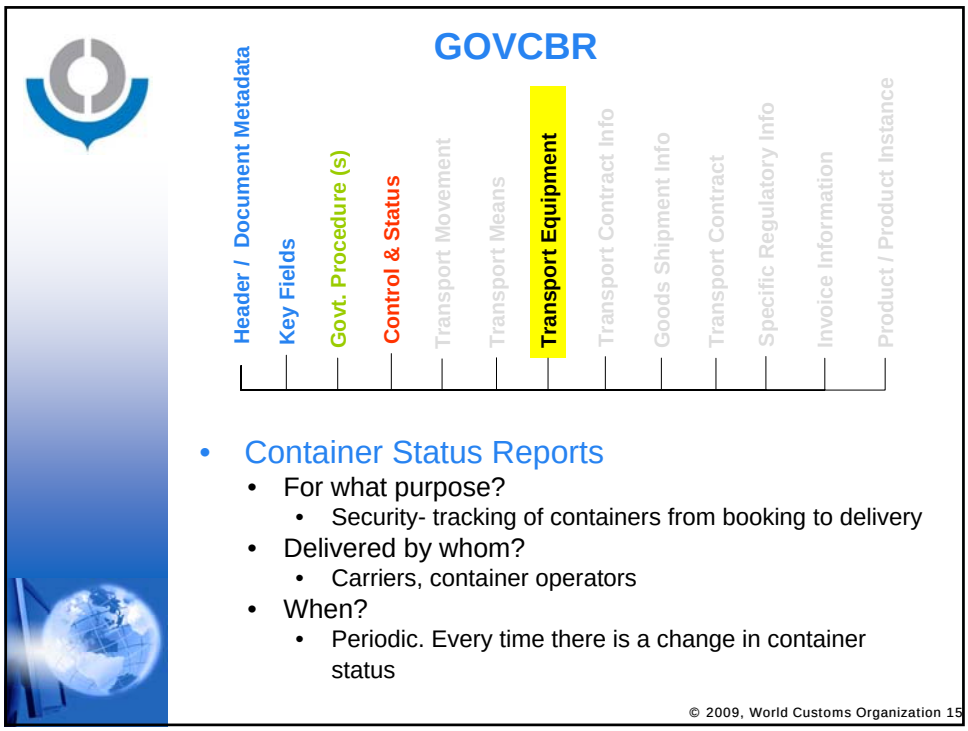


- Pre-customs" processes
  - Some regulations may apply even before design, manufacture or production for export
  - Some regulatory processes may begin at pre-order stage or pre-shipment stage.
  - Some agencies may need more specific information e g.

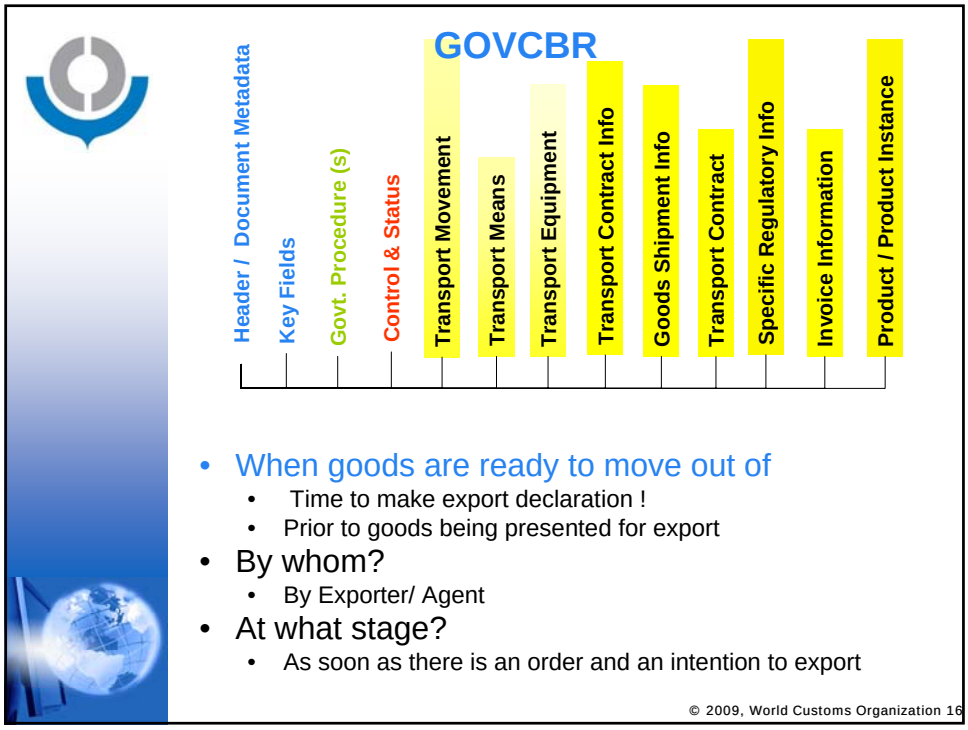
    Commercial information – e.g. buyer and seller
    Transportation information – e.g. consignor and consignee



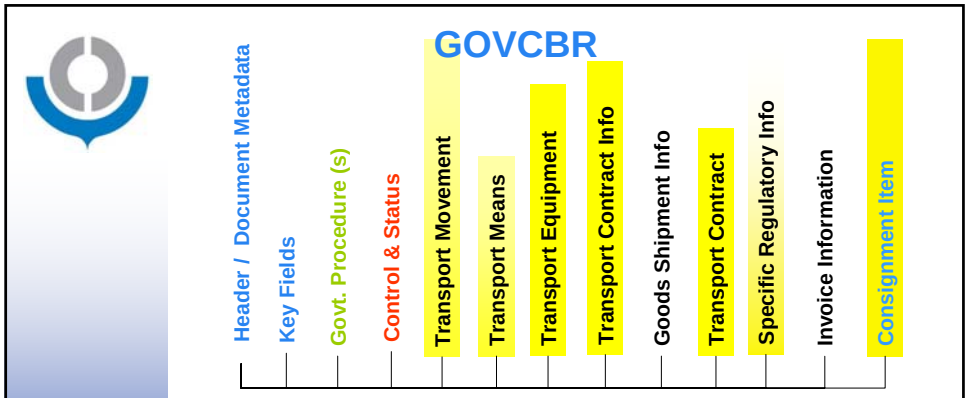
- Vessels Status Reports
  - Continuous monitoring of Vessel Movements



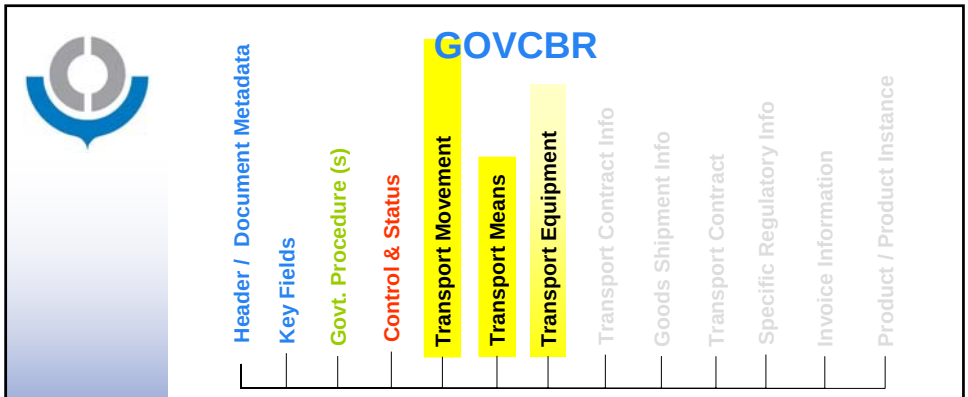
- Container Status Reports
  - For what purpose?
    - Security- tracking of containers from booking to delivery
  - Delivered by whom?
    - Carriers, container operators
  - When?
    - Periodic. Every time there is a change in container status



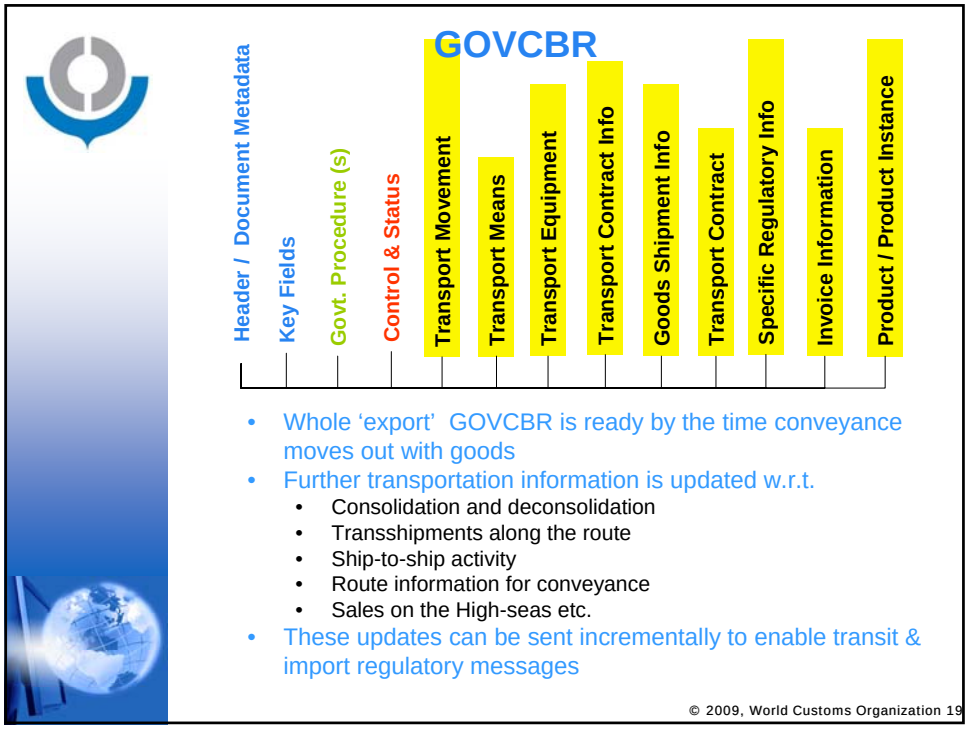
- When goods are ready to move out of
  - Time to make export declaration !
  - Prior to goods being presented for export
- By whom?
  - By Exporter/ Agent
- At what stage?
  - As soon as there is an order and an intention to export



- Cargo Report
  - For regulatory control of cargo
  - For Inventory keeping
- By whom?
  - By Carrier/ Agent
- At what stage
  - At departure and arrival of vessels
    - Especially discharge of import and export cargo
    - Ship stores
  - At each stop in the route



- Conveyance Report
  - Regulating vessels movements into and out of Cargo facilities & Locations
  - By whom?
    - By Carrier/ Master/ Agent
  - When?
    - At departure and arrival.
    - At each stop in the route



- Whole 'export' GOVCBR is ready by the time conveyance moves out with goods
- Further transportation information is updated w.r.t.
  - Consolidation and deconsolidation
  - Transshipments along the route
  - Ship-to-ship activity
  - Route information for conveyance
  - Sales on the High-seas etc.
- These updates can be sent incrementally to enable transit & import regulatory messages

Principles of Single Submission - revisited

- Above slides talk about:
  - What information can GOVCBR handle
  - Who can submit that information
  - At what stage can that information be submitted
- Above slides do not talk about:
  - How this information will be used in a single window?
    - How will it be shared between CBR agencies?
    - What is the legal basis for sharing?
  - Business to Business exchanges
    - Parts of the Single window also depends on B2B mechanisms
  - Sharing of export, transit and import information among regulatory agencies

Guidelines

- WCO Data Model provides
  - EDIFACT guidelines for
    - Import, Export, Cargo Report import, Cargo report export, conveyance report, Transit and Response.
    - All based on one single GOVCBR UN EDIFACT message
    - Users can derive additional guidelines for local use.
  - XML Guidelines for use Cross-border regulatory business processes

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Thank You

World Customs Organization

附件 10

WCO Data Model Instruments SAFE/RKC

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

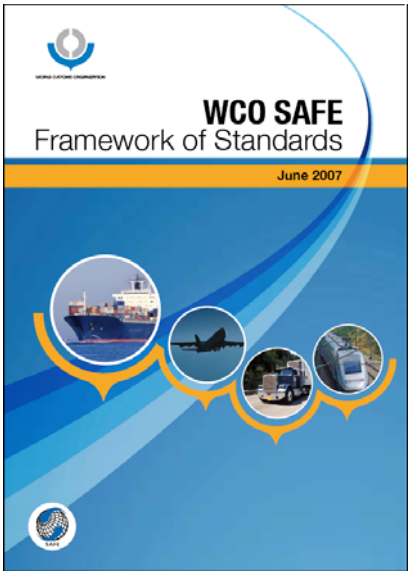
WCO Data Model

Instruments SAFE / RKC

World Customs Organization

SAFE Framework of Standards

Security of the international supply chain



SAFE FoS

History:

- Resolution I (2002) – WCO Task Force
- Develop Standards
  - HARMONIZED PROCEDURES eg: revised Kyoto Convention and WCO Business Partnership Guidelines
  - HARMONIZED CUSTOMS CONTROL - common risk management/assessment/profiles
  - HARMONIZED DATA REQUIREMENTS = WCO Data Model with UCR as common action key

SAFE FoS

History II:

- Resolution II (2004) – WCO High-level Strategic Group
  - Implement Standards/Capacity Building
  - SAFE Framework of Standards/AEO Guidelines
  - Strategic use of data to better manage international supply chains/ISCM
  - WCO Data Model and the UCR
  - Columbus Program

Objectives of the Framework

- Certainty and predictability at a global level
- Integrated supply chain management for all transport modes
- Allow Customs to meet the challenges and opportunities of the 21st Century
- Closer cooperation among Customs administrations
- Stronger Customs-to-Business cooperation
- Tangible benefits for businesses
- Seamless movement of goods

Four core elements

1) Advance electronic manifest information
2) Common risk-management approach
3) Inspection of high-risk cargo at port of origin (Focus upon exports)
4) Enhanced trade facilitation for legitimate trade (Authorized Economic Operator concept)

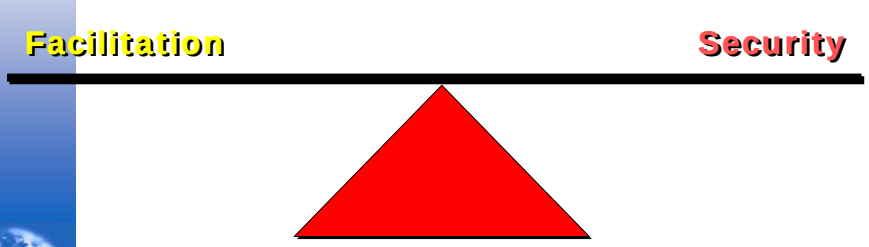
SAFE FoS

Latest amendments:

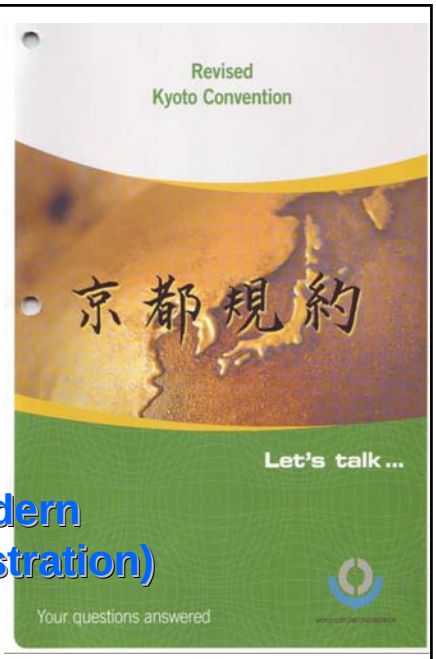
- B2G Column (CBM Building Block in C21)
- "10+2" and the SAFE Data Element maintenance mechanism
- SAFE and 100% scanning; the only realistic alternative?

Trade Facilitation vs. Security

WCO Framework of Standards



Revised Kyoto Convention



(Blueprint for Modern Customs Administration)

Revised Kyoto Convention

- International Convention on the Simplification & Harmonization of Customs Procedures 1999
- Risk Management & Audit controls
- Pre-arrival processing
- Limit information to that necessary for compliance with Customs' law
- Electronic submission of declarations and supporting documents
- Use of international standards

Revised Kyoto Convention

CHAPTERS OF THE GENERAL ANNEX

1 - General principles
2 - Definitions
3 - Clearance and other Customs formalities
4 - Duties and taxes
5 - Security
6 - Customs control
7 - Application of information technology
8 - Relationship between the Customs and third parties
9 - Information, decisions and rulings supplied by Customs
10 - Appeals in Customs matters

RKC PRINCIPLES

THE GENERAL ANNEX RECOMMENDS ALL KEY ELEMENTS THAT A MODERN CUSTOMS SHOULD APPLY :

- STANDARDS, SIMPLIFIED CUSTOMS PROCEDURES AND PRACTICES
- CONTINUOUS DEVELOPMENT AND IMPROVEMENT OF CUSTOMS CONTROL TECHNIQUES
- MAXIMUM USE OF INFORMATION TECHNOLOGY
- PARTNERSHIP APPROACH BETWEEN CUSTOMS AND TRADE

Revised Kyoto Convention
General Annex Chapter 7

- **APPLICATION OF INFORMATION TECHNOLOGY**
- **7.1. Standard**
- **Customs shall apply information technology** to support Customs operations, where it is cost-effective and efficient for the Customs and for the trade. Customs shall specify the conditions for its application.
- **7.2. Standard**
- When introducing computer applications, **Customs shall use** relevant internationally accepted **standards.**
- **7.3. Standard**
- The introduction of information technology shall be carried out in **consultation with all relevant parties** directly affected, to the greatest extent possible.
- **7.4. Standard**
- New or revised **national legislation** shall provide for:
- **electronic commerce** methods as an alternative to paper-based documentary requirements;
- electronic as well as paper-based **authentication** methods;
- the right of the Customs to retain information for their own use and, as appropriate, to exchange such information **with other Customs administrations** and all **other legally approved parties** by means of electronic commerce techniques.

RKC Specific Annexes

- **Cover different aspects of Customs procedures**
- **Contain Chapters which deal with specific procedures**
- **Acceptance of one or more of the Specific Annexes/Chapter(s) optional**
- **Contain Standards and Recommended Practices**
- **No reservations permitted to Standards**

RKC GUIDELINES

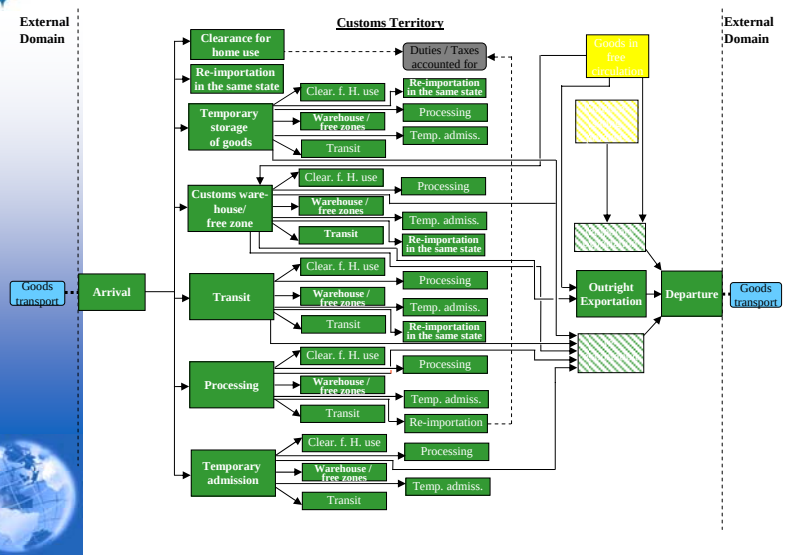
- All Annexes and Chapters to be accompanied by implementation Guidelines
- Guidelines to contain detailed information on implementation of
  - Provisions in the Annexes
  - Simplified procedures
  - Best practices
- Guidelines not a part of the legal text
- Guidelines to be reviewed and updated to reflect current practices

General Annex Chapter 7 ICT Guidelines

- Purpose = “to focus the attention of Customs administrations on the impact of ICT on their business”
- 15 Chapters; 17 Appendices, 149 pages
- Includes: strategic planning, change management, system development, comms, security, authentication, legal issues, audit, e-commerce, cost/benefit, WCO recommendations on IT & common problems

Revised Kyoto Convention

Global model



CROSS-BORDER TRANSACTIONS ON THE FAST TRACK

Questions ?

World Customs Organization

附件 11

WCO Data Model; WCO Legal Instruments

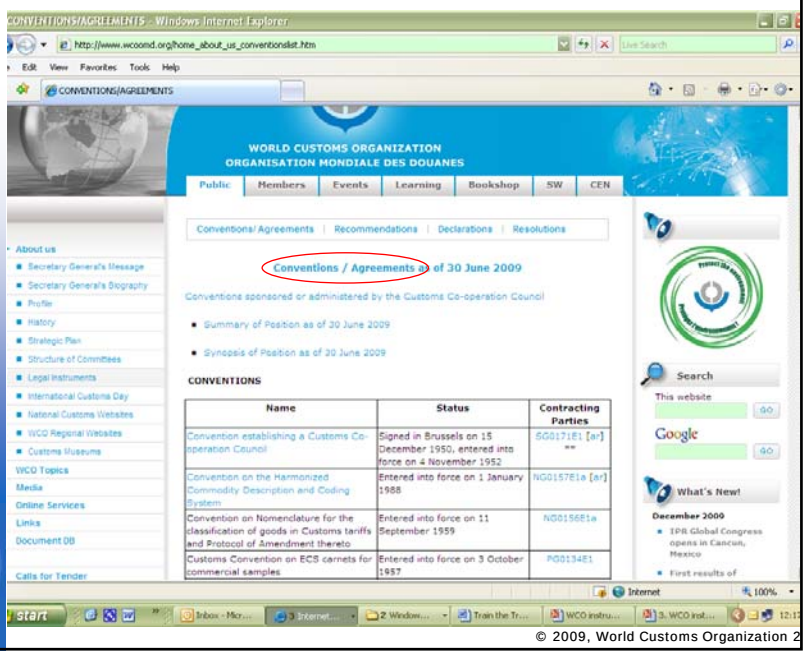
CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model;

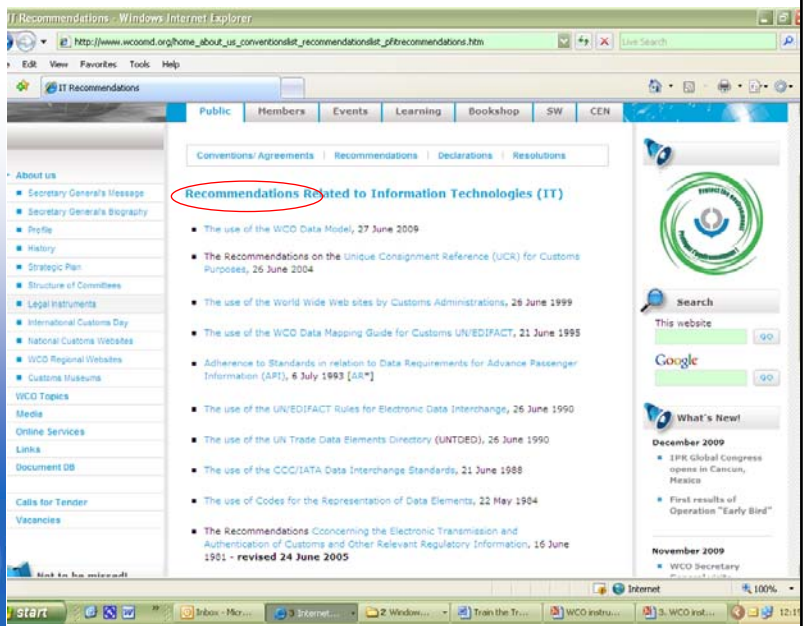
WCO Legal instruments

World Customs Organization

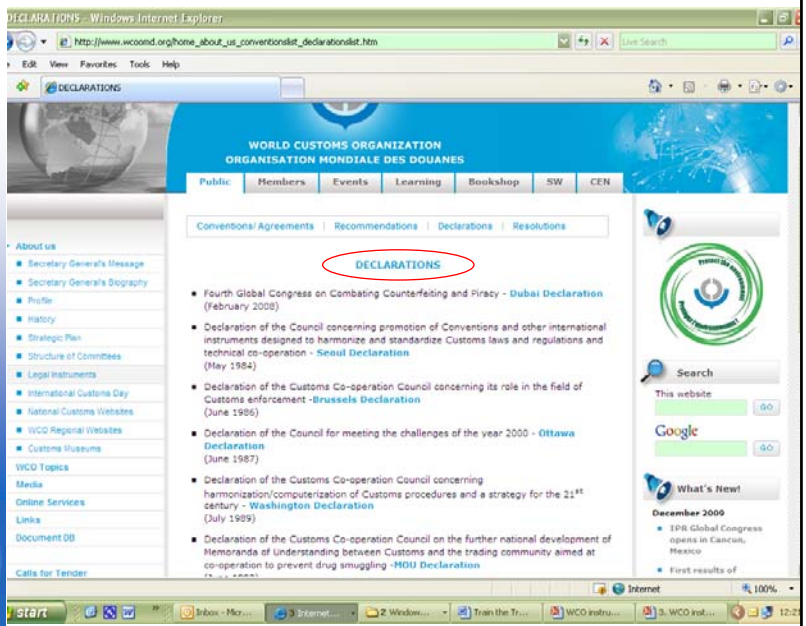
CONVENTIONS



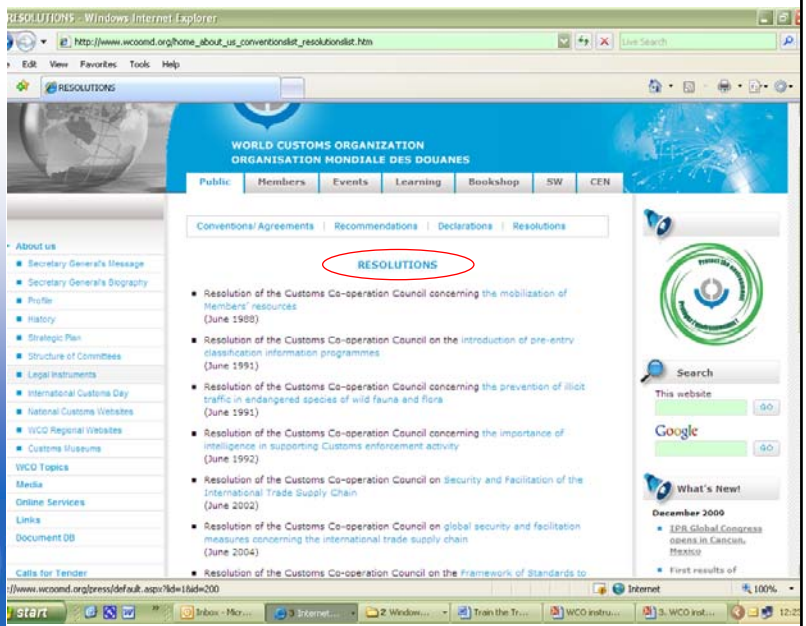
RECOMMENDATIONS



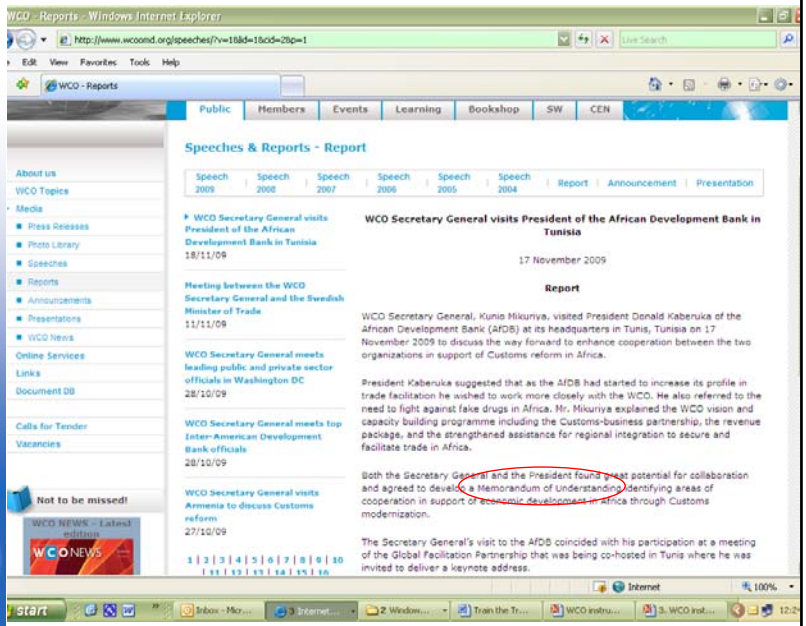
DECLARATIONS



RESOLUTIONS



M. O. U. s



附件 12

WCO Data Model； SINGLE WINDOW

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model
SINGLE WINDOW

World Customs Organization

Single Window to Government

The Single Window environment is a complex technical issue, but it cannot work without the politics and other non-IT issues being examined first.

Be sure to get the policy, legal and administrative frameworks analysed and sorted before looking at technical options.

Single Window to Government

a cross border, ‘intelligent’, facility that allows parties involved in trade and transport to lodge standardised information, mainly electronic, with a single entry point to fulfil all import, export and transit related regulatory requirements.

Single Window to Government

- Single Gateway – inwards & outwards
- Harmonized & Standardized Data
- Legal agreements in place
- Integrated Risk Assessment (*sharing of intelligence, IT architecture options*)
- Audit trail; archiving

Single Window Offers

- Single point of data submission
- Transmitted to appropriate authorities
- Ability to reuse data – submit once use many times
- Single point of response
- Data standardisation
- Combined online trans. status
- Online report capability

Benefits of a SW

- **Benefits for Government**
  - Supply chain security increased
  - More effective and efficient use of resources
  - Correct revenue yields
  - Improved trader compliance
  - Increased accuracy of trade figures
- **Benefits for Industry**
  - Reduced cost of compliance
  - Faster clearance and release
  - Predictable application/explanation of rules
  - Effective and efficient deployment of resources

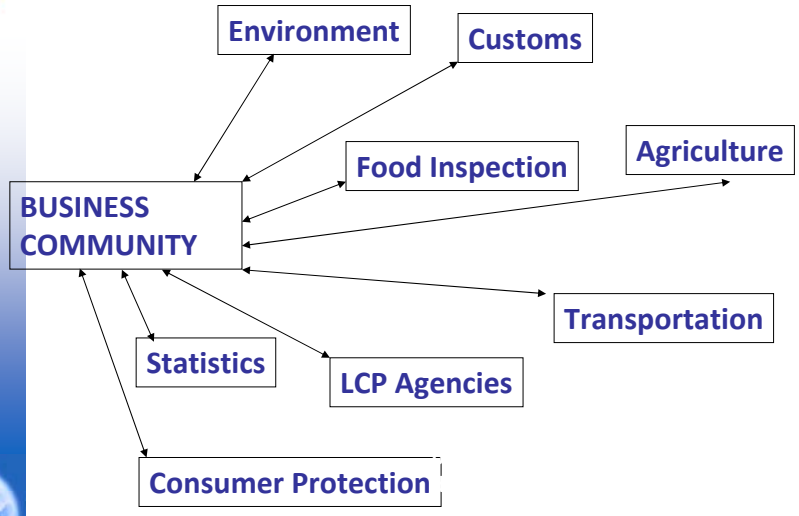
Single Window to Government

- UN Recommendation 33
- WCO Guidelines on "Data Harmonisation and Single Window"
- WCO and UNCITRAL a comprehensive "guide" covering (almost) all possible legal requirements, MOU's, agreements, pitfalls and benefits when setting up or operating a SW.

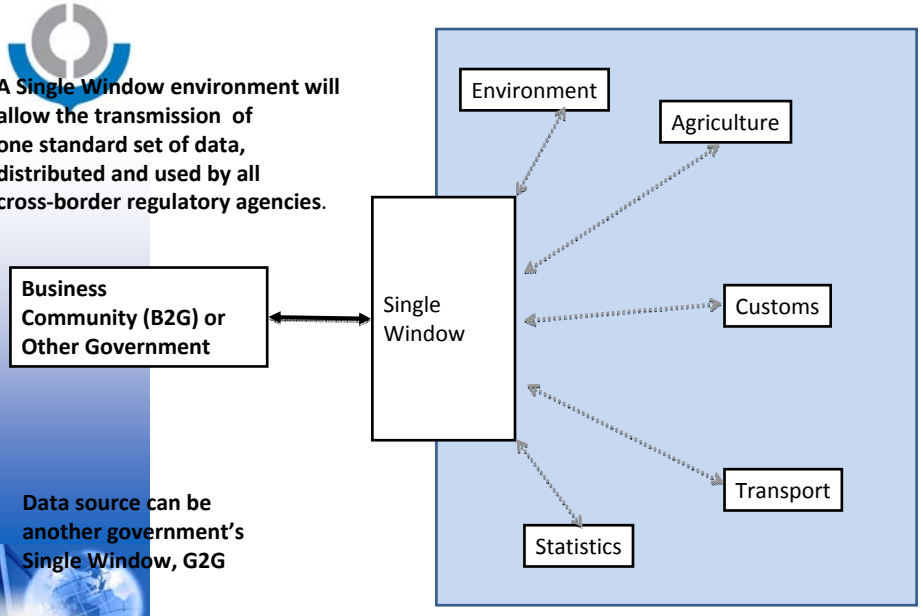
Customs and Single Window

- Customs has the dominant role at the border
- US ITDS and SAFE Port Act
- Similar legislative/administrative arrangements in CA, AU, KO, NL etc.
- APEC SWWG, ASEAN
- Technological neutrality for data standards
- Adopting a whole-of-government approach to border regulatory processes and associated data

Current Situation

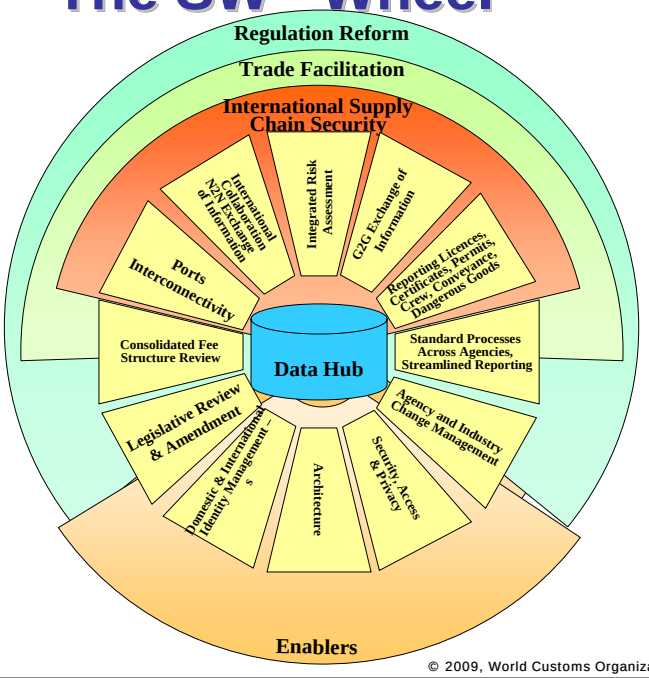


A Single Window environment will allow the transmission of one standard set of data, distributed and used by all cross-border regulatory agencies.

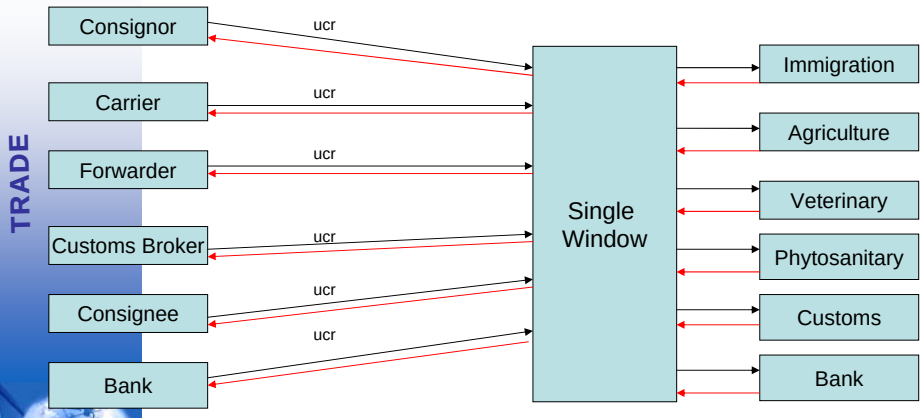


Data source can be another government's Single Window, G2G

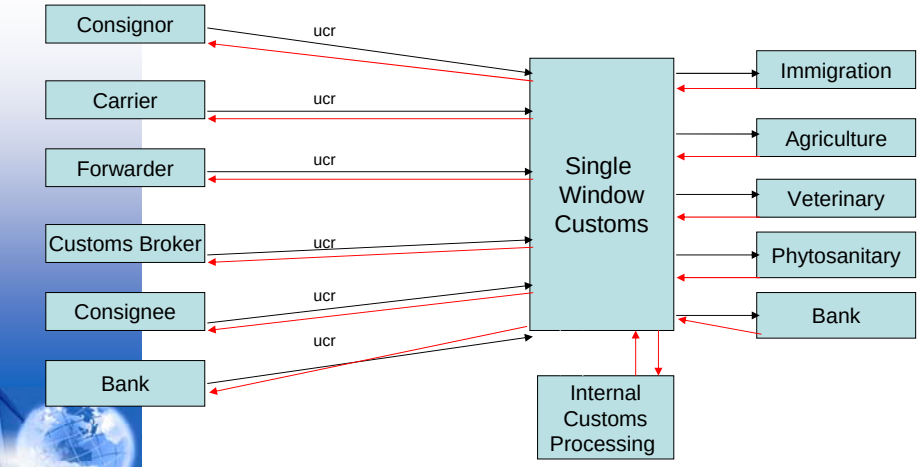
The SW "Wheel"



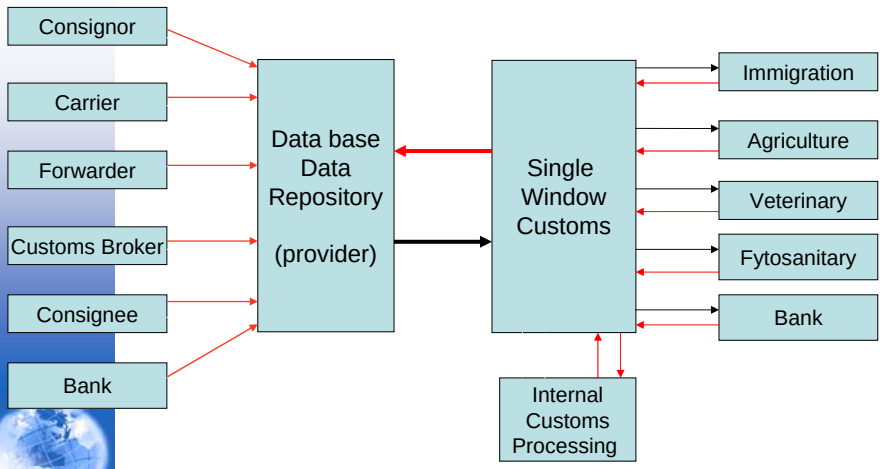
Single Window- Typology of design - I

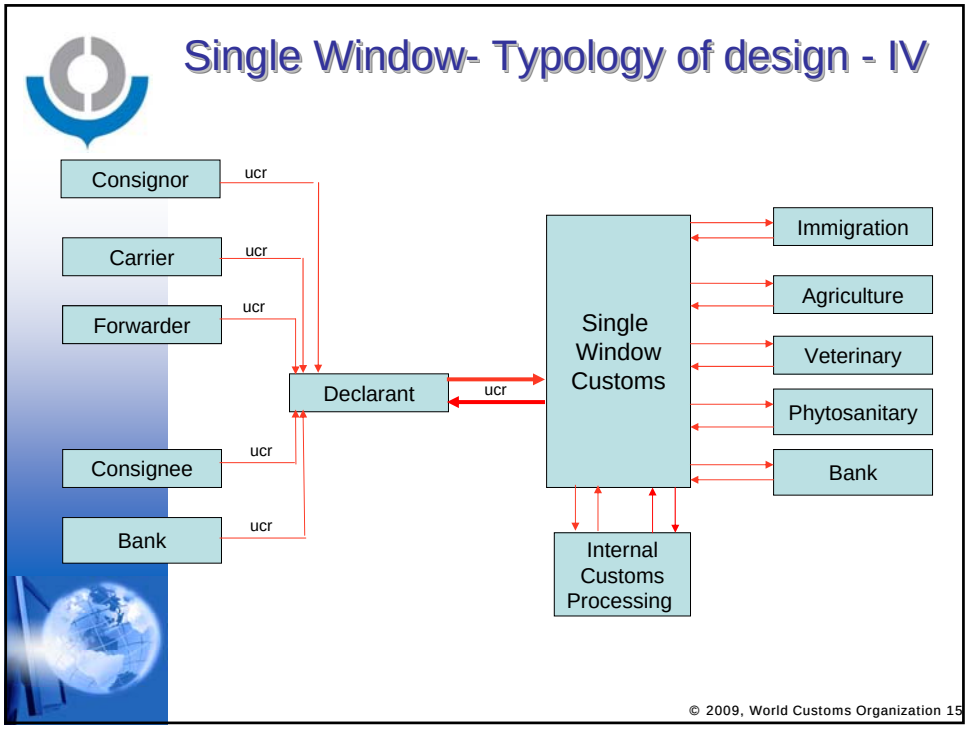


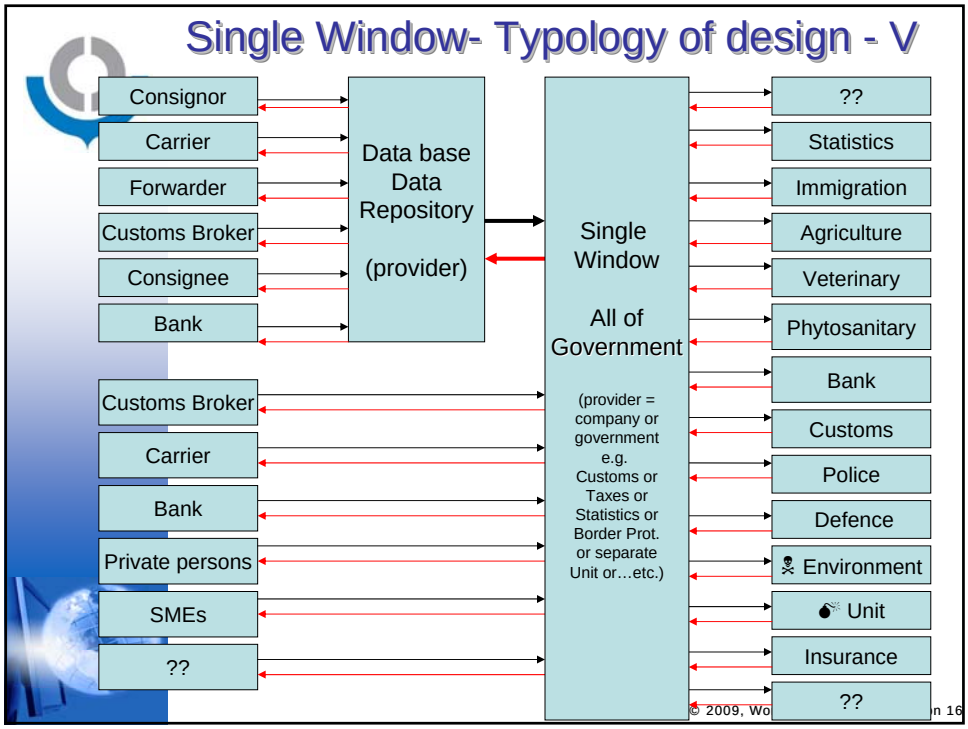
Single Window- Typology of design - II



Single Window- Typology of design - III




Single Window- Typology of design - IV
Consignor
Carrier
Forwarder
Consignee
Bank
ucr
Declarant
Single Window Customs
Immigration
Agriculture
Veterinary
Phytosanitary
Bank
Internal Customs Processing
© 2009, World Customs Organization 15


Single Window- Typology of design - V
Consignor
Carrier
Forwarder
Customs Broker
Consignee
Bank
Data base Data Repository
(provider)
Customs Broker
Carrier
Bank
Private persons
SMEs
??
Single Window
All of Government
(provider = company or government e.g. Customs or Taxes or Statistics or Border Prot. or separate Unit or…etc.)
??
Statistics
Immigration
Agriculture
Veterinary
Phytosanitary
Bank
Customs
Police
Defence
Environment
Unit
Insurance
??
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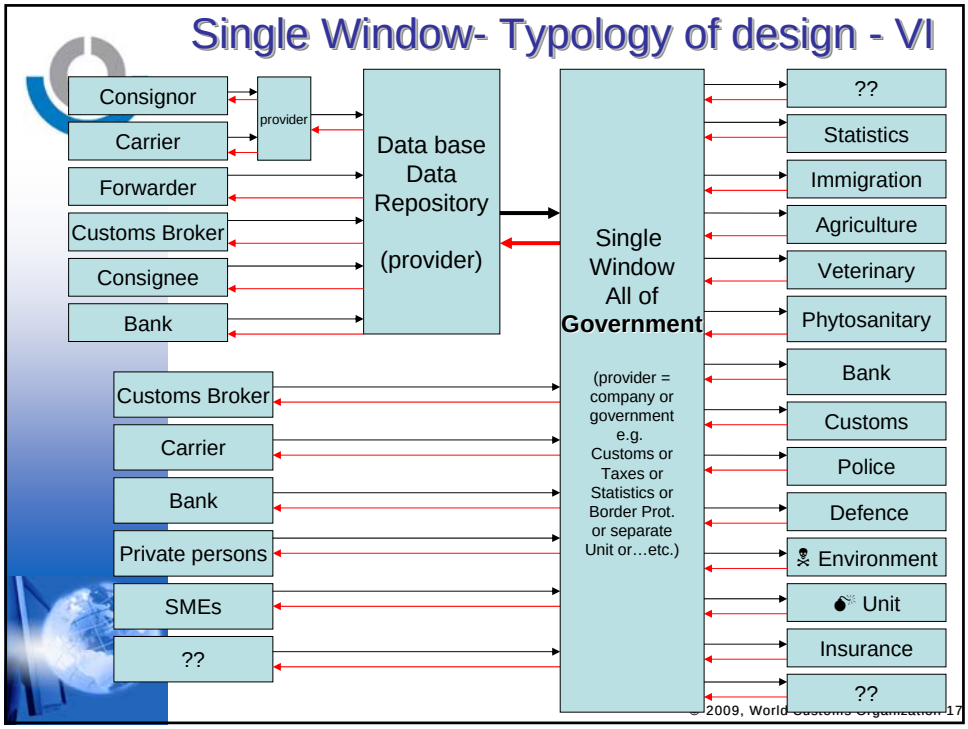

Single Window- Typology of design - VI
Consignor
Carrier
Forwarder
Customs Broker
Consignee
Bank
provider
Data base
Data
Repository
(provider)
Single
Window
All of
Government
(provider =
company or
government
e.g.
Customs or
Taxes or
Statistics or
Border Prot.
or separate
Unit or…etc.)
Customs Broker
Carrier
Bank
Private persons
SMEs
??
??
Statistics
Immigration
Agriculture
Veterinary
Phytosanitary
Bank
Customs
Police
Defence
Environment
Unit
Insurance
??
© 2009, World


CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK
Questions?
World Customs Organization

附件 13

WCO Data Model Co-ordinated Border Management

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model <> Co-ordinated Border Management

World Customs Organization

The Context

- Single Window
- Whole-of-Government Cross-Border Single Window (DMv3)
- Co-ordinated Border Management (system)

Nr. 1 does not need to be a nr. 2 and nr. 2 not a nr. 3 but a nr. 3 needs to have a nr. 2 and a nr. 2 needs to have a nr. 1 ☺

Co-ordinated Border Management Why What

- Many inspections and controls at the border
- If not properly managed,
  - slow release times,
  - delays to travellers,
  - increased costs to Trade
- One way to solve is Co-ordinated Border Management System

Co-ordinated Border Management Why What II

Co-ordinated Border Management

- national and international co-operation and co-ordination
- to ensure that borders are managed with maximum effectiveness and efficiency
- complicated procedures, integrity problems, excessive number of controls, poor co-ordination and organisation of border control processes, no effective information sharing among border agencies

Co-ordinated Border Management Why What III

- central to ensure open and secure borders
- “one size fits all” does not exist
- needs to be developed for the particular geographical area where it is being implemented
- two major features–
  - a domestic border management system which involves domestic integration within agencies of one country or customs union and an international border management system
  - international border management system involving integration between neighbouring countries and trading partners

Co-ordinated Border Management Why What IV

A CBM system must address:

- the multiplicity of agencies at the border;
- financial and staffing limitations;
- national and international co-operation;
- adaptation of international standards;
- transparency concerning legislation, regulations and procedures;
- Co-ordination of controls with neighbouring and trading entries;
- identification of possible security risks while processing border traffic; and
- complex legal issues, both legislative and contractual.

Single Window- The Context

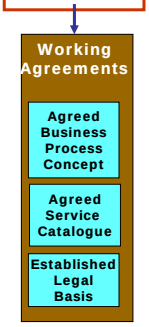
- Trade as a driver for growth and investment promotion
- Liberal trade regimes with regional focus
- Expectations for prompt and efficient services that enable international trade
- **WCO's standards and instruments for efficient and effective border procedures**

Components

Pre-requisite for setting up whole-of-government cross-border Single Window.

All participating authorities have to agree

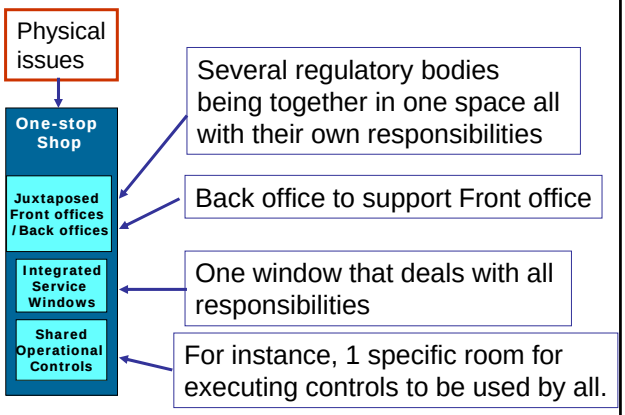
Soft issues



Most important is the legal bases:

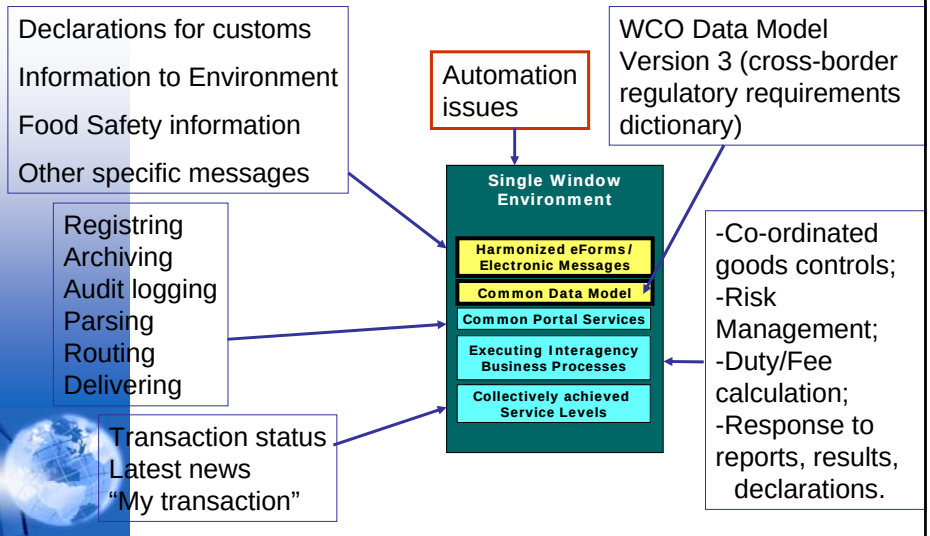
- exchange of information between official bodies?
- the legal position of the SW itself?
- for a regional SW what country to "place"?
  - that national law would be ok?
  - all regional countries agree?

Components



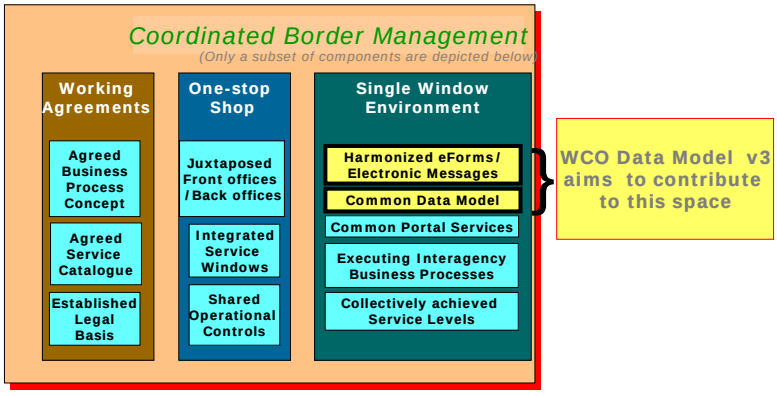
Components

Whole-of-Government Cross-Border Single Window <u>including</u> Customs



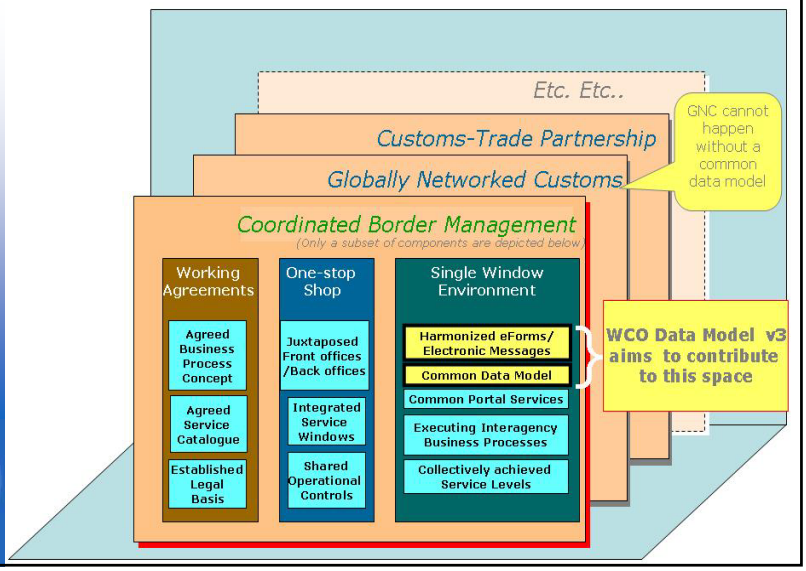
Components

This will result in Co-ordinated Border Management amongst all border control agencies



Building Blocks

As such, the Single Window should be part of CBM and that on its turn should provide information for GNC, Trade Partnership etc.



Focus on Service Outcomes

- Single Window is a bundle of services
- Joined-up services are provided by multiple government departments & agencies
- Service Outcomes:
  - Commonly measured in terms of cycle times & total cost
  - Severely impacted by variability/ predictability
  - Usually intangible or “total service experience”
  - Combined experience of all individual service encounters
- Begin with the complete scripting of the border service/ Single window facility
- Defining Single Window Projects as Service projects:
  - Ensures maintenance of service levels
  - Possible to implement as ‘Public Private Partnership’

Single Window Services

- Information Services
  - e-forms
  - Data structures
    - Electronic messages/ Snippets
    - Guidelines
  - Regulatory specific to commodities
    - Admissibility,
    - tariff structure
- Operational Services Transaction status
  - Registering Business entities & Business Collaboration
  - Electronic Messaging Services
    - Parsing, translating, Routing, Delivering, and Audit logging
- Business Computing services
  - Declaration Management
    - Lodging (and responding to) declarations, reports, results
  - Computing duties, taxes, fees, entitlements
  - Payment & Reconciliation
  - Accounts Management
  - Risk Management
  - Service Metrics

National Legislation & International Standards

- Single Window requirements will be drawn-up based on national legislation
  - Each participating Cross-Border Regulatory Agency needs to be consulted
- Need to examine international standards as a source for best practices.
  - Eg. Revised Kyoto Convention
- Combining multiple regulatory forms to enable a single submission
  - The 'corner stone' of the Single Window
  - WCO Data Model as the basis for Data Harmonisation
- Procedural simplification should be based on the 'scripted' ideal for border service

WCO Data Model

Top 4 Benefits

1. Reduces costs to trade by simplifying data requirements
2. Improves reporting and compliance by improving the quality of data.
3. A comprehensive reference on cross-border regulatory data standards.
   - Meets requirements of several international conventions.
   - Is aligned with widely used international standards
4. Enables Single Window implementation
   - Can be used as the basis for Data Harmonization
   - Includes data requirements from Customs, statistics, agriculture, environment & marine safety
   - Provides an electronic messaging solution for Single Window
   - GOVCBR – Government Cross-Border Regulatory Message

Data Harmonisation Projects

- Data Harmonization – Key to Single Window implementation
  - Begins with analysis of forms & regulations
  - WCO SW and Data Harmonization Guidelines
- National Project
  - Integrated Trade Data System – United States
  - Clearance Data Model Project – Rep. of Korea
  - SDS – Australia
- Regional Project
  - APEC Data Harmonization guidelines
  - ASEAN SAD
  - ASEAN Technical Working Group on Single Window
  - European Union (ITAIDE, MarNis)
- WCO Regional Workshops on WCO Data Model

Conclusions

- Customs-to-Customs electronic messaging foreseen in transit solutions
  - UN/ECE's eTIR Project
    - WCO Data Model Compatible
    - Includes Customs-to-Customs messaging
- Advance/ pre-arrival electronic reporting
  - To be submitted before goods are exported
- Single Window solutions:
  - Political Direction
  - Building capacities & Expert Guidance
  - Continuity in project teams

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Questions?

World Customs Organization

附件 14

Customs in the 21st Century Globally Networked Customs

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

WCO Data Model;

Customs in the 21st Century
Globally Networked Customs

World Customs Organization

Evolution of Customs

- Revenue Collection of import taxes (duties & excise)
- Protection of Economic Interests (domestic industry)
- Protection of Society <health, safety> (drug trafficking, firearms, environment etc.)
- Economic Development <trade, investment> (trade facilitation)
- Security <terrorism> (shifting focus to entire supply chain)
- Framework of Standards / C21

Customs function

C21: A New Strategic Direction

- Approved as the future Customs roadmap
- From vision, aspiration to implementation
- 10 building blocks for C21
- Priority BBs: Globally Networked Customs and Coordinated Border Management
- Future role of WCO: Standard setting; capacity building; monitor implementation; funding; research

Customs in the 21st Century

- Globally Networked Customs
  - 1st building block of C21
  - provides the basis of the e-customs strategy
  - RKC Chapters 3, 6
  - SAFE Framework (1st Pillar)
  - Data/message standards, UCR
  - Focus on exports
  - Mutual Recognition/MAA (includes AEO)
  - Strongly related to JCC concept

Customs in the 21st Century

- Coordinated Border Management
  - 2nd building block of C21
  - based on collaboration/cooperation
  - RKC Chapter 3, 7 + risk management
  - SAFE (security of supply chain)
  - Data/message standards, UCR
  - Mutual Recognition (includes AEO concept)
  - International Trade Single Window

Customs in the 21st Century

- BB3 – Intelligence-driven Risk Management
  - Scarce resources need to be targeted at the higher end of continuum
  - Involves risk management at the operational and management levels
- BB4 – Customs-Business Partnership
  - Understand each other & produce mutually beneficial outcomes
  - Agreements between customs and trusted economic operators (AEO)

Customs in the 21st Century

- BB5 – Implementation of modern working methods, procedures and techniques
- BB6 – Enabling technologies and tools
- BB7 – Enabling (legal) powers
- BB8 – Professional, knowledge-based service culture
- BB9 – Capacity Building (More later)
- BB10 – Integrity

WCO priorities – Capacity Building

- Implementation of WCO standards
- Collaboration with donors & other stakeholders
- Regional approach
- Areas of capacity building
  - Trade security & facilitation
  - Revenue enhancement
  - Counterfeiting & piracy
  - Management issues, including integrity

WCO Priorities – Research

- Understand & manage the challenges
  - Expanded role
  - Co-ordination with other ministries
- Emerging issues
  - Environment protection – international customs day
  - Regional trade agreements etc.
- Customs in the 21st Century
- Research unit within the Secretariat

Customs in the 21st Century

- **WCO committee structure to be reviewed in light of C21**
- **All instruments to be reviewed in light of C21**
- **WCO strategic plan to be reviewed in light of C21**
- **….if you look at that committee structure again, and some instruments you might consider what this might mean…**
- **….what does this mean for the data model and single window?.....**

Globally Networked Customs

1st building block of C21

Ad Hoc Group on Globally Networked Customs (GNC) first meeting November 09.

18 countries from all six regions

Belgium chairs

the principal objective of GNC was to improve the international trade system and strengthen Customs control through increased Customs co-operation.

Globally Networked Customs

- real time communication between Customs administrations
- Deeper collaboration between Customs and Trade
- Mutual recognition agreements and tangible privileges for Authorized Economic Operators (AEOs)
- a minimum set of standardized data for advanced reporting and single submission
- a facility for the single lodgement of information for all regulatory controls such as security, release and (fiscal) clearance.

Globally Networked Customs

Issues that require further consideration:

- not all Members are at the same stage of development, how to make the vision inclusive;
- capacity building;
- the private sector's contribution to the final vision and to make the business benefits tangible and meaningful,;
- a common and clear understanding, a framework for all stakeholders;
- baseline research on needs/expectations and obstacles/constraints in the area of information exchange;
- how to build on the existing tools and instruments

Globally Networked Customs

Information exchange:

- Distinction of three types:
  - relate to the trader (e.g., AEOs),
  - to commercial transactions (e.g. Goods declaration / risk management),
  - to enforcement (e.g., seizures).
- sorted by requirement,
  - advance info for security purposes,
  - information communicated in real time for control purposes, and
  - information communicated post facto for statistical purposes.

QUESTIONS ?

附件 15

WCO Data Model XML Guidelines Part I

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Train the Trainer

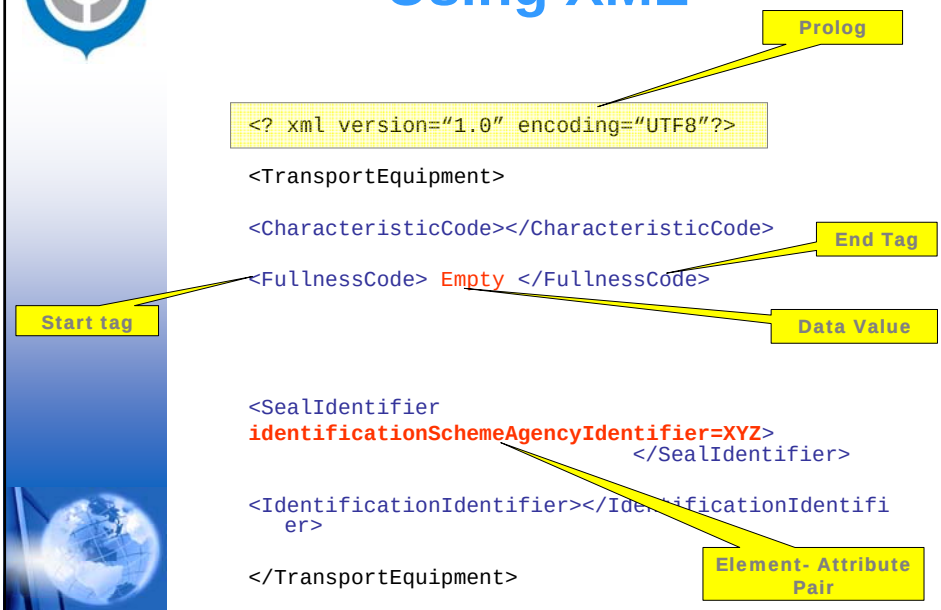
WCO Data Model XML Guidelines Part I

World Customs Organization

Purpose of WCO XML Guidelines

- Basic set of rules to establish XML messages
- Target Audience: Designers/Developers
- Trade - How to fill a WCO Data Model message in XML syntax with trade data?
- XML artefacts accurately reflect WCO Data Model
- WCO Data Set &UML model - the only source
  - XML Schemas are for documentation purposes
  - Used to fulfil XML Naming and Design Rules
  - Not necessary to use schemas to implement WCO XML
  - Use of schemas for validation – developers' choice

Using XML



ebXML -basis for WCO XML

- Dictionary Entry Name (DEN) is the key to XML Design
- DENs represent a systematic way of naming and defining data elements
- Each data element has three parts (i) the object class term (ii) property term (iii) representation term
- This method is according to:
  - ISO 11179 and
  - Core Component Technical Specifications (CCTS)
- This method of handling data allows users to group information according to the objects that the data describes.
- Also helps better identification and definition of data
  - Facilitates the creation of a conceptual and logical data model
- Refer to the DEN worksheet of the WCO Data set
- The DEN Worksheet has:
  - Object Class term
  - Property term
  - Representation term
  - Named Complex Type
  - XML tag name
- These columns helps build define the XML Schema and XML the message

Document Assembly -2

- Class Name – XML tag name in_UpperCamelCase
  - BorderTransportMeans
  - LoadingLocation
- Root class also root element for XML
  - Declaration for declarations by trade
  - Response for all responses by CBRAs
- Tag name for the class attribute
  - Concatenate Property & Representation Term of the class attribute
    - In UpperCamelCase with separators and spaces removed,
    - e.g. attribute with WCO Ref 029 “Border Transport Means. Discharge Completed. Date Time” is `<DischargeCompletedDateTime>`.
  - Replace representation term Identifier with ‘ID’
  - Transport Equipment. Identification. Identifier
  - If representation term if it is ‘Text’ exclude it from the tag name

Document Assembly -3

- In case of classes which have Superclasses
  - Use all required attributes of the superclass
  - Eg. For class: Buyer:
    - Name and ID are part of data set
    - Use Address, Contact etc from superclass
- Core Data Types have been shown separately in the WCO Data Model
  - Use core data types as required
    - Eg. Consignment. GrossWeight. Measure

```
<Consignment>
    <GrossWeightMeasure UnitCode='KGM'>100
      </GrossWeightMeasure>
<Consignment>
```

Digital Signature

```
<Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
    <SignedInfo>
        ...
    </SignedInfo>
    <SignatureValue/>
        <KeyInfo>
          ...
        </KeyInfo>
        <Object>
                <DocumentMetadata>
                        ...
                </DocumentMetadata>
        </Object>
    </SignatureValue>
</Signature>
```

Document Metadata

```
<DocumentMetadata>
        <WCODataModelVersion>3.0</WCODataModelVersion>
        <WCODocumentName>IM1</WCODocumentName>
        <CountryCode>HK</CountryCode>
        <AgencyName>Customs& Excise Dept.</AgencyName>
        <AgencyAssignedCustomizedDocumentName>HKIM1
       </AgencyAssignedCustomizedDocumentName>
        <AgencyAssignedCustomizedDocumentVersion>
                Revision7.1b
       </AgencyAssignedCustomizedDocumentVersion>
        <Declaration>
        ...
        </Declaration>
</DocumentMetadata>
```

XML Message - Snapshot

```
<Declaration>
        <ID></ID>
   <TotalGrossMassMeasure></TotalGrossMassMeasure>
        <TypeCode></TypeCode>
<BorderTransportMeans>
        <ArrivalDateTime></ArrivalDateTime>
        <CargoFacilityLocationName></CargoFacilityLocationName>
        <JourneyID></JourneyID>
        <Name></Name>
        <RegistrationNationalityID></RegistrationNationalityID>
        <ScheduledConveyanceID></ScheduledConveyanceID>
        <StayID></StayID>
        <TypeCode></TypeCode>
        <CrewMember>
                <ID></ID>
        </CrewMember>
        <Master>
                <BirthDate></BirthDate>
                <ID></ID>
                <Name></Name>
        </Master>
   </BorderTransportMeans>
   <Carrier>
        <ID></ID>
        <Name></Name>
   </Carrier>
   …
</Declaration>
```

CROSS-BORDER TRANSACTIONS ON THE FAST TRACK

Thank You

World Customs Organization

附件 16

WCO Data Model XML Guidelines Part II

CROSS-BORDER TRANSACTIONS
ON THE FAST TRACK

Train the Trainer

WCO Data Model
XML Guidelines Part II

World Customs Organization

What are XML Schemas ?

- An XML Schema describes the structure of an XML document
  - It defines the elements and attributes that can appear in a document
  - It identifies the hierarchy and order of child elements
  - It denotes which elements are empty and which have textual content
  - It can be used to define data types for elements and attributes
  - It can be used to define code values, fixed values and default values for elements and attributes
  - It can be used to publish documentation of the structure and content of an electronic document
  - More than an EDIFACT MIG
    - XML Schema is machine a readable ‘guideline’

Why XML Schemas ?

- Makes sense to use in data communications
- They are written in XML
  - No need to learn a a new language knowing XML is enough.
  - XML editor can be used to edit your Schema files.
  - XML Schemas are parsed in the same way as XML documents.
  - Allow use of other XML technologies (DOMs and XSLT)
- Extensible to future additions
  - The schema can be customized by either by extending it or by restricting it.
- Richer and more powerful than earlier standards such as DTDs (Document Type definitions)
  - Supports standardization through concepts like Data types' and 'Namespaces'

How to build a WCO XML Schema ?

The namespace declaration

```
<?xml version="1.0", encoding = UTF-8?>
<xsd:schema

xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns="urn:wco:datamodel:WCO:CONV:1"
xmlns:ds="urn:wco:datamodel:WCO:DS:1"
xmlns:ccts="urn:un:unece:uncefact:documentation:standard:Core
ComponentsTechnicalSpecification:2"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
targetNamespace="urn:wco:datamodel:WCO:CONV:1"
elementFormDefault="qualified"
attributeFormDefault="unqualified"
version="1.0">

<!– Import →

<!– Root →

</xsd:schema>
```

How to build a WCO XML Schema ?

```
<?xml version="1.0", encoding = UTF-8?>
<xsd:schema
.....
.....
<!– Import →

<xsd:import namespace="urn:wco:datamodel:WCO:DS:1"
      schemaLocation="..\common\DS_1p0.xsd"/>
<!– Root →




</xsd:schema>
```

How to build a WCO XML Schema ?
(Defining the root of the document)

```
<?xml version="1.0", encoding = UTF-8?>
<xsd:schema
<!– Import -- >

<!– Root -- >

<xsd:element name="Declaration">

<!– If it is a Response, the following will be the root of the
      document
<xsd:element name="Response">
----- >
</xsd:schema>
```

How to build a WCO XML Schema ?
(Building the tree structure in the schema)

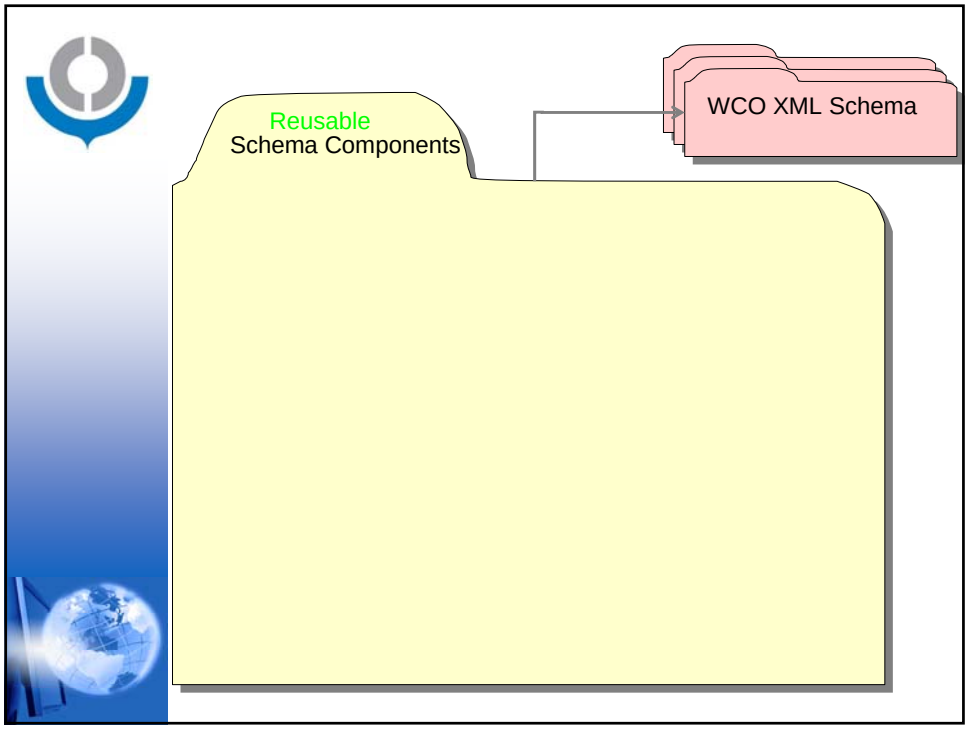
```
<?xml version="1.0", encoding = UTF-8?>
<xsd:schema
<!– Import -- >
<!– Root -- >
<xsd:element name="Declaration">
<!ONLY ONE INSTANCE OF THIS CLASS PER MESSAGE->
 <xsd:element name="Authentication" type="ds:DeclarationAuthenticationTextType"
        minOccurs="0"> </xsd:element>
<xsd:element name="DeclarationOfficeID"
        type="ds:DeclarationDeclarationOfficeIDType" minOccurs="0"> </xsd:element>
<xsd:element name="FunctionCode" type="ds:DeclarationFunctionCodeType"
        minOccurs="0"> </xsd:element>
<xsd:element name="ID" type="ds:DeclarationIdentificationIDType" minOccurs="0">
</xsd:element>
<xsd:element name="TotalGrossMassMeasure"
        type="ds:DeclarationTotalGrossMassMeasureType" minOccurs="0">
</xsd:element>
<xsd:element name="TypeCode" type="ds:DeclarationTypeCodeType"
        minOccurs="0"> </xsd:element>
<xsd:element name="AdditionalDocument" minOccurs="0"
        maxOccurs="unbounded">
……..
</xsd:schema>
```

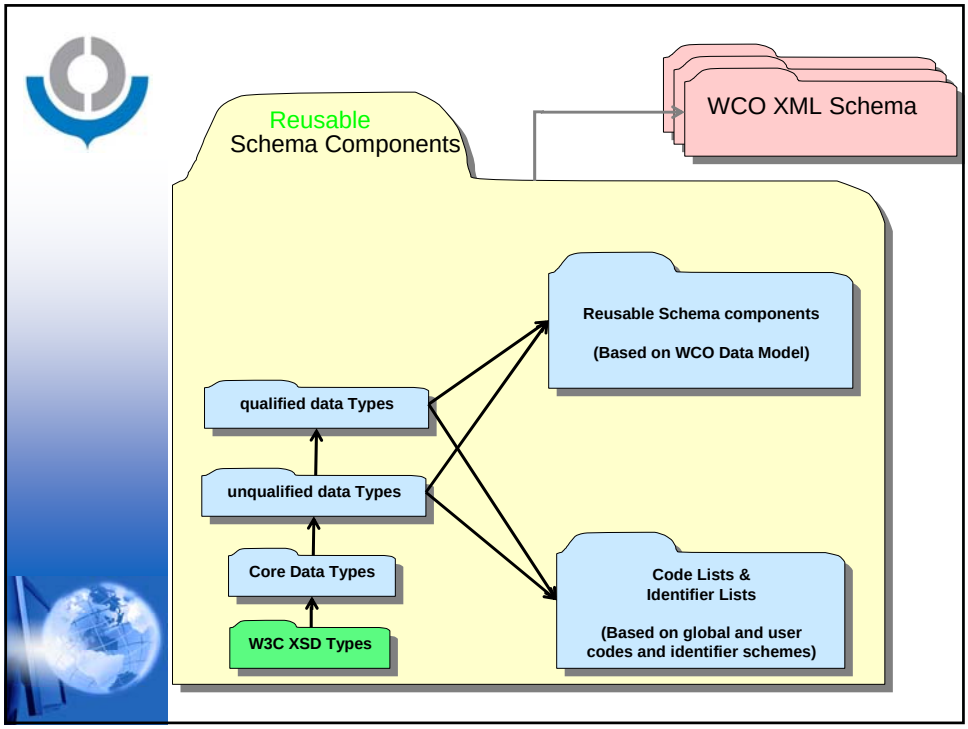
How to build a WCO XML Schema ?
(Documenting the class)

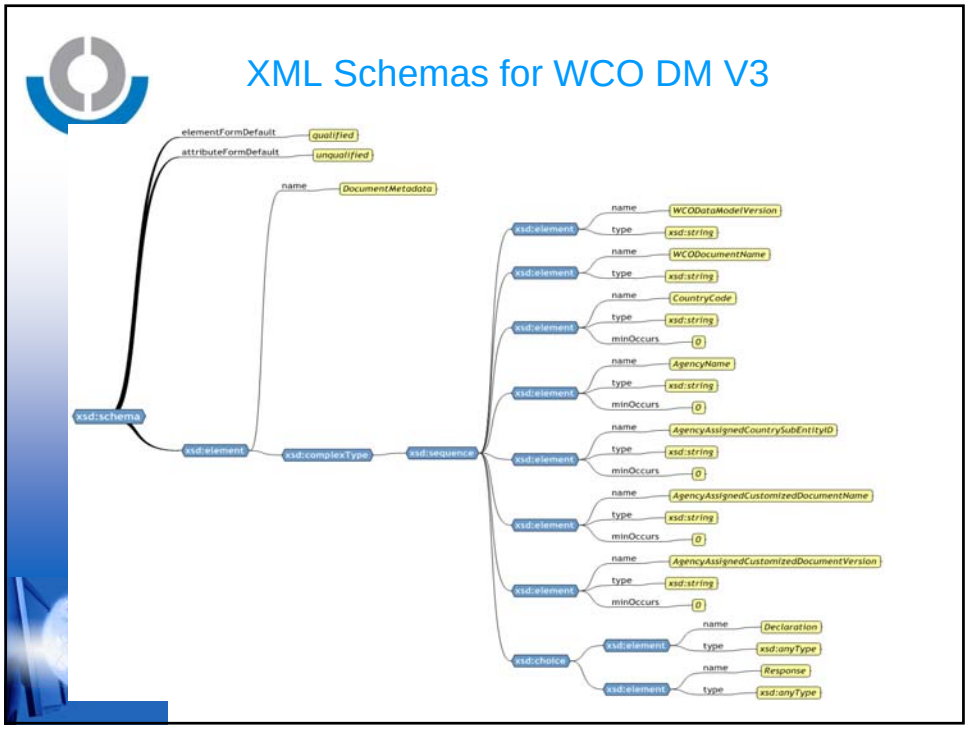
```
<?xml version="1.0", encoding = UTF-8?>
<xsd:schema
<!– Import -- >

<!– Root -- >

<xsd:element name="Declaration">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">
            <ccts:Definition> Any statement or action, in any
                form prescribed or accepted by the
                Governmental Agency, giving I
                nformation or particulars required by the
                Governmental Agency.
            </ccts:Definition>

            <ccts:Cardinality>1</ccts:Cardinality>

            <ccts:ObjectClassTerm> Declaration
            </ccts:ObjectClassTerm>
        </xsd:documentation>
    </xsd:annotation>
```

How to build a WCO XML Schema ? (Documenting the Attribute)

```
<?xml version="1.0", encoding = UTF-8?>
<xsd:schema
<!– Import -- >

<!– Root -- >
<xsd:element name="Declaration">
<xsd:element name="Authentication"
        type="ds:DeclarationAuthenticationTextType" minOccurs="0">
        <xsd:annotation>
            <xsd:documentation xml:lang="en">
                        <ccts:UniqueID>WCOID104</ccts:UniqueID>
                        <ccts:DictionaryEntryName>Declaration. Authentication.
 Text</ccts:DictionaryEntryName>
                        <ccts:Definition> Proof that a document has been authenticated
                        indicating where appropriate the authentication party.
                        </ccts:Definition>
                        <ccts:Cardinality>0..1</ccts:Cardinality>
                        <ccts:ObjectClassTerm>Declaration</ccts:ObjectClassTerm>
                        <ccts:PropertyTerm>Authentication</ccts:PropertyTerm>
                        <ccts:RepresentationTerm>Text</ccts:RepresentationTerm>
            </xsd:documentation>
        </xsd:annotation>
</xsd:schema>
```




Reusable
Schema Components
WCO XML Schema
Reusable Schema components
(Based on WCO Data Model)
qualified data Types
unqualified data Types
Core Data Types
W3C XSD Types
Code Lists &
Identifier Lists
(Based on global and user
codes and identifier schemes)


XML Schemas for WCO DM V3
elementFormDefault
qualified
attributeFormDefault
unqualified
xsd:schema
xsd:element
name
DocumentMetadata
xsd:complexType
xsd:sequence
xsd:element
name
WCODataModelVersion
type
xsd:string
xsd:element
name
WCODocumentName
type
xsd:string
xsd:element
name
CountryCode
type
xsd:string
minOccurs
0
xsd:element
name
AgencyName
type
xsd:string
minOccurs
0
xsd:element
name
AgencyAssignedCountrySubEntityID
type
xsd:string
minOccurs
0
xsd:element
name
AgencyAssignedCustomizedDocumentName
type
xsd:string
minOccurs
0
xsd:element
name
AgencyAssignedCustomizedDocumentVersion
type
xsd:string
minOccurs
0
xsd:choice
xsd:element
name
Declaration
type
xsd:anyType
xsd:element
name
Response
type
xsd:anyType

WCO XML Guidelines

- WCO XML Guidelines tell you:
  - How to create XML Schemas from the WCO Data Model
  - How to customize schemas for use within applications
- WCO XML Guidelines will not tell you:
  - How to use XML Schema in your application
  - What features that can be used by application developers
    - These are practices that need to be shared amongst users.

Thank You

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