Digital Policy Office

XML SCHEMA DESIGN AND MANAGEMENT GUIDE
PART IV: APPENDICES

[G55-4]

Version 1.5

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The Government of the Hong Kong Special Administrative Region
of the People's Republic of China

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Prepared By: XML Coordination Group

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Amendment History				
Change Number	Revision Description	Sections Affected	Revision Number	Date
	Updates to consultation draft issued in July 2003		1.0	24-Nov-03
1	Emphasized that the modelling spreadsheet should be used instead of worksheets to ease capturing modelling information.	1.1.2, 1.6		
2	Added in the case study two Externally Defined Entities to capture the digital signature of the applicant and issuer in the import licence and export licence documents.	1.3, 1.7.1, 1.7.2.1, 1.7.2.2, 1.7.3		
3	Added sample user documentation to illustrate its use to help business users to verify the business requirements captured in the business information model.	1.5.1		
	Major updates to version 1.0 issued in November 2003		1.1	01-Jul-04
4	Renamed organization name from ITSD to OGCIO	Whole document		
	Major updates to version 1.1 issued in July 2004		1.2	2-Nov-04
5	Modified Figure I to advise project teams to adopt industry standard for individual data element before considering to adopt Common Schemas.	1.1.2		
6	Revised to document the enhancement of Business Information Modeling utility to allow making choice for data elements in XML Schema.	Appendix 1, Appendix 4		
	Major updates to version 1.2 issued in November 2004		1.3	4-Jan-06
7	Minor version number upgraded to 1.3 according to annual review requirement of S&M [G57].	Whole document		
8	Minor revision in light of OGCIO Circular No. 2/2015 regarding "Structured Systems Analysis and Design Methodology (SSADM)" and "Rapid Application Development (RAD)".		1.4	30-Mar-15
9	Renamed organization name from OGCIO to DPO	Whole document		
	Major updates to version 1.4 issued in March 2015		1.5	25-Jul-24

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Appendix 1 Case Study – Application for Import and Export Licences for Pharmaceutical Products and Medicines

1.1 Background

1.1.1. *Objectives of This Case Study*

This case study aims to demonstrate how to apply the methodology proposed in the XML Schema Design Guide to design Project Schemas. The Project Schemas are designed for three business documents exchanged in the current process for application of import and export licences for pharmaceutical products and medicines in Hong Kong.

This case is intended primarily for illustrating the use of the XML Schema Design Guide rather than for a real software solution. The Project Schemas together with the process and information models produced in this case study may need to be revised for future implementation of the software solution because of the following reasons:

1. A real software solution may involve business process reengineering, which could streamline the current manual process through software automation. Rather, the schema in this case study is developed largely based on the current manual process.

2. When this case study is developed, the Common Schemas are not in place yet. The information models and Schemas for some Business Information Entities may need to be replaced by suitable Common Schemas when they are in place. (For illustrating the use of Common Schemas in a project, it is assumed that the Common Schemas for "Hong Kong Physical Address" are found suitable for reuse in this case study. However, since these schemas are only prototyping Common Schemas and are not the version to be finalized and approved, they are expected to have considerable difference from the final version.)

1.1.2. *Design Process*

The XML Schema design process described in Section 2 of the Design Guide is followed to develop this case study. The flowchart shown in Figure I summarizes this design process. Subsequent sections in this Appendix are organized based on the design process flow as described below:

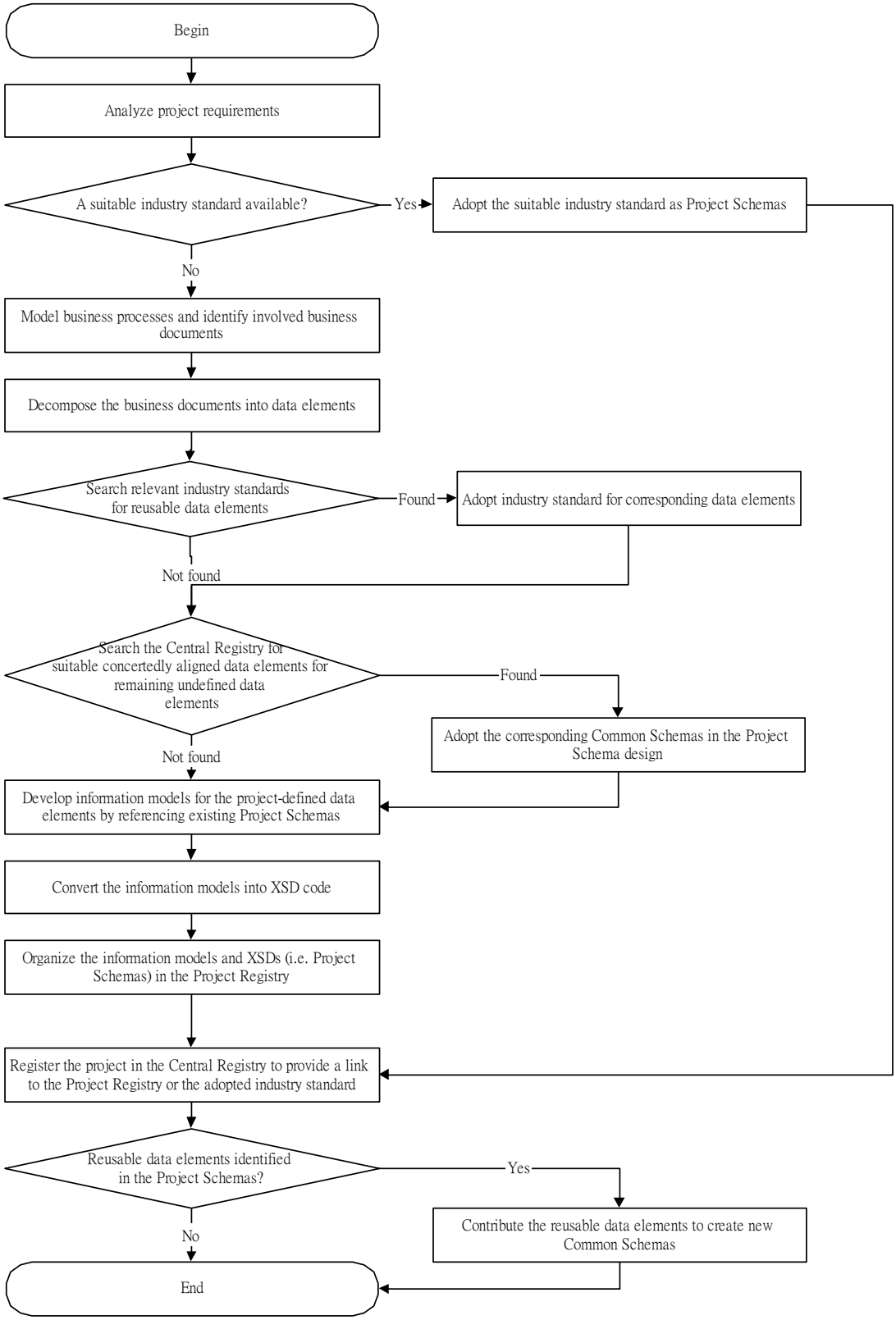


Figure I: Project Schema Design Process

1. **Analyze project requirements.** Section 1.1.3 gives a case description as the summary of the requirement analysis. The physical documents of the Import Licence Form 3 (TRA 187) and the Export Licence Form 6 (TRA 394) are also shown.

2. **A suitable industry standard available?** For illustration purpose, it is assumed that no suitable industry standard is available for this case study.

3. **Model business processes and identify involved business documents.** Section 1.2 applies the business process modelling (BPM) methodology (see Section 3 of the Design Guide) to analyze and model the business processes and identify the business documents for exchange in this case.

4. **Decompose the business documents into data elements.** Section 1.3 illustrates how the physical documents of Import Licence Form 3 and Export Licence Form 6 can be decomposed into hierarchies of data elements which forms the preliminary structures of the two documents.

5. **Search the Central Registry for suitable concertedly aligned data elements.** Section 1.4 assumes that the prototyping Common Schemas for "HK Physical Address" are reused.

6. **Develop information models for the project-defined data elements by referencing relevant industry standards and existing Project Schemas.** Section 1.5 illustrates how the information models for the "Foreign Physical Address" are developed as an example. Sample user documentations are shown in Section 1.5.1.

7. **Convert the information models to XSD code.** Section 1.6 illustrates how the information models for the Foreign Physical Address are converted to XSD code as an example.

8. **Organize the information models and XSDs (i.e. Project Schemas) in the Project Registry.** Section 1.7 shows the possible content in the Project Registry. It tabulates all information models in the spreadsheet format, and shows the schematic and code of the XSDs converted from the models.

9. **Register the project in the Central Registry to provide a link to the Project Registry or the adopted industry standard.** If this case is a real project, the project team should register it in the Central Registry.

10. **Reusable data elements identified in the Project Schemas?** It is assumed that the data elements for "Foreign Physical Address" are considered to be potentially reusable in other projects. The modelling worksheets (see Section 6 of the Design Guide) for these elements are completed for contribution to create Common Schemas. Alternatively, the project team can describe the reusable data elements using a data modelling spreadsheet.

1.1.3. *Case Description*

Under the Import and Export Ordinance (the I & E Ordinance), Chapter 60 of the Laws of Hong Kong, all imports and exports of pharmaceutical products and medicines must be covered by import and export licence issued by the **Director-General of Trade and Industry** represented by the Trade and Industry Department.

Before the Trade and Industry Department (TID) processes a licence application covering imports or exports of pharmaceutical products and medicines, the application must first be endorsed by the **Pharmacy and Poisons Board** under the Department of Health (DH) of the Hong Kong SAR

Government. An organization or individual who intends to import or export pharmaceutical products and medicines must file a licence application to DH.

The Pharmacy and Poisons Board processes approximately 7,000 Pharmaceutical Products and Medicines Import and Export Licence applications from 2,000 applicants annually.

Filing the applications is free of charge. However, applicants, usually pharmaceutical companies, need to purchase application forms from TID or Government Publications Centre.

Two relevant licence application forms are **Import Licence Form 3 (TRA 187)** (Figure II) and **Export Licence Form 6 (TRA 394)** (Figure III). To seek the Pharmacy and Poisons Board's endorsement, the applicant submits completed import licence application form (in quadruplicate) or the export licence application form (in triplicate) **in person** to the Pharmaceuticals Registration and Import/Export Control Section of DH.

A numbered receipt is issued to the applicant. For those products approved by the Pharmacy and Poisons Board for importation or exportation, the applications are endorsed and passed to TID for further processing. After TID returns the processed application to DH, the applicant can pick it up in person at the Pharmaceuticals Registration and Import/Export Control Section with the receipt. The entire process usually takes about two business days and requires the applicant to visit the Control Section twice.

IMPORT LICENCE Form 3 **ORIGINAL** Annex II/附件 II

Foreign Exporter (Name and Address)

XYZ Co Ltd
123 First Street (Note 3)
Washington D.C. 12345
U.S.A.

Date of Issue Licence No.

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
Import and Export Ordinance, Cap. 60
Reserved Commodities Ordinance, Cap. 296
and any other Enactment

Importer (Name and Address)

ABC Co Ltd
Room 10, ABC Bldg (Note 1)
3000 Nathan Road
Kowloon

Business Reg. No. 12345678 (Note 2) Tel. No. 2765 4321

23 August 2001 (Note 4)

By Air, Flight No. CX 100 (Note 5)

Conditions of issue of this licence include the following—

(i) Normally this form is to be submitted in triplicate. However, for certain categories of goods, which are notified through Trade and Industry Department circulars, quadruplicates are required.

(ii) The original of this licence shall be the only valid copy against which the goods described herein may be released by the carriers to the importer on arrival in Hong Kong unless special authority to permit release against a certified true copy is granted by the Director-General of Trade and Industry or an officer authorised by him.

(iii) This licence must be correctly endorsed by the importer with shipment arrival details (see reverse) and the importer must not take delivery of the goods until the licence has been so endorsed; the original of the licence duly endorsed must then be passed to the shipping, airline or transportation company who should check details given by the importer and return the licence to the Trade and Industry Department together with the relevant manifest.

(iv) The importer must lodge import declarations in respect of items on this licence within 14 days of shipment.

(v) This licence is valid for six months from the date of issue. Extension of validity may be granted on application.

WARNING : All alterations must be carried out by authorized officers. Heavy penalties are provided for false declaration and information, unauthorized alterations and misuse of this licence.

Marks and Nos.; Container No.;	No. and Kind of Packages; Brand and Model;	DESCRIPTION OF GOODS	No. of Units	*C.I.F. Value HKD
ABC Order No. C/No. 1-50 (Note 6)	Fifty (50) cartons	(Note 7)	(Note 9)	
	1. Tetracycline HCL BP80	(Note 8)	*2,500* kg	48,000.00
	2. Nutroplex Liquid 120 ml per bottle		*24* bottles	12,000.00
	3. Aminophylline Injection 2.5% 10 ml vial; 10 vials per box		*2,000* boxes	25,000.00
		(Note 10)		
			Total	85,000.00

* C.I.F. Value HK comprises the cost of the goods to the HK importer up to the arrival in HK of the vessel, vehicle or aircraft carrying the goods, together with the amount of the insurance, freight and any other charges. HKD means Hong Kong Dollar.

Exporting Country: USA

Item No.	Origin Country
1	Canada
2	USA
3	Puerto Rico
4	(Note 15)
5	

Approved

for *Director-General of Trade and Industry*

IMPORTER'S DECLARATION

I hereby declare that I am the importer of the goods in respect of which this declaration is made and that the particulars given in this declaration are true and that the goods imported shall be as described. I further declare that the goods are for (a)* local consumption (b)* re-export to

CHINA (Note 11)

* *(Delete (a) or (b) where not applicable)*

Signatory's Name in Block Letters

CHAN MAN (Note 12)

Date, Signature & Company Chop

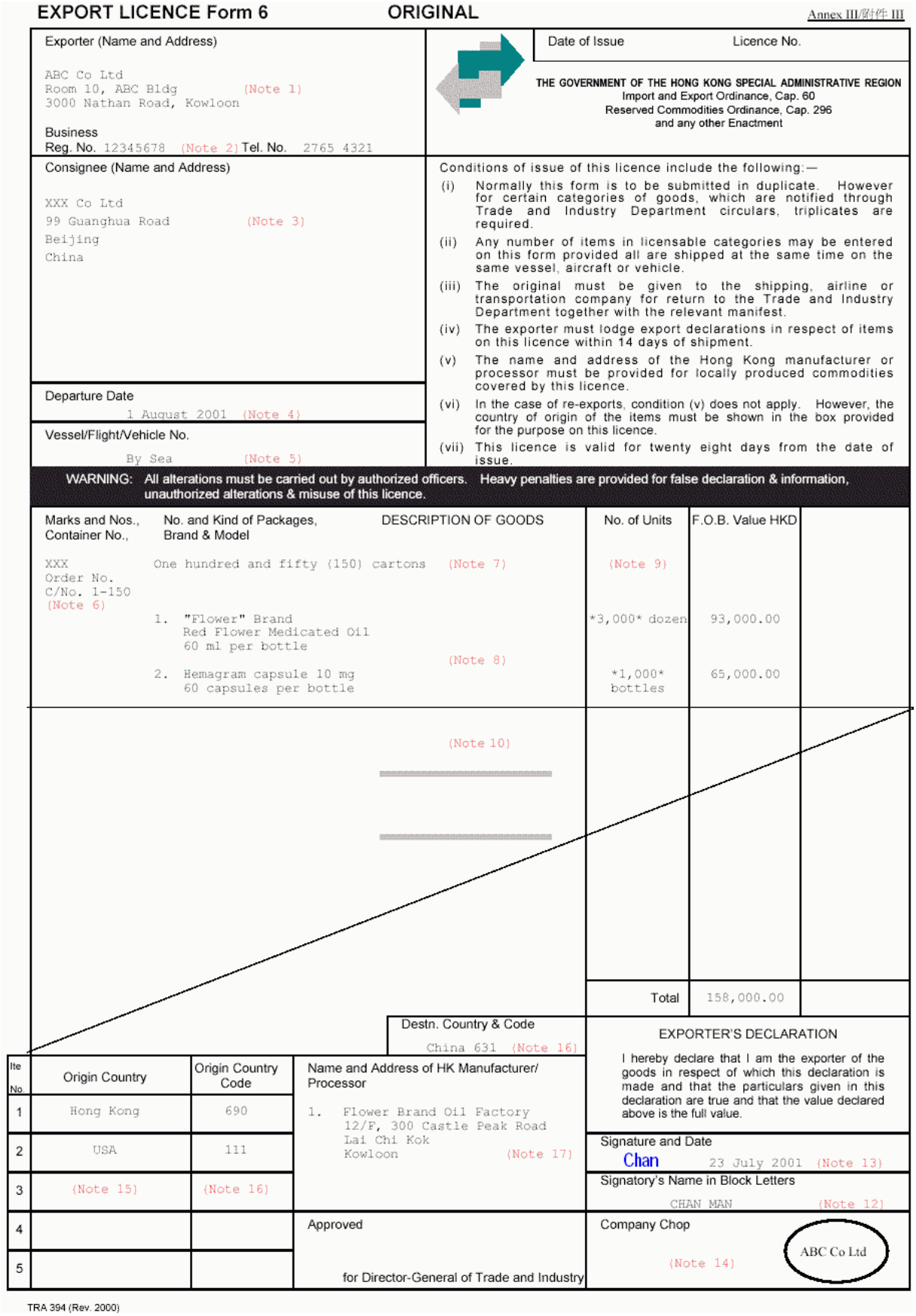
Chan (Note 13)

ABC Co Ltd

23 July 2001 (Note 14)

TRA 187 (Rev. 2001) IMPORTANT – SEE REVERSE

Figure II: Import Licence Form 3 (TRA 187).



EXPORT LICENCE Form 6 **ORIGINAL** Annex III/附件 III

Exporter (Name and Address)

ABC Co Ltd
Room 10, ABC Bldg (Note 1)
3000 Nathan Road, Kowloon

Business
Reg. No. 12345678 (Note 2) Tel. No. 2765 4321

Date of Issue Licence No.

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
Import and Export Ordinance, Cap. 60
Reserved Commodities Ordinance, Cap. 296
and any other Enactment

Consignee (Name and Address)

XXX Co Ltd
99 Guanghua Road (Note 3)
Beijing
China

Conditions of issue of this licence include the following:—

(i) Normally this form is to be submitted in duplicate. However for certain categories of goods, which are notified through Trade and Industry Department circulars, triplicates are required.

(ii) Any number of items in licensable categories may be entered on this form provided all are shipped at the same time on the same vessel, aircraft or vehicle.

(iii) The original must be given to the shipping, airline or transportation company for return to the Trade and Industry Department together with the relevant manifest.

(iv) The exporter must lodge export declarations in respect of items on this licence within 14 days of shipment.

(v) The name and address of the Hong Kong manufacturer or processor must be provided for locally produced commodities covered by this licence.

(vi) In the case of re-exports, condition (v) does not apply. However, the country of origin of the items must be shown in the box provided for the purpose on this licence.

(vii) This licence is valid for twenty eight days from the date of issue.

Departure Date
1 August 2001 (Note 4)

Vessel/Flight/Vehicle No.
By Sea (Note 5)

WARNING: All alterations must be carried out by authorized officers. Heavy penalties are provided for false declaration & information, unauthorized alterations & misuse of this licence.

Marks and Nos., Container No.,	No. and Kind of Packages, Brand & Model	DESCRIPTION OF GOODS	No. of Units	F.O.B. Value HKD
XXX Order No. C/No. 1-150 (Note 6)	One hundred and fifty (150) cartons (Note 7)		(Note 9)	
	1. "Flower" Brand Red Flower Medicated Oil 60 ml per bottle		*3,000* dozen	93,000.00
		(Note 8)		
	2. Hemagram capsule 10 mg 60 capsules per bottle		*1,000* bottles	65,000.00
		(Note 10)		
			Total	158,000.00

Destn. Country & Code
China 631 (Note 16)

EXPORTER'S DECLARATION

I hereby declare that I am the exporter of the goods in respect of which this declaration is made and that the particulars given in this declaration are true and that the value declared above is the full value.

Signature and Date
Chan 23 July 2001 (Note 13)

Signatory's Name in Block Letters
CHAN MAN (Note 12)

Company Chop
(Note 14)
ABC Co Ltd

Item No.	Origin Country	Origin Country Code	Name and Address of HK Manufacturer/ Processor
1	Hong Kong	690	1. Flower Brand Oil Factory 12/F, 300 Castle Peak Road Lai Chi Kok Kowloon (Note 17)
2	USA	111	
3	(Note 15)	(Note 16)	
4			Approved for Director-General of Trade and Industry
5			

TRA 394 (Rev. 2000)

Figure III: Export Licence Form 6 (TRA 394).

1.2 Model Business Process

This section illustrates how the business process modelling (BPM) methodology (Section 3 of the Design Guide) is applied to analyze and model the business process systematically, and to identify the business documents necessary for the next step of the XML Schema design process – business information modelling.

To model this business process, the business analyst of the project first prepares an activity diagram for the business collaboration (Figure IV and Part F of the Business Collaboration Worksheet). Rectangles in the diagram denote messages being exchanged by the collaborating parties.

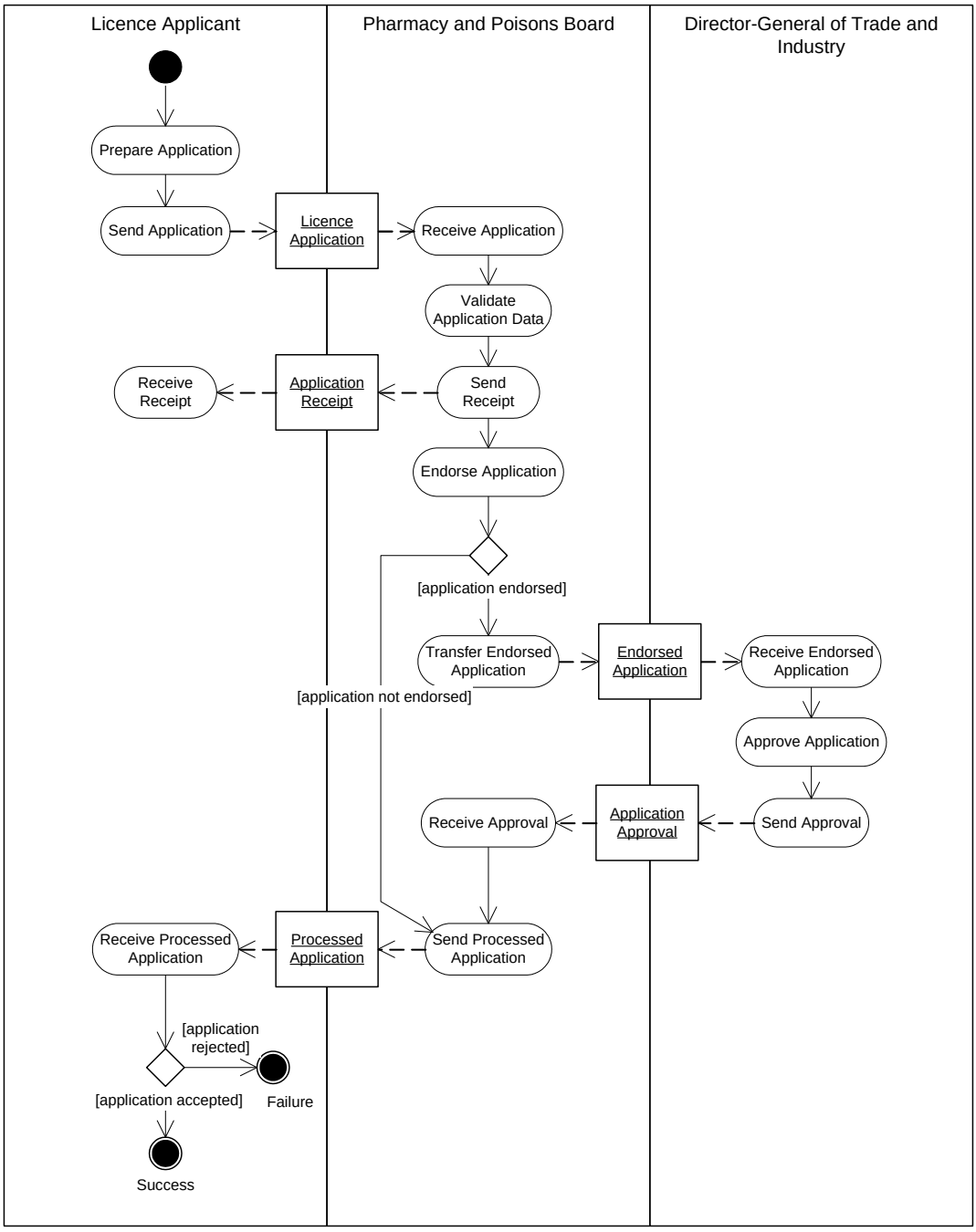


Figure IV Business Process of Application for Import and Export Licences for Pharmaceutical Products and Medicines

From the Activity Diagram, the business analyst can identify the business transactions involved in the collaboration (see Part F of the Business Collaboration Worksheet). A business transaction is an atomic unit of work carried out by two business partners, and is an abstraction of one exchange of documents. In this case, three business transactions have been identified: **Submit Licence Application,** **Approve Licence Application,** and **Return Processed Application** (shown as three dotted-rectangles in Part F of the Business Collaboration Worksheet)**.** For each of these business transactions, the business analyst fills in a Business Transaction Worksheet. Further analysis on these business transactions concludes that three business documents, **Import Licence**, **Export Licence**, and **Acknowledgement** are being exchanged. These documents are packaged into five messages (rectangles in the activity diagram) in the above transactions. Finally, the business analyst fills in a Business Collaboration Worksheet to consolidate all the business transaction and business documents identified in the collaboration. The worksheets are shown in the following pages.

Table I: Business Transaction for "Submit Licence Application"

BUSINESS TRANSACTION WORKSHEET

A. Worksheet Information	
Worksheet ID: BTWS-SUBMIT-LICENCE-APPLICATION	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Business Transaction Properties	
Name: Submit Licence Application	**One/Two-Way:** Two-way
Description: An individual or organization submits an application for an import or export licence for pharmaceutical products and medicines.	
Scope: 1. An individual or organization (applicant) sends an application for an import or export licence for pharmaceutical products and medicines to the Pharmacy and Poisons Board for processing. 2. The Pharmacy and Poisons Board replies to the applicant with an application receipt.	
Pre-conditions: The applicant requests a licence to import or export pharmaceutical products and medicines.	
Requesting Role: Licence Applicant	**Responding Role:** Pharmacy and Poisons Board

C. Request Document Flow		
Description: The applicant sends an import or export licence application to the Pharmacy and Poisons Board for processing.		
Non-Repudiation Required: Yes		**Data Confidentiality Required:** Yes
C1. Request Documents		
No.	***Document Name***	***Business Information Carried***
1	Import Licence Form	**When an import licence is applied for:** the application data for an import licence for pharmaceutical products and medicines
2	Export Licence Form	**When an export licence is applied for:** the application data for an export licence for pharmaceutical products and medicines

D. Response Document Flow		
Description: The Pharmacy and Poisons Board replies to the applicant with an application receipt.		
Success Conditions: The application data is valid.		
Non-Repudiation Required: Yes		**Data Confidentiality Required:** Yes
D1. Positive Response Documents		
No.	***Document Name***	***Business Information Carried***
1	Acknowledgement	The application receipt indicating that the application has been accepted for processing.
2	Import Licence	**When an import licence is applied for:** the original import licence application
3	Export Licence	**When an export licence is applied for:** the original export licence application
D2. Negative Response Documents		
No.	***Document Name***	***Business Information Carried***
1	Acknowledgement	The application receipt indicating that the

		application has been rejected because some application data is invalid.
2	Import Licence	**When an import licence is applied for:** the original import licence application
3	Export Licence	**When an export licence is applied for:** the original export licence application

Table II: Business Transaction for "Approve Licence Application"

BUSINESS TRANSACTION WORKSHEET

A. Worksheet Information	
Worksheet ID: BTWS-APPROVE-LICENCE-APPLICATION	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Business Transaction Properties	
Name: Approve Licence Application	**One/Two-Way:** Two-way
Description: The Pharmacy and Poisons Board transfers an endorsed licence application for approval by the Director-General of Trade and Industry.	
Scope: 1. The Pharmacy and Poisons Board sends an endorsed application to the Director-General of Trade and Industry for approval. 2. The Director-General of Trade and Industry approves (or disapproves) the application and replies to the Pharmacy and Poisons Board with an application approval (or disapproval).	
Pre-conditions: The Pharmacy and Poisons Board has endorsed the pharmaceutical products and medicines in the licence application.	
Requesting Role: Pharmacy and Poisons Board	**Responding Role:** The Director-General of Trade and Industry (DG of T&I)

C. Request Document Flow		
Description: The Pharmacy and Poisons Board sends an endorsed application to the Director-General of Trade and Industry for approval.		
Non-Repudiation Required: Yes	**Data Confidentiality Required:** Yes	
C1. Request Documents		
No.	***Document Name***	***Business Information Carried***
1	Import Licence	**When an import licence is applied for:** the application data for an import licence for pharmaceutical products and medicines
2	Export Licence	**When an export licence is applied for:** the application data for an export licence for pharmaceutical products and medicines

D. Response Document Flow		
Description: The Director-General of Trade and Industry replies to the Pharmacy and Poisons Board with an application approval.		
Success Conditions: The licence application is approved by the Director-General of Trade and Industry.		
Non-Repudiation Required: Yes	**Data Confidentiality Required:** Yes	
D1. Positive Response Documents		
No.	***Document Name***	***Business Information Carried***
1	Acknowledgement	An indication that the licence application has been approved
2	Import Licence	**When an import licence is applied for:** the import licence issued by the DG of T&I
3	Export Licence	**When an export licence is applied for:** the export licence issued by the DG of T&I

D2. Negative Response Documents		
No.	***Document Name***	***Business Information Carried***
1	Acknowledgement	An indication that the licence application has been rejected
2	Import Licence Form	**When an import licence is applied for:** The original import licence application
3	Export Licence Form	**When an import licence is applied for:** The original export licence application

Table III: Business Transaction for "Return Processed Application"

BUSINESS TRANSACTION WORKSHEET

A. Worksheet Information	
Worksheet ID: BTWS-RETURN-PROCESSED-APPLICATION	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Business Transaction Properties	
Name: Return Processed Application	**One/Two-Way:** One-way
Description: The Pharmacy and Poisons Board returns a processed application to the applicant.	
Scope: The Pharmacy and Poisons Board sends a processed application to the applicant.	
Pre-conditions: The application has been processed by the Director-General of Trade and Industry, or the application is not endorsed by the Pharmacy and Poisons Board.	
Requesting Role: Pharmacy and Poisons Board	**Responding Role:** Licence Applicant

C. Request Document Flow		
Description: The Pharmacy and Poisons Board returns a processed application to the applicant.		
Non-Repudiation Required: Yes		**Data Confidentiality Required:** Yes
C1. Request Documents		
No.	***Document Name***	***Business Information Carried***
1	Acknowledgement	An indication whether the application is successful.
1	Import Licence	**When an import licence is applied for:** the import licence if the import application is successful; the original application otherwise.
2	Export Licence	**When an export licence is applied for:** the export licence if the export application is successful; the original application otherwise.

D. Response Document Flow		
Description:		
Success Conditions:		
Non-Repudiation Required:		**Data Confidentiality Required:**
D1. Positive Response Documents		
No.	***Document Name***	***Business Information Carried***
D2. Negative Response Documents		
No.	***Document Name***	***Business Information Carried***

Table IV: Business Collaboration for " Application for Import and Export Licences for Pharmaceutical Products and Medicines"

BUSINESS COLLABORATION WORKSHEET

A. Worksheet Information	
Worksheet ID: BCWS-PHARMIE	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Business Collaboration Properties
Name: Application for import / export licence for pharmaceutical products and medicines
Description: An individual or organization applies to the Hong Kong SAR Government for an import or export licence for pharmaceutical products and medicines.
Scope:
Pre-conditions:

C. Roles	
Name	***Description***
Licence Applicant	An individual or organization who applies for an import or export licence
Pharmacy and Poisons Board	The authority who endorses the pharmaceutical products and medicines for import and export
Director-General of Trade and Industry	The authority who issues import and export licences

D. Business Transactions	
Name	***Description***
Submit Licence Application	An individual or organization submits an application for an import or export licence for pharmaceutical products and medicines.
Approve Licence Application	The Pharmacy and Poisons Board transfers an endorsed licence application for approval by the Director-General of Trade and Industry.
Return Processed Application	The Pharmacy and Poisons Board returns a processed application to the applicant.

E. Business Documents	
Name	***Description***
Import Licence	The data of an import licence application or the licence issued
Export Licence	The data of an export licence application or the licence issued
Acknowledgement	The status of a licence application

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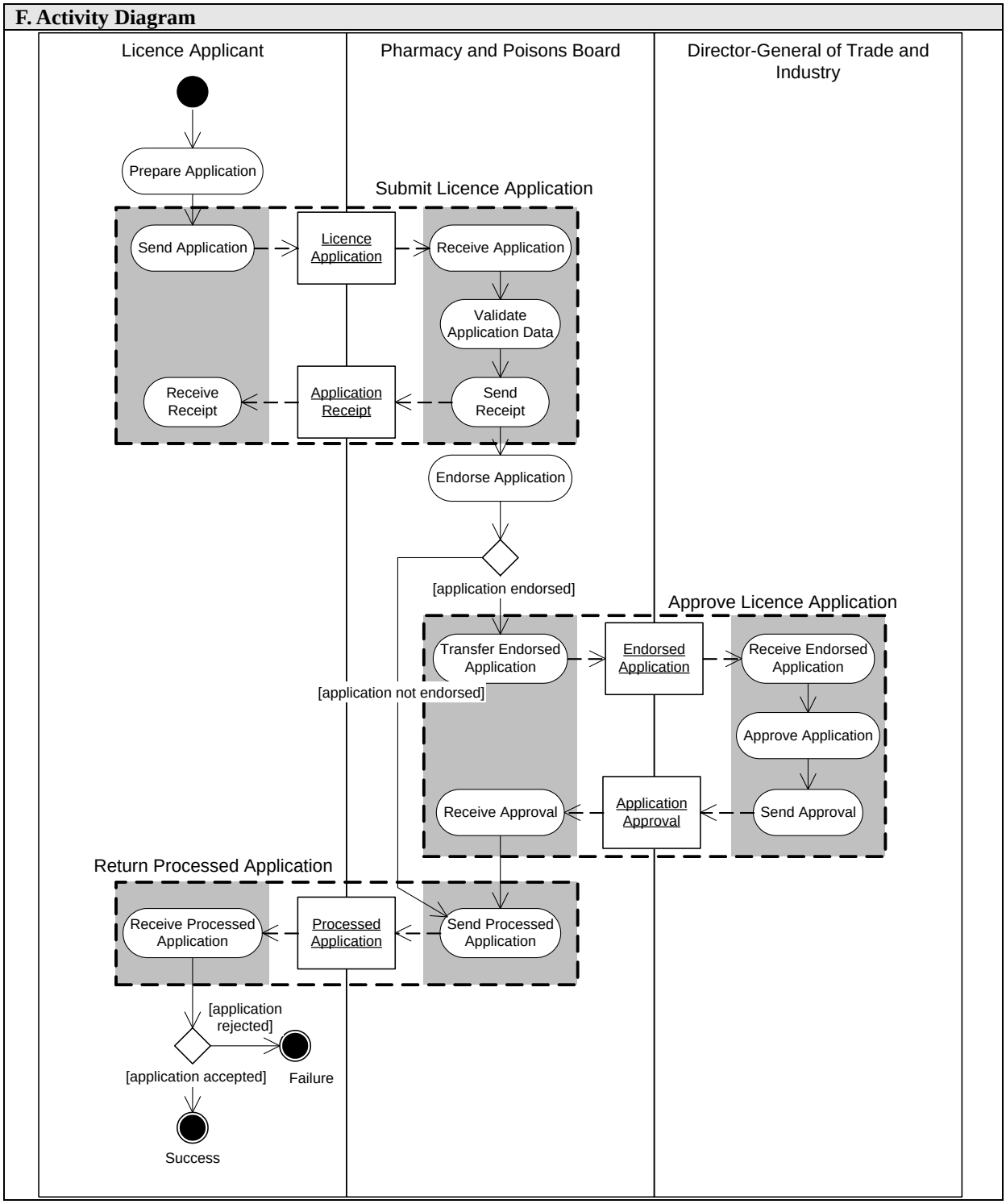
F. Activity Diagram



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1.3 Design Preliminary Document Structure

The first step to model a business document identified in business process modelling is to decompose that document into a hierarchical structure of data elements. The layout of an existing physical document is a very useful reference for designing the preliminary document structure.

Figure V and Figure VII illustrate how the business analyst group data fields on the Import and Export Licence Forms into building blocks or components. Figure VI and Figure VIII show the UML class diagrams in which the business analyst organizes these components in hierarchical structures for the "Import Licence" and "Export Licence" documents. Note that these structures are only preliminary document structures and the business analyst should further decompose these structures into the most elementary components.

Since the "Acknowledgement" document is created to facilitate system process and does not have a physical document version, the business analyst is required to design the document structure from scratch as shown in Figure IX.

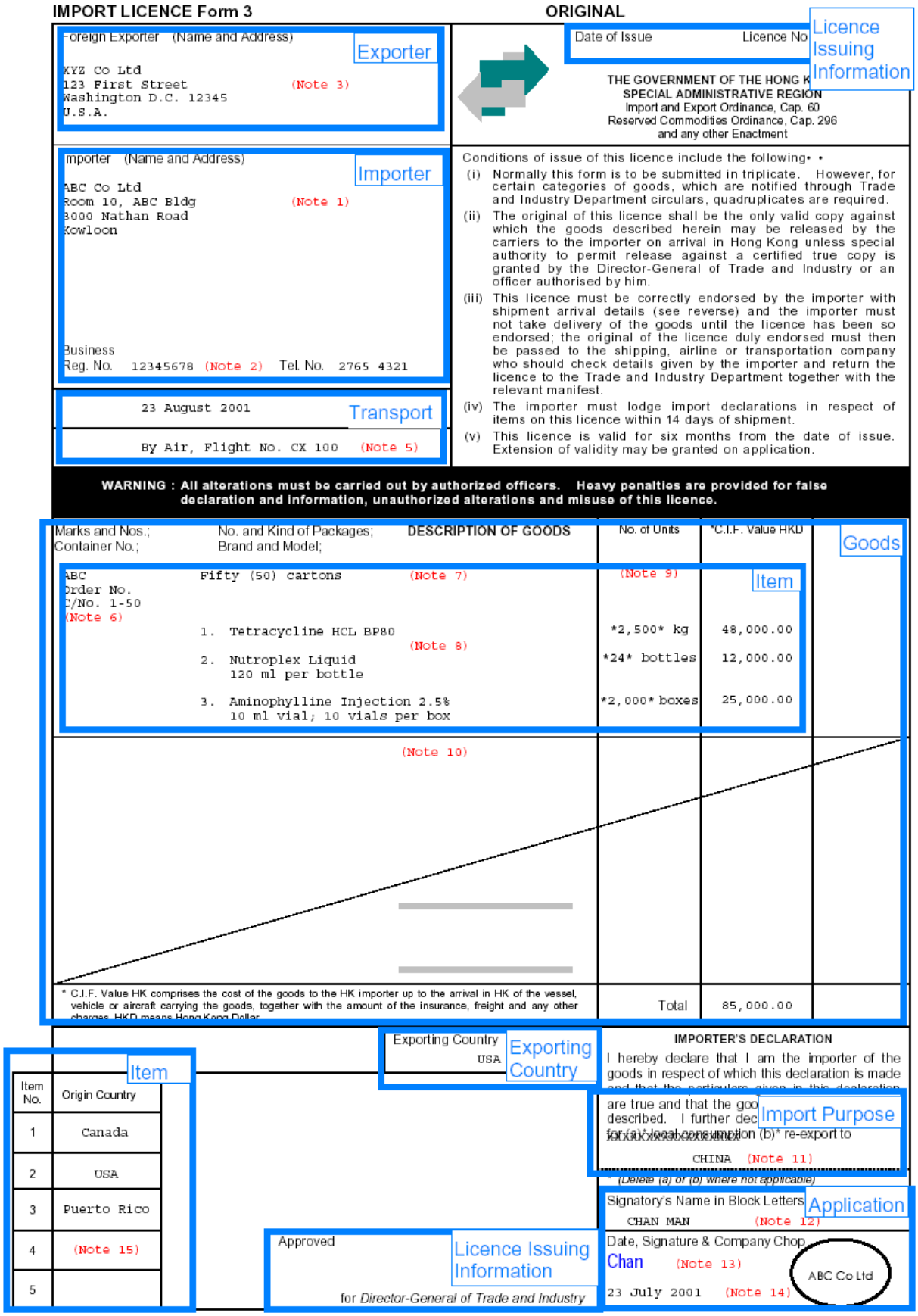

Figure V: Grouping data elements on the Import Licence Form.

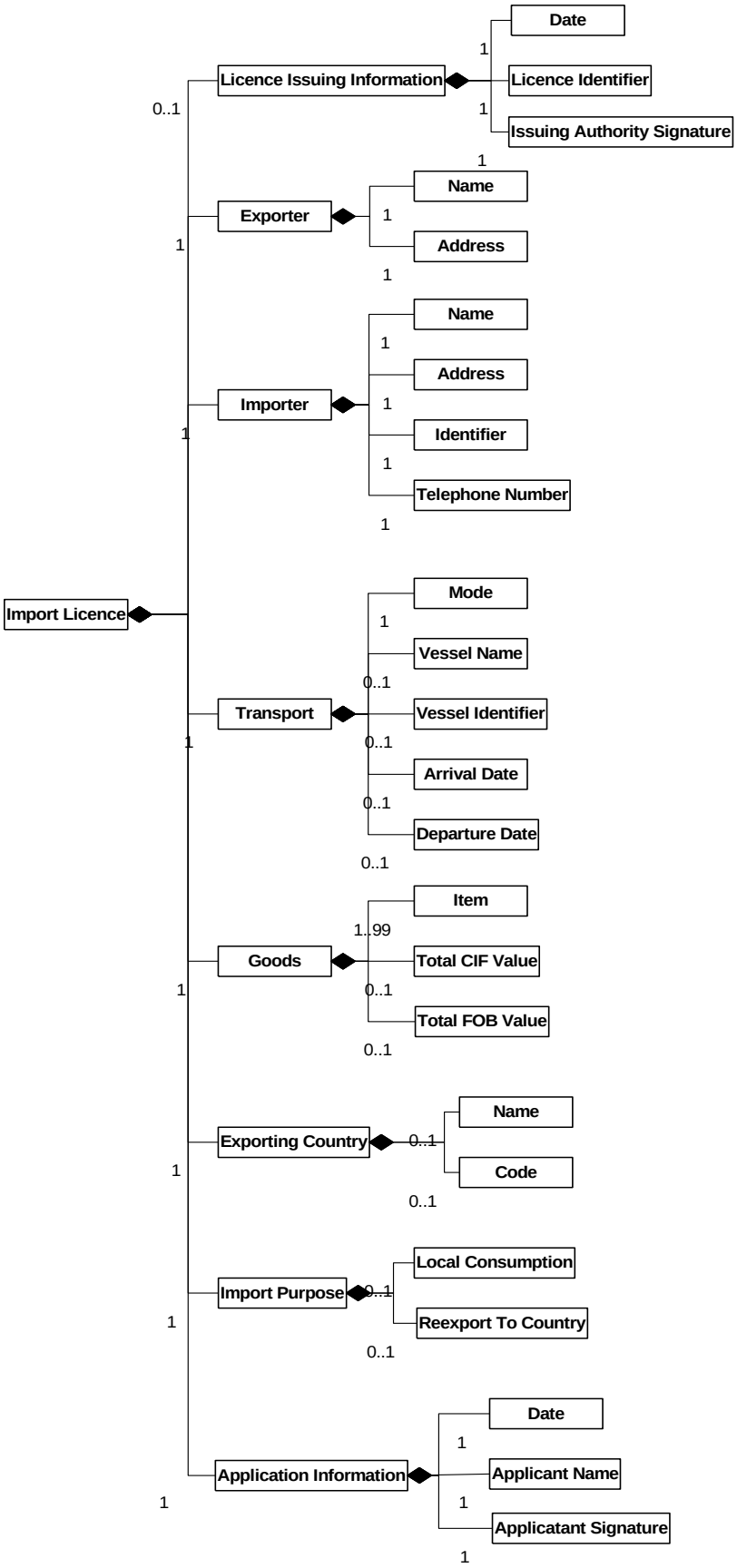

Figure VI: The preliminary structure for the "Import Licence" document.

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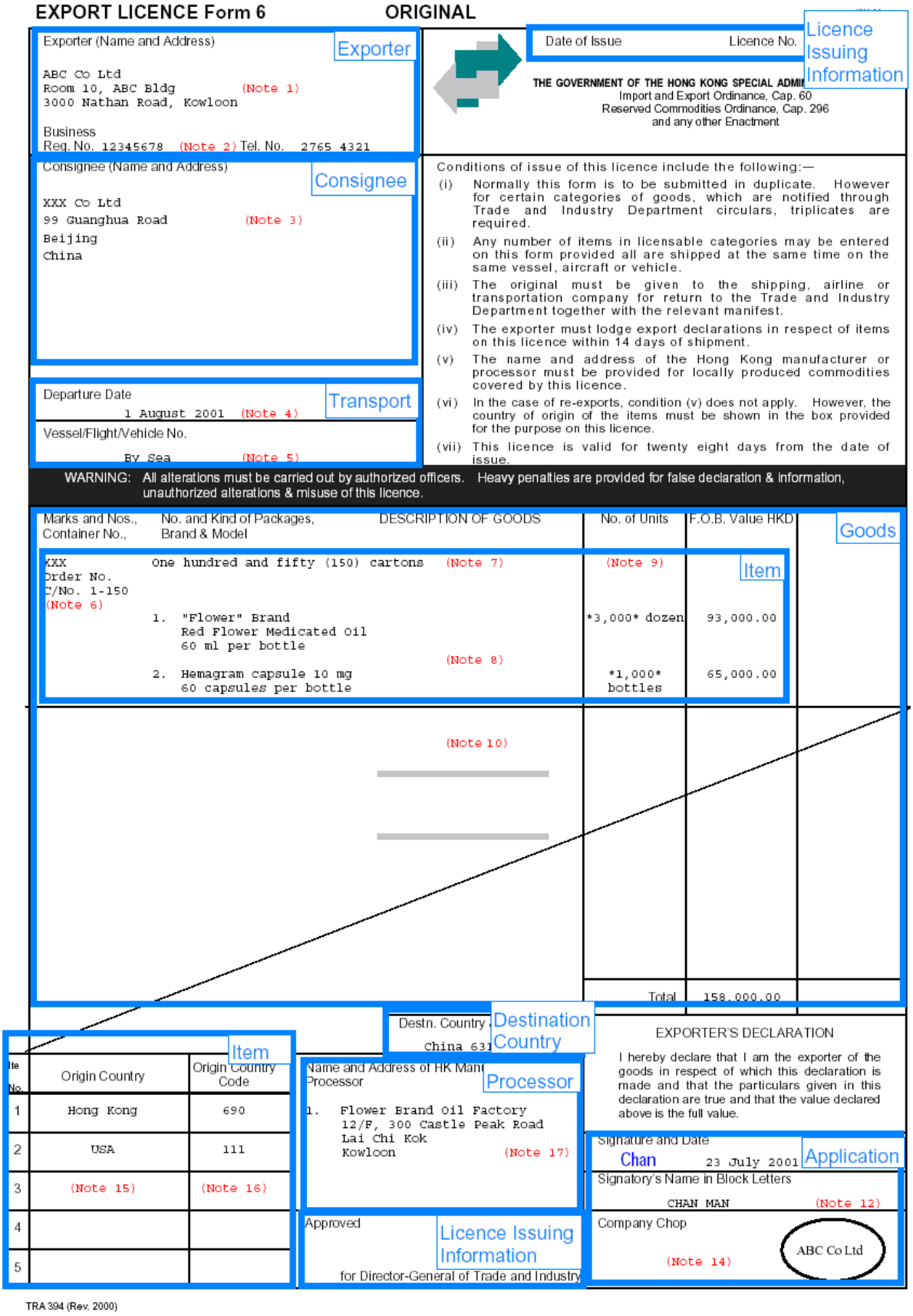


2

3 Figure VII: Grouping data elements on the Export Licence Form.

4

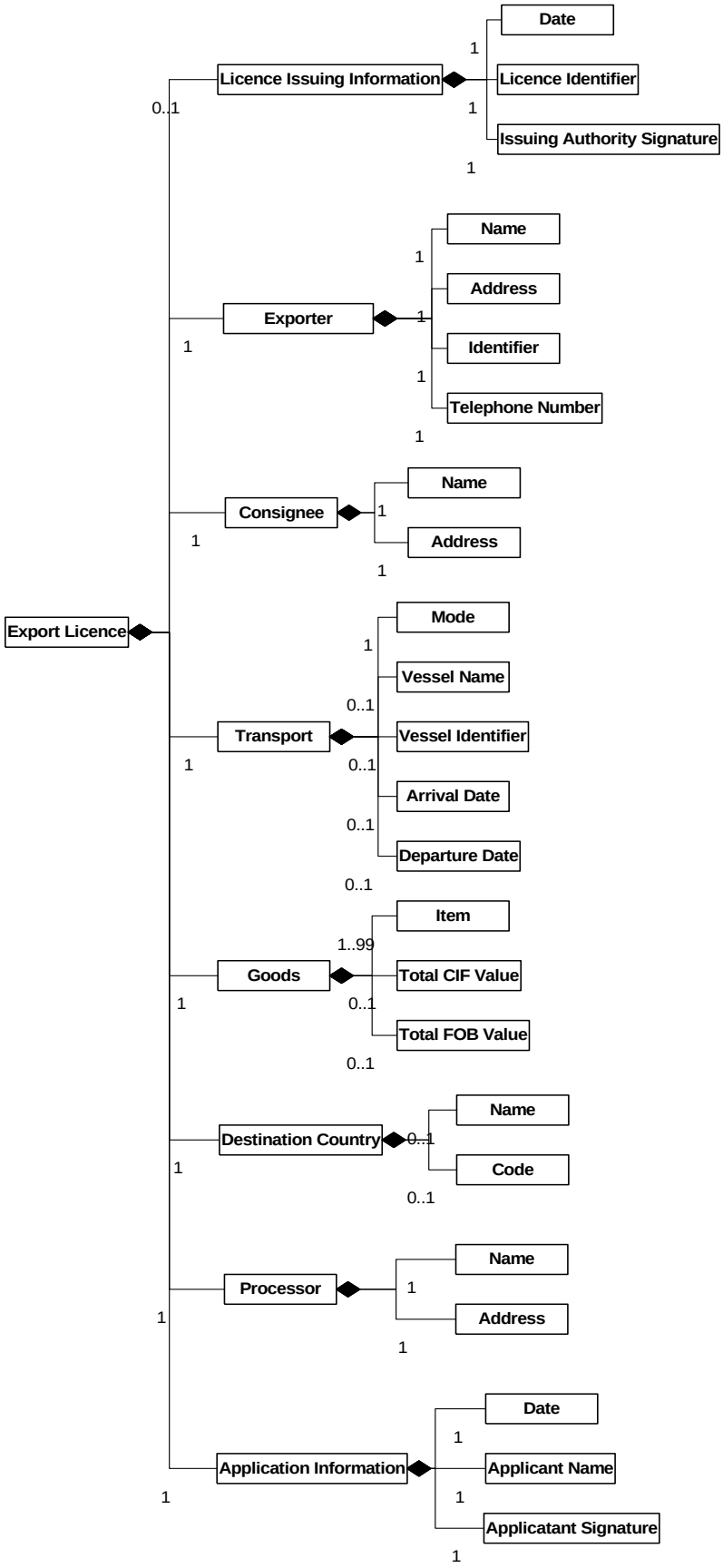


Figure VIII: The preliminary structure of the “Export Licence” document.

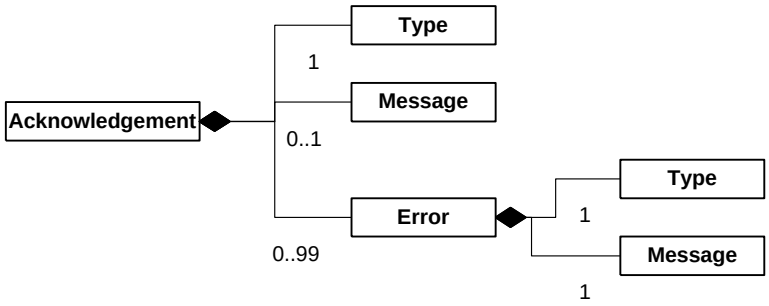


Figure IX: The document structure for the "Acknowledgement" document.

1.4 Reuse Common Schemas

According to each data component (or element) identified in the preliminary document structures as obtained in the previous section, the business analyst should search the Central Registry for any concertedly aligned data element suitable for reuse. If a suitable concertedly aligned data elements is found, the corresponding Common Schemas should be adopted in the Project Schemas.

Since the Common Schemas are not yet in place when this case study is developed, for illustration purpose, it is assumed that the Common Schemas for "Country" and "Hong Kong Physical Address" are found suitable. Table V and Table VI show part of the information models of these two Common Schemas which the business analyst has copied from the Central Registry to the Project Registry. The business analyst has created project-defined data elements based on these Common Schemas and has marked reuse references as highlighted in the rectangles in bold.

Table V: Replicating the information models of the "Country" Common Schemas in the Project Schemas

Dictionary Index		Dictionary Information	Reuse of Common Schema				Object Class and Property		
Dictionary Entry Name	BIE Type	Definition	UID	Dictionary Entry Name	Object Class Term	Property Term	Object Class Term	Property Term	Cardin-ality
Country. Details	ABIE	Identification of a country or other geographical entity as specified in IS 3166	COM00001	Country. Details	Country	Details	ountry	Details	
Country. Name	BBIE	Name of a country or other geographical entity as specified in IS 3166	COM00002	Country. Name	Country	Name	ountry	Name	0-1
Country. Code	BBIE	Code identifying the name of the country or other geographical entity specified in ISO 3166	COM00003	Country. Code	Country	Code	ountry	Code	0-1

Table VI: Replicating the information models of the "HK Physical Address" Common Schemas in the Project Schemas

Dictionary Index		Dictionary Information	Reuse of Common Schema				Object Class and Property		
Dictionary Entry Name	BIE Type	Definition	UID	Dictionary Entry Name	Object Class Term	Property Term	Object Class Term	Property Term	Cardin-ality
HK Physical Address. Details	ABIE	Address of a location in Hong Kong which can phyiscally locate an organization or individual	COM00050	HK Physical Address. Details	HK Physical Address	Details	K Physical ddress	Details	
HK Physical Address. Flat. Name	BBIE	Flat or room number in a Hong Kong phyiscal address	COM00051	HK Physical Address. Flat. Name	HK Physical Address	Flat	K Physical ddress	Flat	0-1
HK Physical Address. Floor. Name	BBIE	Floor number in a Hong Kong physc address	COM00052	HK Physical Address. Floor. Name	HK Physical Address	Floor	K Physical ddress	Floor	0-1
HK Physical Address. Block. Name	BBIE	Block name or number in a Hong Ko physical address	COM00053	HK Physical Address. Block. Name	HK Physical Address	Block	K Physical ddress	Block	0-1
HK Physical Address. Building. Name	BBIE	Building name in a Hong Kong physical address	COM00054	HK Physical Address. Building. Name	HK Physical Address	Building	K Physical ddress	Building	0-1
HK Physical Address. Estate. Name	BBIE	Estate name in a Hong Kong physica address	COM00055	HK Physical Address. Estate. Name	HK Physical Address	Estate	K Physical ddress	Estate	0-1
HK Physical Address. Street Number. Text	BBIE	Street number in a Hong Kong physical address	COM00056	HK Physical Address. Street Number. Text	HK Physical Address	Street Number	K Physical ddress	Street Number	0-1
HK Physical Address. Street. Name	BBIE	Street name in a Hong Kong physica address	COM00057	HK Physical Address. Street. Name	HK Physical Address	Street	K Physical ddress	Street	0-1
HK Physical Address. District. Name	BBIE	District name in a Hong Kong phyisc address	COM00058	HK Physical Address. District. Name	HK Physical Address	District	K Physical ddress	District	0-1
HK Physical Address. Area. Code	BBIE	Code identifying an Hong Kong area a Hong Kong physical address	COM00059	HK Physical Address. Area. Code	HK Physical Address	Area	K Physical ddress	Area	0-1

1.5 Define Information Models

For those data elements that do not have a corresponding Common Schema that can be reused, the business analyst needs to define an information model for each of these data elements. Before defining the information model, the business analyst should make reference to relevant industry standards (such as W3C's XML Signature) and schemas defined by other e-government projects to see if there are schemas suitable for reuse.

"Foreign Physical Address" is used as an example to illustrate how its information models are developed. Instead of filling in the modelling worksheets provided in the Design Guide, the business analyst has designed and used a spreadsheet, part of which is shown in , to ease capturing the modelling information. This modelling spreadsheet is used as the data dictionary for developing the Project Schemas. The Common Schema spreadsheet in the Central Registry may be used as a reference for business analysts to design their own spreadsheet.

Table VII: The information models for “Foreign Physical Address”.

Dictionary Index			Dictionary Information	Object Class and Property			Representation	Format Restrictions on Content Component
UID	**Dictionary Entry Name**	**BIE Type**	**Definition**	**Object Class Term**	**Property Term**	**Cardin-ality**	**Rep. Term / Object Class Term of asso. ABIE**	**Max. Len.**
IEPP00007	Foreign Physical Address. Details	ABIE	Address of a location outside Hong Kong where an organization or an individual can be located	Foreign Physical Address	Details			
IEPP00008	Foreign Physical Address. Street. Text	BBIE	Room number, building name, street name and number, etc. in a foreign physical address	Foreign Physical Address	Street	1	Text	210
IEPP00009	Foreign Physical Address. City. Name	BBIE	City name in a foreign physical address	Foreign Physical Address	City	1	Name	35
IEPP00010	Foreign Physical Address. Country	ASBIE	Country identification in a foreign physical address	Foreign Physical Address	Country	1	Country	

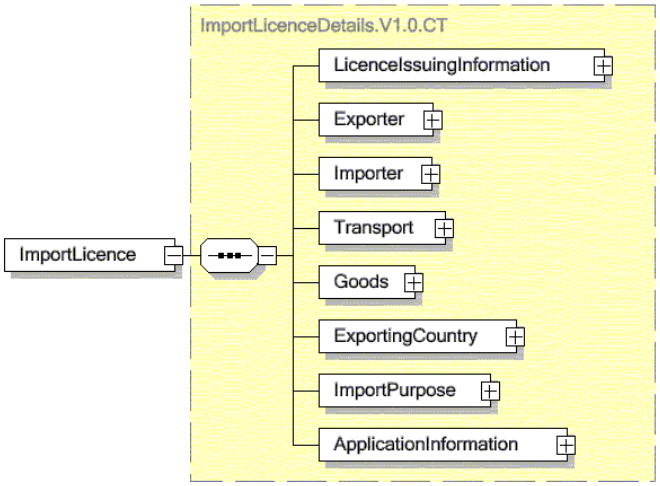
1.5.1. *Sample User Document*

The information model developed by the business analyst needs to be shown to the business users to verify that relevant business requirements have been reflected in the model. In order to communicate with users, the business analyst may construct additional user documentation from the modelling spreadsheet. The documentation can be used for users to verify and finally sign off the information models produced by the business analyst. This section shows a sample part of the user documentation, which can be generated from the spreadsheet by a simple software program.

In this sample user documentation, each ABIE is summarized with its dictionary entry information, and its schema structure. Documentation parts for `Import Licence. Document`, `Export Licence. Document`, and `Licence Issuing Information. Details` are illustrated below.

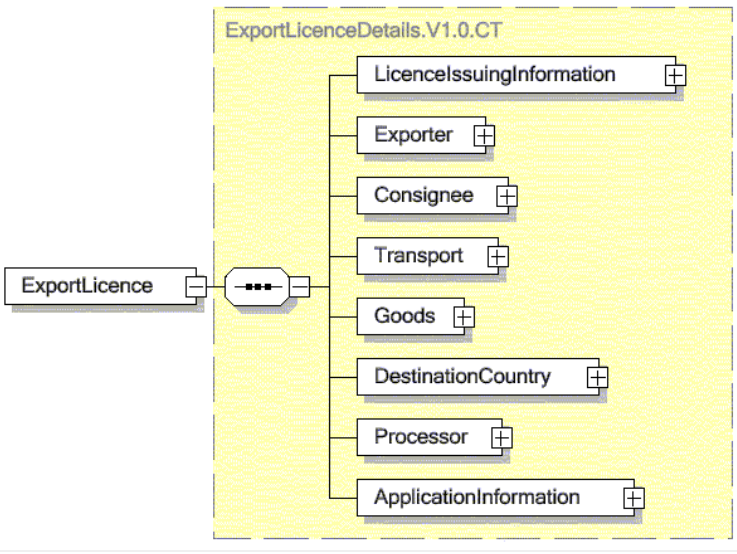
Dictionary Entry Information		
Dictionary Entry Name: Import Licence. Document		
UID: IEPP00101	**Version:** 1.0	**Maturity Level:** Draft
Definition: A trade document issued by the Hong Kong SAR Government which grants the authority to import certain commodities or goods to Hong Kong		

Schema Structure



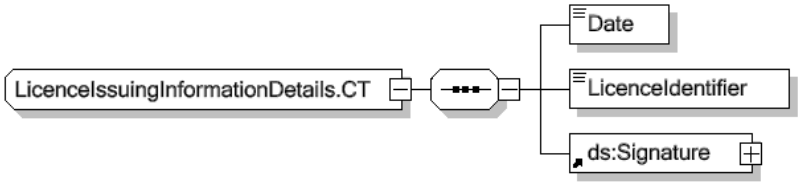
Dictionary Entry Information		
Dictionary Entry Name: Export Licence. Document		
UID: IEPP00102	**Version:** 1.0	**Maturity Level:** Draft
Definition: A trade document issued by the Hong Kong SAR Government which grants the authority to export certain commodities or goods from Hong Kong		

Schema Structure



Dictionary Entry Information		
Dictionary Entry Name: Licence Issuing Information. Details		
UID: IEPP00001	**Version:** 1.0	**Maturity Level:** Draft
Definition: Issuing information of a licence document, e.g. issue date and licence number		

Schema Structure



Basic BIE Details / Aggregated BIEs				
Order	***UID***	***Dictionary Entry Name***	***Data Type***	***Cardinality***
Definition			***Restriction***	
1	IEPP00002	Licence Issuing Information. Date	Date	1
Date on which a licence document is issued by issuing authority				
2	IEPP00003	Licence Issuing Information. Licence. Identifier	String	1
Reference number assigned by issuing authority to a licence document			Maximum Length: 17	
3	IEPP00081	Licence Issuing Information. Issuing Authority Signature. External	External	1
Signature of the issuing authority				

1.6 XML Schema Definition Development

This section demonstrates how the programmer converts the ABIE for "Foreign Physical Address".

The ABIE, of which the Dictionary Entry Name is "Foreign Physical Address. Details", is converted into an `xs:complexType` with the type name "`ForeignPhysicalAddressDetails.CT`" according to the naming rules provided in Section 5.5.1 of the Design Guide.

The ABIE has aggregated two BBIEs and one ASBIE, namely "Foreign Physical Address. Street. Text", "Foreign Physical Address. City. Name", and "Foreign Physical Address. Country". These three aggregated BIEs are converted to become the child elements of the "`ForeignPhysicalAddressDetails.CT`" `xs:complexType`. Since the cardinalities of these three aggregated BBIEs are "1", both `minOccurs` and `maxOccurs` for the child elements should be "`1`". (When `minOccurs` or `maxOccurs` is not declared, its default value, which is "`1`", is used.)

The names of these child elements are "`Street`", "`City`" and "`Country`", which are the Property Terms of the aggregated BIEs. For the aggregated BBIEs, the child elements are based on the `xs:complexType`s for those BBIEs. For the aggregated ASBIE, the child element is based on the `xs:complexType` of the ABIE with which that ASBIE is associated.

A tool is provided in the Central Registry to convert information models in the spreadsheet to XSD. Before such conversion, the programmer needs to provide some supporting information on the spreadsheet such as the regular expression for a pattern, the use of an Externally Defined Entity to link up an external industry standard (such as W3C's XML Signature), etc.

Table VIII: Sample conversion from the "Foreign Physical Address" ABIE to XSD code.

Dictionary Entry Name	*BIE Type*	*Cardin-ality*	*Order*	*Complex Type Name*	*Element Name*	*Min-occurs*	*Max-occurs*
Foreign Physical Address. Details	ABIE	n/a	n/a	ForeignPhysicalAddressDetails.CT	n/a	n/a	n/a
Foreign Physical Address. Street. Text	BBIE	1	1	ForeignPhysicalAddressStreetText.CT	Street	1	1
Foreign Physical Address. City. Name	BBIE	1	2	ForeignPhysicalAddressCityName.CT	City	1	1
Foreign Physical Address. Country	ASBIE	1	3	CountryDetails.CT (the xs:complexType of the ABIE with which this ASBIE is associated)	Country	1	1

```
<xs:complexType name="ForeignPhysicalAddressDetails.CT">
   <xs:sequence>
      <xs:element name="Street" type="ForeignPhysicalAddressStreetText.CT"/>
      <xs:element name="City" type="ForeignPhysicalAddressCityName.CT"/>
      <xs:element name="Country" type="CountryDetails.CT"/>
   </xs:sequence>
</xs:complexType>
```

1.7 Organize Information Models and XML Schema Definitions in the Project Registry

All information models are then organized using a data dictionary (which can be in the form of a spreadsheet or a database). The data dictionary and the XSDs are then stored in the Project Registry.

Section 1.7.1 illustrates all information models captured in the modelling spreadsheet.

Section 1.7.2 shows the structures of the three documents.

Section 1.7.3 lists the XSD code for these three documents.

1.7.1. *Information Models*

Dictionary Index				Dictionary Information	Reuse of Common Schema		Object Class and Property			Representation	Format Restrictions on Content Component				Supplementary Components				
UID	**Dictionary Entry Name**	**Business Terms**	**BIE Type**	**Definition**	**UID**	**Dictionary Entry Name**	**Object Class Term**	**Property Term**	**Cardin-ality**	**Rep. Term / Object Class Term of asso. ABIE**	**Len.**	**Max. Len.**	**Tot. Digits**	**Frac. Digits**	**Agency ID**	**Agency Name**	**Code List ID**	**Code List Name**	**Currency Code**
IEPP00001	Licence Issuing Information. Details		ABIE	Issuing information of a licence document, e.g. issue date and licence number			Licence Issuing Information	Details											
IEPP00002	Licence Issuing Information. Date		BBIE	Date on which a licence document is issued by issuing authority			Licence Issuing Information	Date	1	Date									
IEPP00003	Licence Issuing Information. Licence. Identifier	Licence Number	BBIE	Reference number assigned by issuing authority to a licence document			Licence Issuing Information	Licence Identifier	1	Identifier		17							
IEPP00081 [1]	Licence Issuing Information. Issuing Authority Signature. External		ASBIE	Signature of the issuing authority			Licence Issuing Information	Issuing Authority Signature	1	External									
IEPP00004	Country. Details		ABIE	Identification of a country or other geographical entity as specified in ISO 3166	COM0 0001	Country. Details	Country	Details											
IEPP00005	Country. Name		BBIE	Name of a country or other geographical entity as specified in ISO 3166	COM0 0002	Country. Name	Country	Name	0-1	Name		35							
IEPP00006	Country. Code		BBIE	Code identifying the name of the country or other geographical entity as specified in ISO 3166	COM0 0003	Country. Code	Country	Code	0-1	Code	2					ISO		ISO 3166-1	
IEPP00007	Foreign Physical Address. Details		ABIE	Address of a location outside Hong Kong where an organization or an individual can be located			Foreign Physical Address	Details											
IEPP00008	Foreign Physical Address. Street. Text		BBIE	Room number, building name, street name and number, etc. in a foreign physical address			Foreign Physical Address	Street	1	Text		210							
IEPP00009	Foreign Physical Address. City. Name		BBIE	City name in a foreign physical address			Foreign Physical Address	City	1	Name		35							
IEPP00010	Foreign Physical Address. Country		ASBIE	Country identification in a foreign physical address			Foreign Physical Address	Country	1	Country									

[1] With regard to the "Licence Issuing Information. Issuing Authority Signature. External" under "Licence Issuing Information. Details", the programmer should adopt W3C's XML Signature standard. The programmer should study the XML Signature specification and decide how he / she should link up the import / export document to the XML Signature schema. In this case, the element reference method should be used to encode XSD. The programmer should fill in the spreadsheet with relevant information (i.e. **`<xs:element ref="ds:Signature"/>`**) before generating XSD from the spreadsheet. The schema document should also import the XML Signature XSD from **`http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/xmldsig-core-schema.xsd`** and declare the namespace **`xmlns:ds="http://www.w3.org/2000/09/xmldsig#"`**.

1

Dictionary Index				Dictionary Information	Reuse of Common Schema		Object Class and Property			Representation	Format Restrictions on Content Component				Supplementary Components				
UID	**Dictionary Entry Name**	**Business Terms**	**BIE Type**	**Definition**	**UID**	**Dictionary Entry Name**	**Object Class Term**	**Property Term**	**Cardin -ality**	**Rep. Term / Object Class Term of asso. ABIE**	**Len.**	**Max. Len.**	**Tot. Digits**	**Frac. Digits**	**Agency ID**	**Agency Name**	**Code List ID**	**Code List Name**	**Currency Code**
IEPP00011	HK Physical Address. Details		ABIE	Address of a location in Hong Kong where an organization or an individual can be located	COM0 0050	HK Physical Address. Details	HK Physical Address	Details											
IEPP00012	HK Physical Address. Flat. Name		BBIE	Flat or room number in a Hong Kong phyiscal address	COM0 0051	HK Physical Address. Flat. Name	HK Physical Address	Flat	0-1	Name		17							
IEPP00013	HK Physical Address. Floor. Name		BBIE	Floor number in a Hong Kong physcial address	COM0 0052	HK Physical Address. Floor. Name	HK Physical Address	Floor	0-1	Name		17							
IEPP00014	HK Physical Address. Block. Name		BBIE	Block name or number in a Hong Kong physical address	COM0 0053	HK Physical Address. Block. Name	HK Physical Address	Block	0-1	Name		17							
IEPP00015	HK Physical Address. Building. Name		BBIE	Building name in a Hong Kong physical address	COM0 0054	HK Physical Address. Building. Name	HK Physical Address	Building	0-1	Name		70							
IEPP00016	HK Physical Address. Estate. Name		BBIE	Estate name in a Hong Kong physical address	COM0 0055	HK Physical Address. Estate. Name	HK Physical Address	Estate	0-1	Name		35							
IEPP00017	HK Physical Address. Street Number. Text		BBIE	Street number in a Hong Kong physical address	COM0 0056	HK Physical Address. Street Number. Text	HK Physical Address	Street Number	0-1	Text		35							
IEPP00018	HK Physical Address. Street. Name		BBIE	Street name in a Hong Kong physical address	COM0 0057	HK Physical Address. Street. Name	HK Physical Address	Street	0-1	Name		70							
IEPP00019	HK Physical Address. District. Name		BBIE	District name in a Hong Kong phyiscal address	COM0 0058	HK Physical Address. District. Name	HK Physical Address	District	0-1	Name		35							
IEPP00020	HK Physical Address. Area. Code		BBIE	Code identifying an Hong Kong area in a Hong Kong physical address	COM0 0059	HK Physical Address. Area. Code	HK Physical Address	Area	0-1	Code	2				http://www.xml.gov.hk	HKSARG		HKSAR AREA CODE LIST	
IEPP00021	Hong Kong Party. Details		ABIE	Details of an organization or individual residing in Hong Kong			Hong Kong Party	Details											
IEPP00022	Hong Kong Party. Name		BBIE	Name of an organization or individual residing in Hong Kong			Hong Kong Party	Name	1	Name		70							
IEPP00023	Hong Kong Party. HK Physical Address		ASBIE	Address of an organization or individual residing in Hong Kong			Hong Kong Party	Address	1	HK Physical Address									
IEPP00024	Hong Kong Party. Identifier	BR Number, HKID Number	BBIE	Identification of an organization or individual residing in Hong Kong			Hong Kong Party	Identifier	1	Identifier		17							
IEPP00025	Hong Kong Party. Telephone Number. Text		BBIE	Telephone number which can be used to contact an organization or individual residing in Hong Kong			Hong Kong Party	Telephone Number	1	Text		35							

2
3

Dictionary Index				Dictionary Information	Reuse of Common Schema		Object Class and Property			Representation	Format Restrictions on Content Component				Supplementary Components				
UID	**Dictionary Entry Name**	**Business Terms**	**BIE Type**	**Definition**	**UID**	**Dictionary Entry Name**	**Object Class Term**	**Property Term**	**Cardin-ality**	**Rep. Term / Object Class Term of asso. ABIE**	**Len.**	**Max. Len.**	**Tot. Digits**	**Frac. Digits**	**Agency ID**	**Agency Name**	**Code List ID**	**Code List Name**	**Currency Code**
IEPP00026	Foreign Party. Details		ABIE	Details of an organization or individual residing outside Hong Kong			Foreign Party	Details											
IEPP00027	Foreign Party. Name		BBIE	Name of an organization or individual residing outside Hong Kong			Foreign Party	Name	1	Name		70							
IEPP00028	Foreign Party. Foreign Physical Address		ASBIE	Physical address of an organization or individual residing outside Hong Kong			Foreign Party	Address	1	Foreign Physical Address									
IEPP00029	Transport. Details		ABIE	Details of transportation of goods			Transport	Details											
IEPP00030	Transport. Mode. Code		BBIE	Method of transportation			Transport	Mode	1	Code		3			http://www.unece.org	UNECE		UNECE Rec. 19	
IEPP00031	Transport. Vessel. Name		BBIE	Name of a vessel or carrier with which goods are transported			Transport	Vessel Name	0-1	Name		70							
IEPP00032	Transport. Vessel. Identifier		BBIE	Identification of a vessel or carrier with which goods are transported			Transport	Vessel Identifier	0-1	Identifier		17							
IEPP00033	Transport. Arrival. Date		BBIE	Date on which a vessel or carrier arrives at a concerned port (e.g. Hong Kong)			Transport	Arrival Date	0-1	Date									
IEPP00034	Transport. Departure. Date		BBIE	Date on which a vessel or carrier departs from a concerned port (e.g. Hong Kong)			Transport	Departure Date	0-1	Date									
IEPP00035	Goods Item. Details		ABIE	Details of a goods item			Goods Item	Details											
IEPP00036	Goods Item. Marks Numbers. Text		BBIE	Shipping marks and numbers marked on a package of goods			Goods Item	Marks Numbers	0-1	Text		70							
IEPP00037	Goods Item. Container. Identifier		BBIE	Identification of a container			Goods Item	Container Identifier	0-1	Identifier		17							
IEPP00038	Goods Item. Package. Quantity		BBIE	Number of packages of a goods item			Goods Item	Package Quantity	1	Quantity			17	3					
IEPP00039	Goods Item. Brand Model. Name		BBIE	Brand name and model name of a goods item			Goods Item	Brand Model	0-1	Name		70							
IEPP00040	Goods Item. Description. Text		BBIE	Description of a goods item			Goods Item	Description	1	Text		210							
IEPP00041	Goods Item. Unit. Quantity		BBIE	Quantity of a goods item in a proper unit			Goods Item	Unit Quantity	1	Quantity			17	3					
IEPP00042	Goods Item. CIF Value. Amount		BBIE	Cost-Insurance-Freight (CIF) value of a goods item			Goods Item	CIF Value	0-1	Amount			35	3					HKD
IEPP00043	Goods Item. FOB Value. Amount		BBIE	Free on Board (FOB) value of a goods item			Goods Item	FOB Value	0-1	Amount			35	3					
IEPP00044	Goods Item. Origin. Country		ASBIE	Country of origin of a goods item			Goods Item	Origin Country	1	Country									
IEPP00045	Goods. Details		ABIE	Goods declared on a trade document (e.g. import or export licence)			Goods	Details											
IEPP00046	Goods. Goods Item		ASBIE	Details of one goods item entry on a licence document			Goods	Item	1-99	Goods Item									
IEPP00047	Goods. Total CIF Value. Amount		BBIE	Total Cost-Insurance-Freight (CIF) value of goods			Goods	Total CIF Value	0-1	Amount			35	3					HKD
IEPP00048	Goods. Total FOB Value. Amount		BBIE	Total Free on Board (FOB) value of goods			Goods	Total FOB Value	0-1	Amount			35	3					

Dictionary Index				Dictionary Information	Reuse of Common Schema		Object Class and Property			Representation	Format Restrictions on Content Component				Supplementary Components				
UID	**Dictionary Entry Name**	**Business Terms**	**BIE Type**	**Definition**	**UID**	**Dictionary Entry Name**	**Object Class Term**	**Property Term**	**Cardin-ality**	**Rep. Term / Object Class Term of asso. ABIE**	**Len.**	**Max. Len.**	**Tot. Digits**	**Frac. Digits**	**Agency ID**	**Agency Name**	**Code List ID**	**Code List Name**	**Currency Code**
IEPP00049	Application Information. Details		ABIE	Information on an application for a licence document			Application Information	Details											
IEPP00050	Application Information. Date		BBIE	Date on which a licence application is submitted			Application Information	Date	1	Date									
IEPP00051	Application Information. Applicant. Name		BBIE	Name of an individual who submits a licence application			Application Information	Applicant Name	1	Name		70							
IEPP00080 [2]	Application Information. Applicant Signature. External		ASBIE	Signature of an individual who submits a licence application			Application Information	Applicant Signature	1	External									
IEPP00052	Import Purpose. Details		ABIE	Purpose for which goods are imported			Import Purpose	Details											
IEPP00053	Import Purpose. Local Consumption. Boolean		BBIE	Indication whether goods are imported for local consumption			Import Purpose	Local Consumption	1	Boolean									
IEPP00054	Import Purpose. Reexport To. Country		ASBIE	Country to which goods are reexported			Import Purpose	Reexport To Country	0-1	Country									
IEPP00055	Import Licence. Details	Form 3, TRA 187	ABIE	A trade document issued by the Hong Kong SAR Government which grants the authority to import certain commodities or goods to Hong Kong			Import Licence	Details											
IEPP00056	Import Licence. Licence Issuing Information		ASBIE	Issuing information of an import licence			Import Licence	Licence Issuing Information	0-1	Licence Issuing Information									
IEPP00057	Import Licence. Exporter. Foreign Party		ASBIE	Details of a foreign organization or individual who exports goods to Hong Kong			Import Licence	Exporter	1	Foreign Party									
IEPP00058	Import Licence. Importer. Hong Kong Party		ASBIE	Details of a Hong Kong organization or individual who imports goods to Hong Kong			Import Licence	Importer	1	Hong Kong Party									
IEPP00059	Import Licence. Transport		ASBIE	Details of transportation of goods			Import Licence	Transport	1	Transport									
IEPP00060	Import Licence. Goods		ASBIE	Details of goods for import to Hong Kong			Import Licence	Goods	1	Goods									
IEPP00061	Import Licence. Exporting. Country		ASBIE	Country from which goods are exported to Hong Kong			Import Licence	Exporting Country	1	Country									
IEPP00062	Import Licence. Import Purpose		ASBIE	Purpose for which goods are imported			Import Licence	Import Purpose	1	Import Purpose									
IEPP00063	Import Licence. Application Information		ASBIE	Information of application for a licence document			Import Licence	Application Information	1	Application Information									

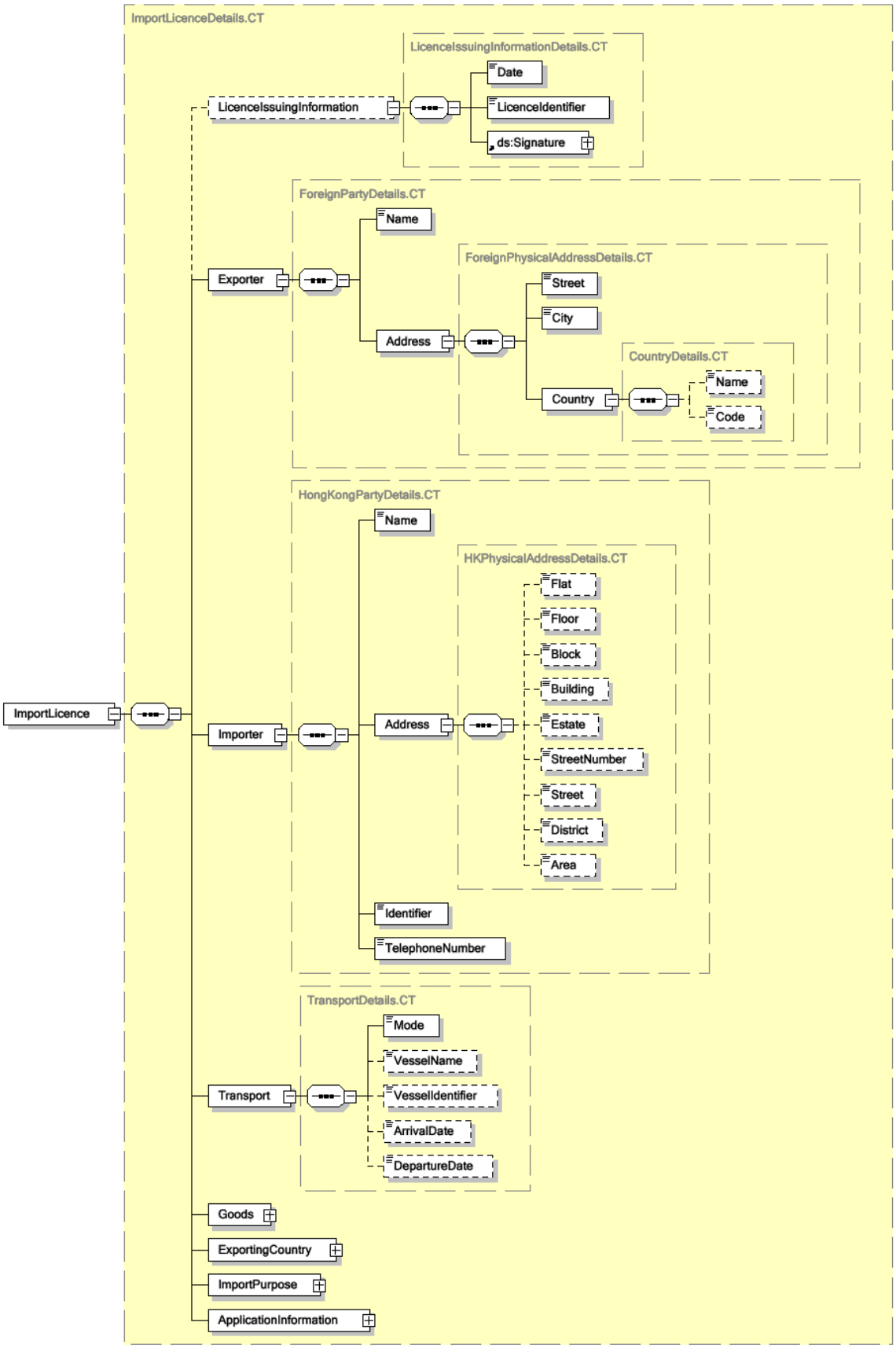
1

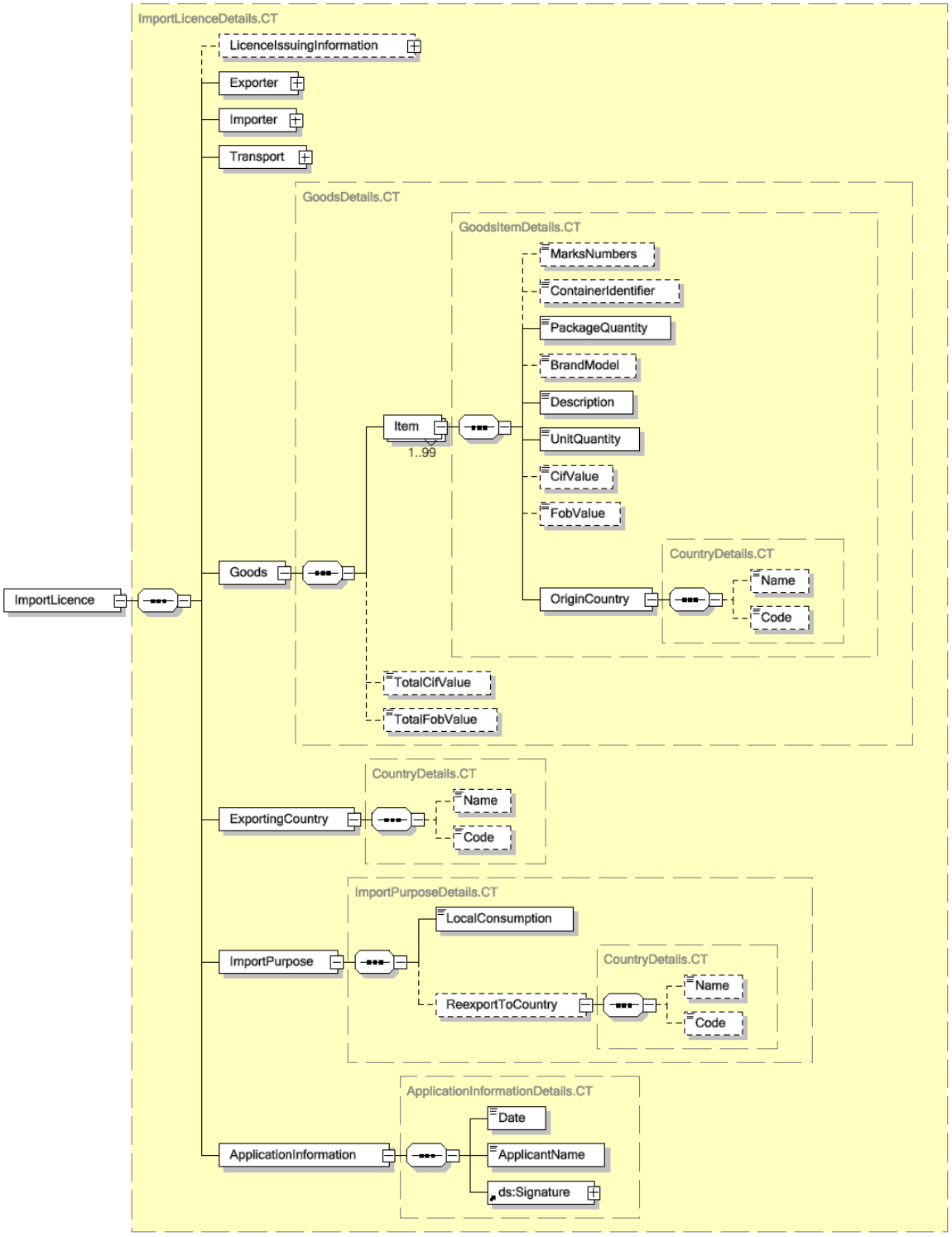
[2] With regard to the "Application Information. Applicant Signature. External" under "Application Information. Details", the programmer should adopt W3C's XML Signature standard. The programmer should study the XML Signature specification and decide how he / she should link up the import / export document to the XML Signature schema. In this case, the element reference method should be used to encode XSD. The programmer should fill in the spreadsheet with relevant information (i.e. **`<xs:element ref="ds:Signature"/>`**) before generating XSD from the spreadsheet. The schema document should also import the XML Signature XSD from **`http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/xmldsig-core-schema.xsd`** and declare the namespace **`xmlns:ds="http://www.w3.org/2000/09/xmldsig#"`**.

Dictionary Index				Dictionary Information	Reuse of Common Schema		Object Class and Property			Representation	Format Restrictions on Content Component				Supplementary Components				
UID	Dictionary Entry Name	Business Terms	BIE Type	Definition	UID	Dictionary Entry Name	Object Class Term	Property Term	Cardin-ality	Rep. Term / Object Class Term of asso. ABIE	Len.	Max. Len.	Tot. Digits	Frac. Digits	Agency ID	Agency Name	Code List ID	Code List Name	Currency Code
IEPP00064	Export Licence. Details	Form 6, TRA 394	ABIE	A trade document issued by the Hong Kong SAR Government which grants the authority to export certain commodities or goods from Hong Kong			Export Licence	Details											
IEPP00065	Export Licence. Licence Issuing Information		ASBIE	Issuing information of an export licence			Export Licence	Licence Issuing Information	0-1	Licence Issuing Information									
IEPP00066	Export Licence. Exporter. Hong Kong Party		ASBIE	Details of a Hong Kong organization or individual who exports goods from Hong Kong			Export Licence	Exporter	1	Hong Kong Party									
IEPP00067	Export Licence. Consignee. Foreign Party		ASBIE	A foreign organization or individual to whom exported goods will be shipped to			Export Licence	Consignee	1	Foreign Party									
IEPP00068	Export Licence. Transport		ASBIE	Details of transportation of goods			Export Licence	Transport	1	Transport									
IEPP00069	Export Licence. Goods		ASBIE	Details of goods for export from Hong Kong			Export Licence	Goods	1	Goods									
IEPP00070	Export Licence. Destination. Country		ASBIE	Country to which goods are exported			Export Licence	Destination Country	1	Country									
IEPP00071	Export Licence. Processor. Hong Kong Party		ASBIE	Details of a manufacturer or processor of goods for export			Export Licence	Processor	0-1	Hong Kong Party									
IEPP00072	Export Licence. Application Information		ASBIE	Information on an application for an export licence			Export Licence	Application Information	1	Application Information									
IEPP00073	Error. Details		ABIE	Details of an error which occurs on processing a request			Error	Details											
IEPP00074	Error. Type. Code		BBIE	Code identifying a processing error			Error	Type	1	Code									
IEPP00075	Error. Message. Text		BBIE	Textual description providing explanation to a processing error			Error	Message	1	Text		210							
IEPP00076	Acknowledgement. Details		ABIE	Acknowledgement message for application, approval, and issue of a licence document			Acknowledgement	Details											
IEPP00077	Acknowledgement. Type. Code		BBIE	Code identifying an acknowledgement type			Acknowledgement	Type	1	Code	2				http://www.xml.gov.hk	HKSARG		ACKNOWLEDGEMENT TYPE CODE LIST	
IEPP00078	Acknowledgement. Message. Text		BBIE	Textual description providing explanation to an acknowledgement message			Acknowledgement	Message	0-1	Text		210							
IEPP00079	Acknowledgement. Error		ASBIE	Details of an error which occurs on processing a request			Acknowledgement	Error	0-99	Error									
IEPP00080	Import Licence. Document		Document	The data of an import licence application or the licence issued			Import Licence	Document		Import Licence									
IEPP00081	Export Licence. Document		Document	The data of an export licence application or the licence issued			Export Licence	Document		Export Licence									
IEPP00082	Acknowledgement. Document		Document	The status of a licence application			Acknowledgement	Document		Acknowledgement									

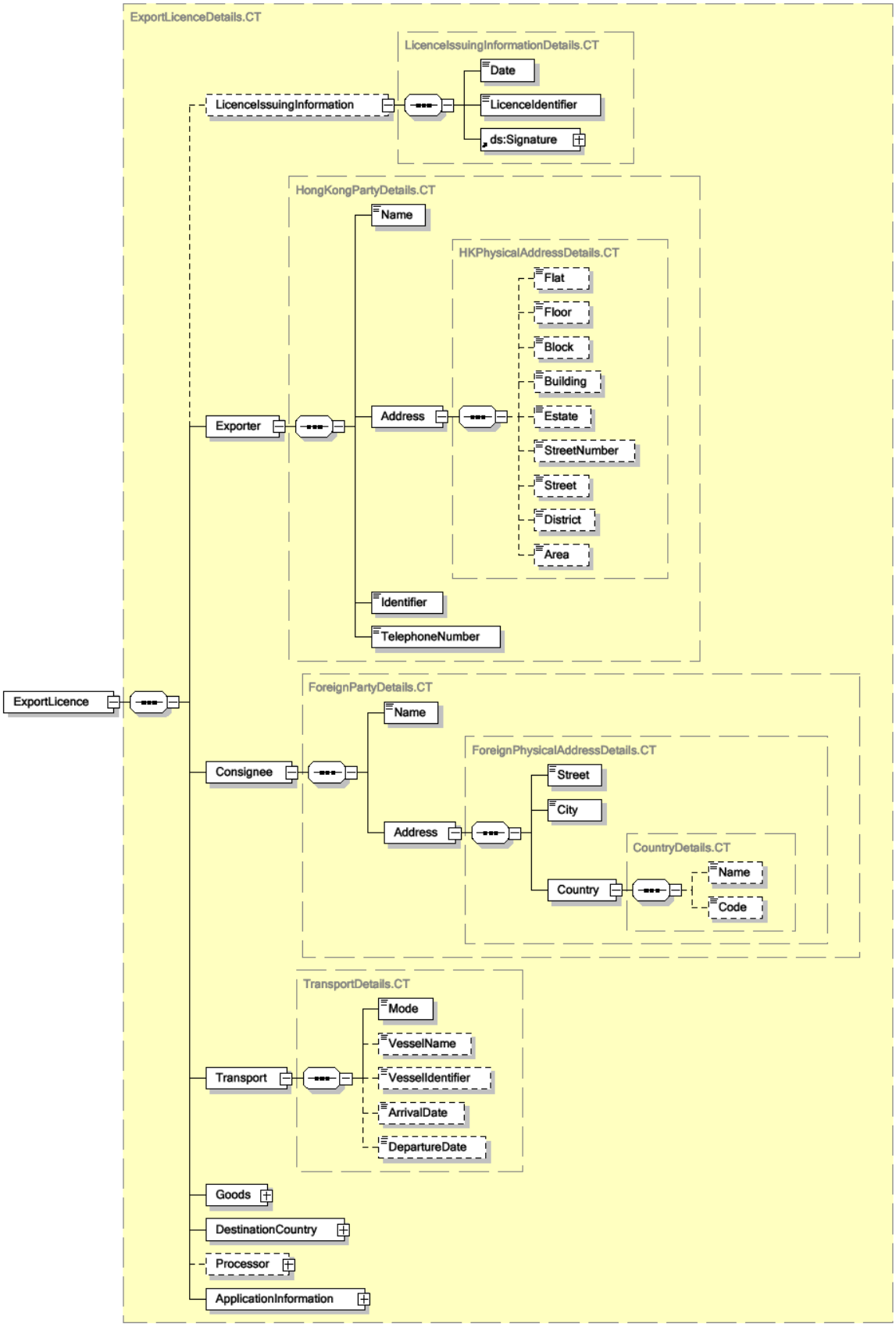
1.7.2. *Document Structures and XML Schema Definition*

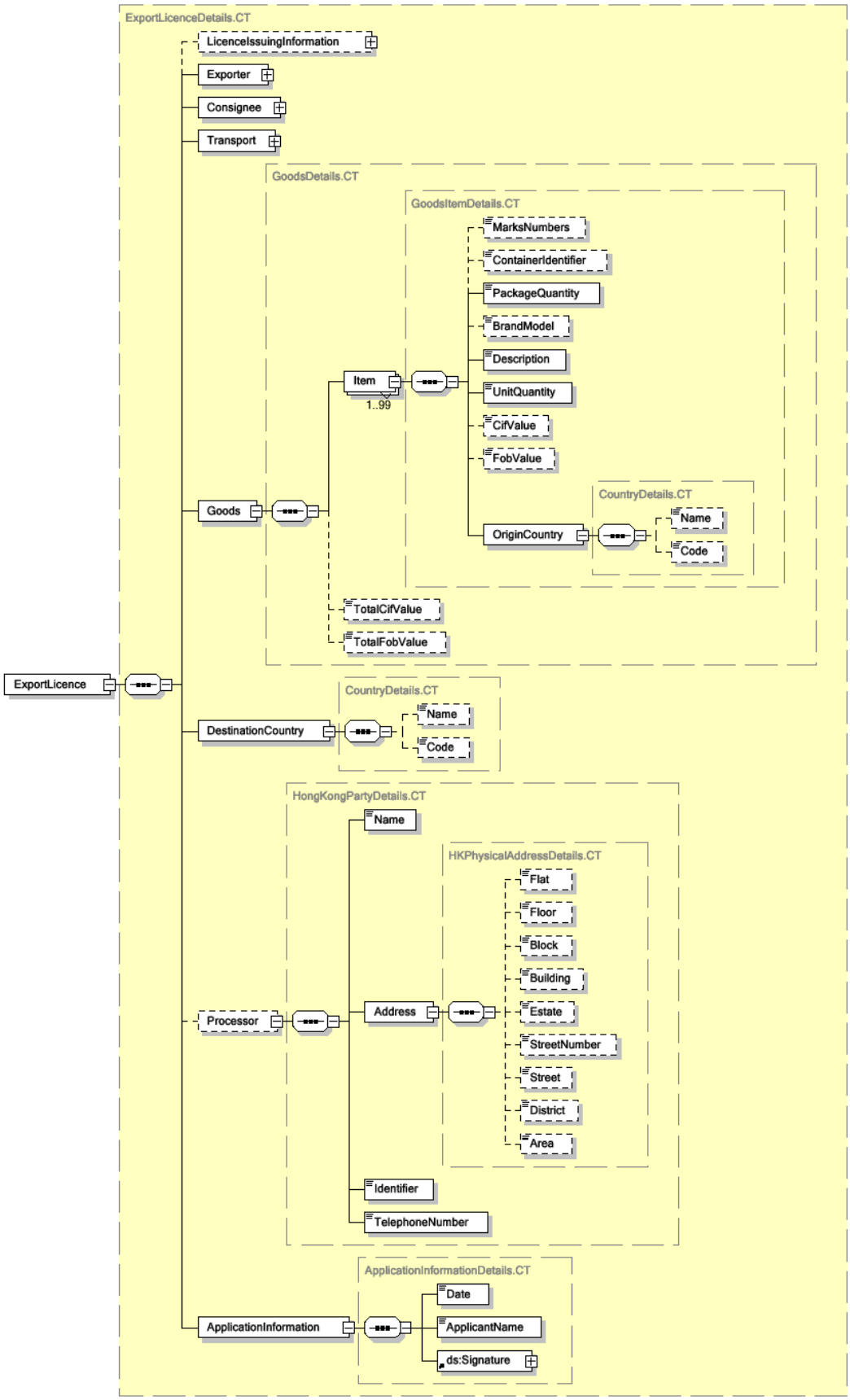
1.7.2.1. Structure of Import Licence Document




ImportLicenceDetails.CT
LicenceIssuingInformation
Exporter
Importer
Transport
GoodsDetails.CT
GoodsItemDetails.CT
MarksNumbers
ContainerIdentifier
PackageQuantity
BrandModel
Description
Item
1..99
UnitQuantity
CifValue
FobValue
CountryDetails.CT
Name
Code
OriginCountry
ImportLicence
Goods
TotalCifValue
TotalFobValue
CountryDetails.CT
Name
Code
ExportingCountry
ImportPurposeDetails.CT
LocalConsumption
ImportPurpose
CountryDetails.CT
Name
Code
ReexportToCountry
ApplicationInformationDetails.CT
Date
ApplicantName
ds:Signature
ApplicationInformation

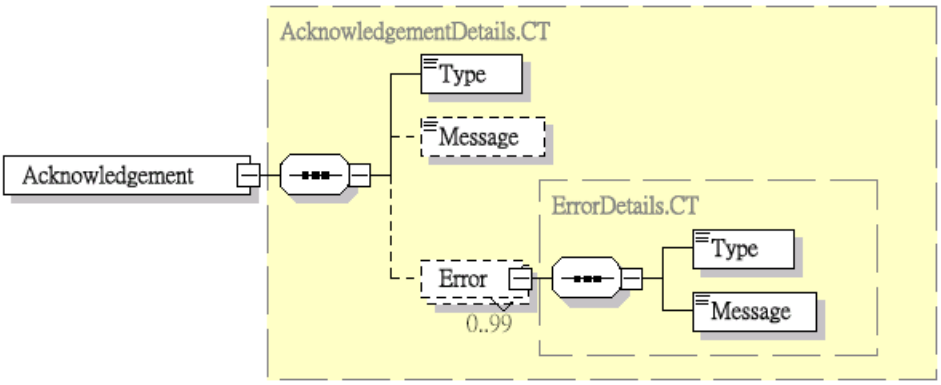
1.7.2.2. Structure of Export Licence Document




ExportLicenceDetails.CT
LicenceIssuingInformation
Exporter
Consignee
Transport
GoodsDetails.CT
GoodsItemDetails.CT
MarksNumbers
ContainerIdentifier
PackageQuantity
BrandModel
Description
Item
1..99
UnitQuantity
CifValue
FobValue
CountryDetails.CT
Name
Code
Goods
OriginCountry
TotalCifValue
TotalFobValue
ExportLicence
CountryDetails.CT
Name
Code
DestinationCountry
HongKongPartyDetails.CT
Name
HKPhysicalAddressDetails.CT
Flat
Floor
Block
Building
Estate
StreetNumber
Street
District
Area
Address
Processor
Identifier
TelephoneNumber
ApplicationInformationDetails.CT
Date
ApplicantName
ds:Signature
ApplicationInformation

1

1.7.2.3. Structure of Acknowledgement Document



1.7.3. *XML Schema Definitions*

The following pages show XSD code translated from the information models specified in 1.7.1.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:ds="http://www.w3.org/2000/09/xmldsig#"
xmlns:cct=" http://www.xml.gov.hk/schemas/cct"
xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
attributeFormDefault="unqualified">
   <xs:import namespace="http://www.xml.gov.hk/schemas/cct"
schemaLocation="http://www.xml.gov.hk/schemas/cct/cct.xsd"/>
   <xs:import namespace="http://www.w3.org/2000/09/xmldsig#"
schemaLocation="http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/
xmldsig-core-schema.xsd"/>
   <xs:annotation>
      <xs:documentation>Shared BIEs</xs:documentation>
   </xs:annotation>
   <xs:complexType name="CountryDetails.CT">
      <xs:sequence>
         <xs:element name="Name" type="CountryName.CT" minOccurs="0"/>
         <xs:element name="Code" type="CountryCode.CT" minOccurs="0"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="CountryName.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="35"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="CountryCode.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Code.CT">
            <xs:length value="2"/>
            <xs:attribute name="agencyId" default="http://www.iso.ch">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="http://www.iso.ch"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="agencyName" default="ISO">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="ISO"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="codeListId"
default="http://www.iso.ch/iso/en/prods-services/iso3166ma/index.html">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="http://www.iso.ch/iso/en/prods-
services/iso3166ma/index.html"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="codeListName" default="ISO 3166-1">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
```

```
                  <xs:enumeration value="ISO 3166-1"/>
                </xs:restriction>
              </xs:simpleType>
            </xs:attribute>
          </xs:restriction>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="ForeignPhysicalAddressDetails.CT">
      <xs:sequence>
        <xs:element name="Street"
type="ForeignPhysicalAddressStreetText.CT"/>
        <xs:element name="City" type="ForeignPhysicalAddressCityName.CT"/>
        <xs:element name="Country" type="CountryDetails.CT"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ForeignPhysicalAddressStreetText.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Text.CT">
          <xs:maxLength value="210"/>
        </xs:restriction>
      </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="ForeignPhysicalAddressCityName.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Name.CT">
          <xs:maxLength value="35"/>
        </xs:restriction>
      </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="HKPhysicalAddressDetails.CT">
      <xs:sequence>
        <xs:element name="Flat" type="HKPhysicalAddressFlatName.CT"
minOccurs="0"/>
        <xs:element name="Floor" type="HKPhysicalAddressFloorName.CT"
minOccurs="0"/>
        <xs:element name="Block" type="HKPhysicalAddressBlockName.CT"
minOccurs="0"/>
        <xs:element name="Building" type="HKPhysicalAddressBuildingName.CT"
minOccurs="0"/>
        <xs:element name="Estate" type="HKPhysicalAddressEstateName.CT"
minOccurs="0"/>
        <xs:element name="StreetNumber"
type="HKPhysicalAddressStreetNumberText.CT" minOccurs="0"/>
        <xs:element name="Street" type="HKPhysicalAddressStreetName.CT"
minOccurs="0"/>
        <xs:element name="District" type="HKPhysicalAddressDistrictName.CT"
minOccurs="0"/>
        <xs:element name="Area" type="HKPhysicalAddressAreaCode.CT"
minOccurs="0"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="HKPhysicalAddressFlatName.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Name.CT">
          <xs:maxLength value="17"/>
        </xs:restriction>
      </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="HKPhysicalAddressFloorName.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Name.CT">
```

```
            <xs:maxLength value="17"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressBlockName.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="17"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressBuildingName.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="70"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressEstateName.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="35"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressStreetNumberText.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Text.CT">
            <xs:maxLength value="35"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressStreetName.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="70"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressDistrictName.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="35"/>
          </xs:restriction>
        </xs:simpleContent>
      </xs:complexType>
      <xs:complexType name="HKPhysicalAddressAreaCode.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Code.CT">
            <xs:length value="2"/>
            <xs:attribute name="agencyId" default="http://www.xml.gov.hk">
              <xs:simpleType>
                <xs:restriction base="xs:token">
                  <xs:enumeration value="http://www.xml.gov.hk"/>
                </xs:restriction>
              </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="agencyName" default="HKSARG">
              <xs:simpleType>
                <xs:restriction base="xs:token">
                  <xs:enumeration value="HKSARG"/>
```

```
                </xs:restriction>
             </xs:simpleType>
          </xs:attribute>
          <xs:attribute name="codeListId"
default="http://www.xml.gov.hk/schemas/codelists/hksar_area_code_list.xml">
             <xs:simpleType>
                <xs:restriction base="xs:token">
                   <xs:enumeration
value="http://www.xml.gov.hk/schemas/codelists/hksar_area_code_list.xml"/>
                </xs:restriction>
             </xs:simpleType>
          </xs:attribute>
          <xs:attribute name="codeListName" default="HKSAR AREA CODE LIST">
             <xs:simpleType>
                <xs:restriction base="xs:token">
                   <xs:enumeration value="HKSAR AREA CODE LIST"/>
                </xs:restriction>
             </xs:simpleType>
          </xs:attribute>
       </xs:restriction>
    </xs:simpleContent>
  </xs:complexType>
  <xs:complexType name="HongKongPartyDetails.CT">
    <xs:sequence>
       <xs:element name="Name" type="HongKongPartyName.CT"/>
       <xs:element name="Address" type="HKPhysicalAddressDetails.CT"/>
       <xs:element name="Identifier" type="HongKongPartyIdentifier.CT"/>
       <xs:element name="TelephoneNumber"
type="HongKongPartyTelephoneNumberText.CT"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="HongKongPartyName.CT">
    <xs:simpleContent>
       <xs:restriction base="cct:Name.CT">
          <xs:maxLength value="70"/>
       </xs:restriction>
    </xs:simpleContent>
  </xs:complexType>
  <xs:complexType name="HongKongPartyIdentifier.CT">
    <xs:simpleContent>
       <xs:restriction base="cct:Identifier.CT">
          <xs:maxLength value="17"/>
       </xs:restriction>
    </xs:simpleContent>
  </xs:complexType>
  <xs:complexType name="HongKongPartyTelephoneNumberText.CT">
    <xs:simpleContent>
       <xs:restriction base="cct:Text.CT">
          <xs:maxLength value="35"/>
       </xs:restriction>
    </xs:simpleContent>
  </xs:complexType>
  <xs:complexType name="ForeignPartyDetails.CT">
    <xs:sequence>
       <xs:element name="Name" type="ForeignPartyName.CT"/>
       <xs:element name="Address" type="ForeignPhysicalAddressDetails.CT"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ForeignPartyName.CT">
    <xs:simpleContent>
       <xs:restriction base="cct:Name.CT">
```

```
            <xs:maxLength value="70"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="TransportDetails.CT">
      <xs:sequence>
         <xs:element name="Mode" type="TransportModeCode.CT"/>
         <xs:element name="VesselName" type="TransportVesselName.CT"
minOccurs="0"/>
         <xs:element name="VesselIdentifier"
type="TransportVesselIdentifier.CT" minOccurs="0"/>
         <xs:element name="ArrivalDate" type="TransportArrivalDate.CT"
minOccurs="0"/>
         <xs:element name="DepartureDate" type="TransportDepartureDate.CT"
minOccurs="0"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="TransportModeCode.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Code.CT">
            <xs:maxLength value="3"/>
            <xs:attribute name="agencyId" default="http://www.unece.org">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="http://www.unece.org"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="agencyName" default="UNECE">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="UNECE"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="codeListId"
default="http://www.unece.org/cefact/rec/rec19en.htm">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration
value="http://www.unece.org/cefact/rec/rec19en.htm"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="codeListName" default="UNECE Rec. 19">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="UNECE Rec. 19"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="TransportVesselName.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="70"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
```

```
   <xs:complexType name="TransportVesselIdentifier.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Identifier.CT">
            <xs:maxLength value="17"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="TransportArrivalDate.CT">
      <xs:simpleContent>
         <xs:extension base="cct:Date.CT"/>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="TransportDepartureDate.CT">
      <xs:simpleContent>
         <xs:extension base="cct:Date.CT"/>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="GoodsItemDetails.CT">
      <xs:sequence>
         <xs:element name="MarksNumbers" type="GoodsItemMarksNumbersText.CT"
minOccurs="0"/>
         <xs:element name="ContainerIdentifier"
type="GoodsItemContainerIdentifier.CT" minOccurs="0"/>
         <xs:element name="PackageQuantity"
type="GoodsItemPackageQuantity.CT"/>
         <xs:element name="BrandModel" type="GoodsItemBrandModelName.CT"
minOccurs="0"/>
         <xs:element name="Description" type="GoodsItemDescriptionText.CT"/>
         <xs:element name="UnitQuantity" type="GoodsItemUnitQuantity.CT"/>
         <xs:element name="CifValue" type="GoodsItemCifValueAmount.CT"
minOccurs="0" maxOccurs="1"/>
         <xs:element name="FobValue" type="GoodsItemFobValueAmount.CT"
minOccurs="0" maxOccurs="1"/>
         <xs:element name="OriginCountry" type="CountryDetails.CT"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="GoodsItemMarksNumbersText.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Text.CT">
            <xs:maxLength value="70"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="GoodsItemContainerIdentifier.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Identifier.CT">
            <xs:maxLength value="17"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="GoodsItemPackageQuantity.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Quantity.CT">
            <xs:totalDigits value="17"/>
            <xs:fractionDigits value="3"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="GoodsItemBrandModelName.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Text.CT">
```

```
            <xs:maxLength value="70"/>
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        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="GoodsItemDescriptionText.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Text.CT">
            <xs:maxLength value="210"/>
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        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="GoodsItemUnitQuantity.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Quantity.CT">
            <xs:totalDigits value="17"/>
            <xs:fractionDigits value="3"/>
          </xs:restriction>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="GoodsItemCifValueAmount.CT">
        <xs:simpleContent>
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            <xs:totalDigits value="35"/>
            <xs:fractionDigits value="3"/>
            <xs:attribute name="currencyCode" default="HKD"/>
          </xs:restriction>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="GoodsItemFobValueAmount.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Amount.CT">
            <xs:totalDigits value="35"/>
            <xs:fractionDigits value="3"/>
          </xs:restriction>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="GoodsDetails.CT">
        <xs:sequence>
          <xs:element name="Item" type="GoodsItemDetails.CT" maxOccurs="99"/>
          <xs:element name="TotalCifValue" type="GoodsTotalCifValueAmount.CT"
minOccurs="0"/>
          <xs:element name="TotalFobValue" type="GoodsTotalFobValueAmount.CT"
minOccurs="0"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="GoodsTotalCifValueAmount.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Amount.CT">
            <xs:totalDigits value="35" fixed="false"/>
            <xs:fractionDigits value="3" fixed="false"/>
            <xs:attribute name="currencyCode" default="HKD"/>
          </xs:restriction>
        </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="GoodsTotalFobValueAmount.CT">
        <xs:simpleContent>
          <xs:restriction base="cct:Amount.CT">
            <xs:totalDigits value="35"/>
            <xs:fractionDigits value="3"/>
          </xs:restriction>
        </xs:simpleContent>
```

```
   </xs:complexType>
   <xs:complexType name="LicenceIssuingInformationDetails.CT">
      <xs:sequence>
         <xs:element name="Date" type="LicenceIssuingInformationDate.CT"/>
         <xs:element name="LicenceIdentifier"
type="LicenceIssuingInformationLicenceIdentifier.CT"/>
         <xs:element ref="ds:Signature"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="LicenceIssuingInformationDate.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Date.CT"/>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="LicenceIssuingInformationLicenceIdentifier.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Identifier.CT">
            <xs:maxLength value="17"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="ApplicationInformationDetails.CT">
      <xs:sequence>
         <xs:element name="Date" type="ApplicationInformationDate.CT"/>
         <xs:element name="ApplicantName"
type="ApplicationInformationApplicantName.CT"/>
         <xs:element ref="ds:Signature"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="ApplicationInformationDate.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Date.CT"/>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="ApplicationInformationApplicantName.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Name.CT">
            <xs:maxLength value="70"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:annotation>
      <xs:documentation>Import Licence BIEs</xs:documentation>
   </xs:annotation>
   <xs:complexType name="ImportPurposeDetails.CT">
      <xs:sequence>
         <xs:element name="LocalConsumption"
type="ImportPurposeLocalConsumptionBoolean.CT"/>
         <xs:element name="ReexportToCountry" type="CountryDetails.CT"
minOccurs="0"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="ImportPurposeLocalConsumptionBoolean.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Boolean.CT"/>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="ImportLicenceDetails.CT">
      <xs:sequence>
         <xs:element name="LicenceIssuingInformation"
type="LicenceIssuingInformationDetails.CT" minOccurs="0"/>
```

```
        <xs:element name="Exporter" type="ForeignPartyDetails.CT"/>
        <xs:element name="Importer" type="HongKongPartyDetails.CT"/>
        <xs:element name="Transport" type="TransportDetails.CT"/>
        <xs:element name="Goods" type="GoodsDetails.CT"/>
        <xs:element name="ExportingCountry" type="CountryDetails.CT"/>
        <xs:element name="ImportPurpose" type="ImportPurposeDetails.CT"/>
        <xs:element name="ApplicationInformation"
type="ApplicationInformationDetails.CT"/>
      </xs:sequence>
    </xs:complexType>
    <xs:annotation>
      <xs:documentation>Export Licence BIEs</xs:documentation>
    </xs:annotation>
    <xs:complexType name="ExportLicenceDetails.CT">
      <xs:sequence>
        <xs:element name="LicenceIssuingInformation"
type="LicenceIssuingInformationDetails.CT" minOccurs="0"/>
        <xs:element name="Exporter" type="HongKongPartyDetails.CT"/>
        <xs:element name="Consignee" type="ForeignPartyDetails.CT"/>
        <xs:element name="Transport" type="TransportDetails.CT"/>
        <xs:element name="Goods" type="GoodsDetails.CT"/>
        <xs:element name="DestinationCountry" type="CountryDetails.CT"/>
        <xs:element name="Processor" type="HongKongPartyDetails.CT"
minOccurs="0"/>
        <xs:element name="ApplicationInformation"
type="ApplicationInformationDetails.CT"/>
      </xs:sequence>
    </xs:complexType>
    <xs:annotation>
      <xs:documentation>Acknowledgement BIEs</xs:documentation>
    </xs:annotation>
    <xs:complexType name="ErrorDetails.CT">
      <xs:sequence>
        <xs:element name="Type" type="ErrorTypeCode.CT"/>
        <xs:element name="Message" type="ErrorMessageText.CT"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ErrorTypeCode.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Code.CT"/>
      </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="ErrorMessageText.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Text.CT">
          <xs:maxLength value="210"/>
        </xs:restriction>
      </xs:simpleContent>
    </xs:complexType>
    <xs:complexType name="AcknowledgementDetails.CT">
      <xs:sequence>
        <xs:element name="Type" type="AcknowledgementTypeCode.CT"/>
        <xs:element name="Message" type="AcknowledgementMessageText.CT"
minOccurs="0"/>
        <xs:element name="Error" type="ErrorDetails.CT" minOccurs="0"
maxOccurs="99"/>
      </xs:sequence>
    </xs:complexType>
    <xs:complexType name="AcknowledgementTypeCode.CT">
      <xs:simpleContent>
        <xs:restriction base="cct:Code.CT">
```

```
            <xs:length value="2"/>
            <xs:attribute name="agencyId" default="http://www.xml.gov.hk">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="http://www.xml.gov.hk"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="agencyName" default="HKSARG">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="HKSARG"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="codeListId"
default="http://www.xml.gov.hk/schemas/codelists/ack_type_code_list.xml">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration
value="http://www.xml.gov.hk/schemas/codelists/ack_type_code_list.xml"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
            <xs:attribute name="codeListName" default="ACKNOWLEDGEMENT TYPE
CODE LIST">
               <xs:simpleType>
                  <xs:restriction base="xs:token">
                     <xs:enumeration value="ACKNOWLEDGEMENT TYPE CODE LIST"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:attribute>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:complexType name="AcknowledgementMessageText.CT">
      <xs:simpleContent>
         <xs:restriction base="cct:Text.CT">
            <xs:maxLength value="210"/>
         </xs:restriction>
      </xs:simpleContent>
   </xs:complexType>
   <xs:annotation>
      <xs:documentation>Document root elements</xs:documentation>
   </xs:annotation>
   <xs:element name="ImportLicence" type="ImportLicenceDetails.CT"/>
   <xs:element name="ExportLicence" type="ExportLicenceDetails.CT"/>
   <xs:element name="Acknowledgement" type="AcknowledgementDetails.CT"/>
</xs:schema>
```

1.8 Potentially Reusable Data Elements

The last step the business analyst should do is to identify from the project-defined schemas those data elements that have potential for reuse in other projects and submit these data elements for concerted alignment. As an example, the following data elements (BIEs) may be proposed for concerted alignment and creation of new Common Schemas in the Central Registry.

UID	*Dictionary Entry Name*	*BIE Type*	*Object Class Term*	*Property Term*	*Representation Term*	*Business Terms*
IEPP00 001	Licence Issuing Information. Details	ABIE	Licence Issuing Information	Details		
IEPP00 002	Licence Issuing Information. Date	BBIE	Licence Issuing Information	Date	Date	
IEPP00 003	Licence Issuing Information. Licence. Identifier	BBIE	Licence Issuing Information	Licence Identifier	Identifier	Licence Number
IEPP00 081	Licence Issuing Information. Issuing Authority Signature. External	ASBIE	Licence Issuing Information	Issuing Authority Signature	External	
IEPP00 007	Foreign Physical Address. Details	ABIE	Foreign Physical Address	Details	-	
IEPP00 008	Foreign Physical Address. Street. Text	BBIE	Foreign Physical Address	Street	Text	
IEPP00 009	Foreign Physical Address. City. Name	BBIE	Foreign Physical Address	City	Name	
IEPP00 010	Foreign Physical Address. Country	ASBIE	Foreign Physical Address	Country	Country	
IEPP00 021	Hong Kong Party. Details	ABIE	Hong Kong Party	Details	-	
IEPP00 022	Hong Kong Party. Name	BBIE	Hong Kong Party	Name	Name	
IEPP00 023	Hong Kong Party. Address. HK Physical Address	ASBIE	Hong Kong Party	Address	HK Physical Address	
IEPP00 024	Hong Kong Party. Identifier	BBIE	Hong Kong Party	Identifier	Identifier	BR Number, HKID Number
IEPP00 025	Hong Kong Party. Telephone Number. Text	BBIE	Hong Kong Party	Telephone Number	Text	
IEPP00 026	Foreign Party. Details	ABIE	Foreign Party	Details		
IEPP00 027	Foreign Party. Name	BBIE	Foreign Party	Name	Name	
IEPP00 028	Foreign Party. Address. Foreign Physical Address	ASBIE	Foreign Party	Address	Foreign Physical Address	
IEPP00 073	Error. Details	ABIE	Error	Details	-	
IEPP00 074	Error. Type. Code	BBIE	Error	Type	Code	
IEPP00 075	Error. Message. Text	BBIE	Error	Message	Text	
IEPP00 076	Acknowledgement. Details	ABIE	Acknowledgement	Details	-	
IEPP00 077	Acknowledgement. Type. Code	BBIE	Acknowledgement	Type	Code	
IEPP00 078	Acknowledgement. Message. Text	BBIE	Acknowledgement	Message	Text	
IEPP00 079	Acknowledgement. Error	ASBIE	Acknowledgement	Error	Error	

These data elements should be carefully specified when they are submitted for concerted alignment. One possible form for specifying them is to use the modelling worksheets provided in the Design Guide. As an example, the modelling worksheets that specify `Foreign Physical Address` (IEPP00007) are illustrated as follows.

Alternatively, a functionally equivalent spreadsheet may be used to specify these data elements for submission for concerted alignment. The Common Schema spreadsheet available in the Central Registry may serve as a basis for the business analyst to prepare his own spreadsheet for specifying these data elements.

Table IX: Aggregate Business Information Entity worksheet

AGGREGATE BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: ABIEWS-FOREIGN PHYSICAL ADDRESS	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
UID: IEPP00007	
Dictionary Entry Name: Foreign Physical Address. Details	**Version:** 1.0
Definition: Address of a location outside Hong Kong where an organization or an individual can be located	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema / Referenced Schemas and Standards
Reused Common Schema:
Referenced Schemas and Standards:

D. Object Class
Object Class Term: ForeignPhysicalAddress

E. Aggregated BIEs					
Sequence Order or "Choice"	***UID***	***Dictionary Entry Name of Aggregated BIE***	***Dictionary Entry Name of the Representation ABIE or "External" (for ASBIE only)***	***Property Term***	***Cardinality***
1	IEPP00008	Foreign Physical Address. Street. Text		Street	1
2	IEPP00009	Foreign Physical Address. City. Name		City	1
3	IEPP00010	Foreign Physical Address. Country	Country. Details	Country	1

F. Business Context	
Context Category	***Values***
Business Process Classification	Import/Export Licencing
Service / Product Classification	In all contexts
Industry Classification	In all contexts
Geopolitical	In all contexts
Official Constraints	Import and Export Ordinance, Chapter 60 of the Laws of Hong Kong

PART II – XML SCHEMA DEFINITION

G. Naming
Complex Type Name: ForeignPhysicalAddressDetails.CT

H. Child Elements				
Order	***Element Name or* `xs:any`**	***Element Type or Element Reference or* `xs:any`**	***minOccurs***	***maxOccurs***
1	Street	ForeignPhysicalAddressStreetText.CT	1	1
2	City	ForeignPhysicalAddressCityName.CT	1	1
3	Country	CountryDetails.CT	1	1

I. XML Schema Code

```
<xs:complexType name="ForeignPhysicalAddressDetails.CT">
   <xs:sequence>
      <xs:element name="Street" type="ForeignPhysicalAddressStreetText.CT"/>
      <xs:element name="City" type="ForeignPhysicalAddressCityName.CT"/>
      <xs:element name="Country" type="CountryDetails.CT"/>
   </xs:sequence>
</xs:complexType>
```

BASIC BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: BBIEWS-FOREIGN PHYSICAL ADDRESS-STREET	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
UID: IEPP0008	
Dictionary Entry Name: Foreign Physical Address. Street. Text	**Version:** 1.0
Definition: Room number, building name, street name and number, etc. in a foreign physical address	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema / Referenced Schemas and Standards
Reused Common Schema:
Referenced Schemas and Standards:

D. Object Class
Object Class Term: Foreign Physical Address

E. Property
Property Term: Street

F. Representation	
Core Component Type: Text	**UID:** CCT00022
Representation Term: Text	**Primitive Data Type:** String

F1. Format Restrictions	
Restriction	*Value*
Expression	
Length	
Minimum Length	
Maximum Length	210
Enumeration	
Total Digits	
Fractional Digits	
Minimum Inclusive	
Maximum Inclusive	
Minimum Exclusive	
Maximum Exclusive	

F2. Supplementary Components		
Supplementary Component	*Default Value*	*Other Possible Values*

G. Business Context	
Context Category	*Values*
Business Process Classification	Import/Export Licencing
Service / Product Classification	In all contexts
Industry Classification	In all contexts
Geopolitical	In all contexts
Official Constraints	Import and Export Ordinance, Chapter 60 of the Laws of Hong Kong

PART II – XML SCHEMA DEFINITION

H. Complex Type
Complex Type Name: ForeignPhysicalAddressStreetText.CT

I. Facet of Simple Content	
Facet	*Value*
pattern	
length	
minLength	
maxLength	210
enumeration	
totalDigits	
fractionDigits	
minInclusive	
maxInclusive	
minExclusive	
maxExclusive	

J. Enumerated Attribute Values		
Attribute	*Default Value*	*Enumerated Values (Including Default Value)*

K. XML Schema Code

```
<xs:complexType name="ForeignPhysicalAddressStreetText.CT">
  <xs:simpleContent>
    <xs:restriction base="cct:Text.CT">
      <xs:maxLength value="210"/>
    </xs:restriction>
  </xs:simpleContent>
</xs:complexType>
```

BASIC BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: BBIEWS-FOREIGN PHYSICAL ADDRESS- CITY	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
UID: IEPP0009	
Dictionary Entry Name: Foreign Physical Address. City. Name	**Version:** 1.0
Definition: City name in a foreign physical address	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema / Referenced Schemas and Standards
Reused Common Schema:
Referenced Schemas and Standards:

D. Object Class
Object Class Term: Foreign Physical Address

E. Property
Property Term: City

F. Representation	
Core Component Type: Text	**UID:** CCT00021
Representation Term: Name	**Primitive Data Type:** String

F1. Format Restrictions	
Restriction	*Value*
Expression	
Length	
Minimum Length	
Maximum Length	35
Enumeration	
Total Digits	
Fractional Digits	
Minimum Inclusive	
Maximum Inclusive	
Minimum Exclusive	
Maximum Exclusive	

F2. Supplementary Components		
Supplementary Component	*Default Value*	*Other Possible Values*

G. Business Context	
Context Category	*Values*
Business Process Classification	Import/Export Licencing
Service / Product Classification	In all contexts
Industry Classification	In all contexts
Geopolitical	In all contexts
Official Constraints	Import and Export Ordinance, Chapter 60 of the Laws of Hong Kong

PART II – XML SCHEMA DEFINITION

H. Complex Type
Complex Type Name: ForeignPhysicalAddressCityName.CT

I. Facet of Simple Content	
Facet	*Value*
pattern	
length	
minLength	
maxLength	35
enumeration	
totalDigits	
fractionDigits	
minInclusive	
maxInclusive	
minExclusive	
maxExclusive	

J. Enumerated Attribute Values		
Attribute	*Default Value*	*Enumerated Values (Including Default Value)*

K. XML Schema Code

```
<xs:complexType name="ForeignPhysicalAddressCityName.CT">
  <xs:simpleContent>
    <xs:restriction base="cct:Name.CT">
      <xs:maxLength value="35"/>
    </xs:restriction>
  </xs:simpleContent>
</xs:complexType>
```

ASSOCIATION BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: ASBIEWS-	**Project ID:** XMLGL
Technical Contact: Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
UID: IEPP00010	
Dictionary Entry Name: Foreign Physical Address. Country	**Version:** 1.0
Definition: Country identification in a foreign physical address	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema
Reused Common Schema: Country. Details

D. Object Class
Object Class Term: Foreign Physical Address

E. Property
Property Term: Country

F. Representation
Representation Term (Object Class Term of Representation ABIE): Country
UID / Dictionary Entry Name of the Representation ABIE: IEPP00004 / Country. Details

PART II – XML SCHEMA DEFINITION

G. Child Element (Complex Type Name or Element Reference or **xs:any**)		
Element Name: Country	**Type:** CountryDetails.CT	
Element Reference:		
xs:any	**namespace:**	**processContent:**

Note: this worksheet need not specify the XML Schema code. The XML Schema code should be specified in the aggregating ABIE's worksheet.

Appendix 2 Recommended List of Core Component Types

2.1 Core Component Types and Corresponding Supplementary Components

The Core Component Types are derived based on the Core Components Technical Specification (CCTS). The Copyright Statement of the CCTS is as follows :

Core Component Type Name	***Definition***	***Supplementary Components***	***Mandatory/ Optional***	***Definition***
Amount	A number of monetary units specified in a currency where the unit of currency is explicit or implied.	Currency Code	Mandatory	A 3-letter alphabetic currency code in the UN/ECE Rec. 9 code list.
		Code List Version	Optional	The version of the UN/ECE Rec. 9 code list.
Binary Object	A set of finite-length sequences of binary octets.	Character Set Code	Optional	The character set of the binary object if the mime type is text. Reference IETF RFC 2045, 2046, 2047.
		Encoding Code	Optional	The decoding algorithm of the binary object. Reference IETF RFC 2045, 2046, 2047.
		Filename	Optional	The filename of the encoded binary object. Reference IETF RFC 2045, 2046, 2047
		Format	Optional	The format of the binary content..
		Mime Code	Optional	The mime type of the binary object. Reference IETF RFC 2045, 2046, 2047.
		Object URI	Optional	The Uniform Resource Identifier that identifies where the binary object is located.

Core Component Type Name	*Definition*	*Supplementary Components*	*Mandatory/ Optional*	*Definition*
Code	A character string (letters, figures or symbols) that for brevity and/or language independence may be used to represent or replace a definitive value or text of an attribute.	Agency ID	Optional	The identification of the agency that maintains the code list.
		Agency Name	Optional	The name of the agency that maintains the code list.
		Code List ID	Optional	The identification of the code list, e.g. the URL of a source that publishes the code list.
		Code List Name	Optional	The name of the code list.
		Code List Version	Optional	The version of the code list.
		Code Name	Optional	The textual equivalent of the code content.
Date Time	A particular point in the progression of time.			
Identifier	A character string to uniquely identify and distinguish one instance of an object in an identification scheme from all other objects in the same scheme.	Agency ID	Optional	The identification of the agency that maintains the identification scheme.
		Agency Name	Optional	The name of the agency that maintains the identification scheme
		Scheme ID	Optional	The identification of the identification scheme, e.g. the URL of a source that publishes the identification scheme.
		Scheme Name	Optional	The name of the identification scheme.
		Scheme Version	Optional	The version of the identification scheme.
Indicator	A list of two mutually exclusive Boolean values that express the only possible states of a Property.			
Measure	A numeric value determined by measuring an object along with the specified unit of measure.	Code List Version	Optional	The version of the UN/ECE Rec. 20 measure unit code list.
		Unit Code	Mandatory	The unit code as defined in UN/ECE Rec. 20.
Numeric	Numeric information that is assigned or is determined by calculation, counting, or sequencing. It does not require a unit of quantity or unit of measure.			
Quantity	A number of non-monetary units possibly including fractions.	Agency ID	Optional	The identification of the agency that maintains the quantity unit code list.
		Agency Name	Optional	The name of the agency which maintains the quantity unit code list
		Code List ID	Optional	The identification of the quantity code list, e.g. the URL of a source that publishes the code list.

Core Component Type Name	*Definition*	*Supplementary Components*	*Mandatory/ Optional*	*Definition*
		Code List Version	Optional	The version of the quantity code list.
		Unit Code	Optional	The quantity unit code.
Text	A character string (i.e. a finite set of characters) generally in the form of words of a language.	Language Code	Optional	The code of the language used in the corresponding text as defined in ISO 639.
Electronic Address	An address for electronic communication, such as email address, URL.	Protocol Code	Optional	The code that specifies the communication protocol used. Reference Official IANA Registry of URI Schemes.

2.2 Permissible Representation Terms of Core Component Types

Core Component Type Name	*Permissible Representation Term*	*Primitive Data Type of Content Component*
Amount	Amount	Decimal
Binary Object	Binary Object	Binary
	Graphics	
	Picture	
	Sound	
	Video	
Code	Code	String
Date Time	Date	Date
	Date Time	Date Time
	Time	Time
Identifier	Identifier	String
Indicator	Indicator	String
	Boolean	Boolean
Measure	Measure	Decimal
Numeric	Numeric	Decimal
	Percent	
	Rate	
	Value	
Quantity	Quantity	Decimal
	Count	Integer
Text	Name	String
	Text	
Electronic Address	Electronic Address	String
	URI	URI

2.3 Format Restrictions for Different Primitive Data Types of Content Components.

Format Restriction	*Definition*	*Primitive Data Types*	*Remarks*
Expression	The restricted combination of characters to represent the string value.	• String	A textual description or a regular expression can be used to specify this format restriction.

Format Restriction	*Definition*	*Primitive Data Types*	*Remarks*
Length	The required length of the string.	• String	This format restriction shall not be used in combination with the Minimum Length and Maximum Length Format restrictions.
Minimum Length	The minimum length of the string.	• String	This format restriction shall not be used in combination with the Length Format restriction.
Maximum Length	The maximum length of the string.	• String	This format restriction shall not be used in combination with the Length Format restriction.
Enumeration	The exhaustive list of the allowed values of the string or the URI.	• String • URI	
Total Digits	The maximum number of digits to be used in the numeric value.	• Decimal • Integer	
Fractional Digits	The maximum number of fractional digits to be used in the decimal value.	• Decimal	
Minimum Inclusive	The lower limit of the range of the allowed values of the numeric value, date time, or duration. The lower limit is also an allowed value.	• Date Time • Date • Time • Decimal • Integer	This format restriction shall not be used in combination with the Minimum Exclusive format restriction.
Maximum Inclusive	The upper limit of the range of the allowed values of the numeric value, date time, or duration. The upper limit is also an allowed value.	• Date Time • Date • Time • Decimal • Integer	This format restriction shall not be used in combination with the Maximum Exclusive format restriction.
Minimum Exclusive	The lower limit of the range of the allowed values of the numeric value, date time, or duration. The lower limit is not an allowed value.	• Date Time • Date • Time • Decimal • Integer	This format restriction shall not be used in combination with the Minimum Inclusive format restriction.
Maximum Exclusive	The upper limit of the range of the allowed values of the numeric value, date time, or duration. The upper limit is not an allowed value.	• Date Time • Date • Time • Decimal • Integer	This format restriction shall not be used in combination with the Maximum Inclusive format restriction.

Appendix 3 Core Component Type Worksheet

CORE COMPONENT TYPE WORKSHEET[3]

A. Worksheet Information	
Worksheet ID: CCTWS-AMOUNT	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000001	
Dictionary Entry Name: Amount. Type	**Version:** 1.0
Definition: A number of monetary units specified in a currency where the unit of currency is explicit or implied.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: Amount		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Amount	Decimal	A number of monetary units.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Currency Code	A 3-letter alphabetic currency code in the code list of the UN/ECE Rec. 9.	Mandatory
Code List Version	The version of the UN/ECE Rec. 9 code list.	Optional

[3] The Core Components defined in these worksheets are primarily adapted from the Core Components Technical Specification (CCTS). The Copyright Statement of the CCTS is as follows :

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
currencyCode	token	required
codeListVersion	token	optional

F. XML Schema Code

Representation Term: Amount

Complex Type Name: Amount.CT | **Schema Primitive Datatype:** decimal

Code:

```
<xs:complexType name="Amount.CT">
   <xs:simpleContent>
    <xs:extension base="xs:decimal">
      <xs:attribute name="currencyCode" type="xs:token" use="required"/>
      <xs:attribute name="codeListVersion" type="xs:token" use="optional"/>
    </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-BINARY OBJECT	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000002	
Dictionary Entry Name: BinaryObject. Type	**Version:** 1.0
Definition: A set of finite-length sequences of binary octets.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation

Type Name: BinaryObject

Representation Term	*Primitive Data Type of Content Component*	*Definition*
Binary Object	Binary	A set of finite-length sequences of binary octets.
Graphics	Binary	Graphics in binary octets(i.e., diagram, graphs, mathematical curves or similar representations)
Picture	Binary	Picture in binary octets(i.e., visual representation of a person, object, or scene)
Sound	Binary	Sound in binary octets.
Video	Binary	Video in binary octets.

D. Supplementary Components

Supplementary Component Name	*Definition*	*Mandatory/ Optional*
Character Set Code	The character set of the binary object if the mime type is text. Reference IETF RFC 2045, 2046, 2047.	Optional
Encoding Code	The decoding algorithm of the binary object. Reference IETF RFC 2045, 2046, 2047.	Optional
Filename	The filename of the encoded binary object. Reference IETF RFC 2045, 2046, 2047.	Optional
Format	The format of the binary content.	Optional
Mime Code	The mime type of the binary object. Reference IETF RFC 2045, 2046, 2047.	Optional
Object URI	The Uniform Resource Identifier that identifies where the binary object is located.	Optional

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
characterSetCode	token	optional
encodingCode	token	optional
filename	normalizedString	optional
format	normalizedString	optional
mimeCode	token	optional
objectUri	anyURI	optional

F. XML Schema Code

Representation Term: BinaryObject

Complex Type Name: BinaryObject.CT | **Schema Primitive Datatype:** Binary

Code:

```
<xs:complexType name="BinaryObject.CT">
   <xs:simpleContent>
    <xs:extension base="xs:base64Binary">
         <xs:attribute name="characterSetCode" type="xs:token"
use="optional"/>
         <xs:attribute name="encodingCode" type="xs:token" use="optional"/>
         <xs:attribute name="fileName" type="xs:normalizedString"
use="optional"/>
         <xs:attribute name="format" type="xs:normalizedString"
use="optional"/>
         <xs:attribute name="mimeCode" type="xs:token" use="optional"/>
         <xs:attribute name="objectUri" type="xs:anyURI" use="optional"/>
    </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: Graphics

Complex Type Name: Graphics.CT | **Schema Primitive Datatype:** Binary

Code:

```
<xs:complexType name="Graphics.CT">
   <xs:simpleContent>
     <xs:extension base="xs:base64Binary">
        <xs:attribute name="characterSetCode" type="xs:token"
use="optional"/>
        <xs:attribute name="encodingCode" type="xs:token" use="optional"/>
        <xs:attribute name="fileName" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="format" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="mimeCode" type="xs:token" use="optional"/>
        <xs:attribute name="objectUri" type="xs:anyURI" use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: Picture

Complex Type Name: Picture.CT | **Schema Primitive Datatype:** Binary

Code:

```
<xs:complexType name="Picture.CT">>
   <xs:simpleContent>
     <xs:extension base="xs:base64Binary">
        <xs:attribute name="characterSetCode" type="xs:token"
use="optional"/>
        <xs:attribute name="encodingCode" type="xs:token" use="optional"/>
        <xs:attribute name="fileName" type="xs:normalizedString"
use="optional"/>
```

```
        <xs:attribute name="format" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="mimeCode" type="xs:token" use="optional"/>
        <xs:attribute name="objectUri" type="xs:anyURI" use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: Sound

Complex Type Name: Sound.CT	**Schema Primitive Datatype:** Binary

Code:

```
<xs:complexType name="Sound.CT">
   <xs:simpleContent>
     <xs:extension base="xs:base64Binary">
        <xs:attribute name="characterSetCode" type="xs:token"
use="optional"/>
        <xs:attribute name="encodingCode" type="xs:token" use="optional"/>
        <xs:attribute name="fileName" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="format" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="mimeCode" type="xs:token" use="optional"/>
        <xs:attribute name="objectUri" type="xs:anyURI" use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: Video

Complex Type Name: Video.CT	**Schema Primitive Datatype:** Binary

Code:

```
<xs:complexType name="Video.CT">
   <xs:simpleContent>
     <xs:extension base="xs:base64Binary">
        <xs:attribute name="characterSetCode" type="xs:token"
use="optional"/>
        <xs:attribute name="encodingCode" type="xs:token" use="optional"/>
        <xs:attribute name="fileName" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="format" type="xs:normalizedString"
use="optional"/>
        <xs:attribute name="mimeCode" type="xs:token" use="optional"/>
        <xs:attribute name="objectUri" type="xs:anyURI" use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-CODE	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000003	
Dictionary Entry Name: Code. Type	**Version:** 1.0
Definition: A character string (letters, figures or symbols) that for brevity and/or language independence may be used to represent or replace a definitive value or text of an Attribute together with relevant supplementary information.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: Code		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Code	String	Same as above.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Agency ID	The identification of the agency which maintains the unit code list.	Optional
Agency Name	The name of the agency which maintains the unit code list	Optional
Code List ID	The identification of the code list, e.g. the URL of a source that publishes the code list.	Optional
Code List Name	The name of the code list.	Optional
Code List Version	The version of the code list.	Optional
Code Name	The textual equivalent of the code content.	Optional

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
agencyId	normalizedString	optional
agencyName	normalizedString	optional
codeListId	normalizedString	optional
codeListName	normalizedString	optional
codeListVersion	token	optional
codeName	normalizedString	optional

F. XML Schema Code	
Representation Term: Code	
Complex Type Name: Code.CT	**Schema Primitive Datatype:** String

Code:

```
<xs:complexType name="Code.CT">
   <xs:simpleContent>
     <xs:extension base="xs:string">
        <xs:attribute name="agencyId" type="xs:normalizedString"
   use="optional"/>
        <xs:attribute name="agencyName" type="xs:normalizedString"
   use="optional"/>
        <xs:attribute name="codeListId" type="xs:normalizedString"
   use="optional"/>
        <xs:attribute name="codeListName" type="xs:normalizedString"
   use="optional"/>
        <xs:attribute name="codeListVersion" type="xs:token"
   use="optional"/>
        <xs:attribute name="codeName" type="xs:normalizedString"
   use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-DATETIME	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000004	
Dictionary Entry Name: DateTime. Type	**Version:** 1.0
Definition: A particular point in the progression of time together with relevant supplementary information.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: DateTime		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Date	Date	A date with date value only.
DateTime	Date Time	A date with date and time values.
Time	Time	A date with time value only.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Nil		

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
Nil		

F. XML Schema Code	
Representation Term: Date	
Complex Type Name: Date.CT	**Schema Primitive Datatype:** Date

Code:
`<xs:complexType name="Date.CT">`
`  <xs:simpleContent>`
`  <xs:extension base="xs:date"/>`
`  </xs:simpleContent>`
`</xs:complexType>`	

Representation Term: DateTime	
Complex Type Name: DateTime.CT	**Schema Primitive Datatype:** Date Time

Code:
`<xs:complexType name="DateTime.CT">`
`  <xs:simpleContent>`
`  <xs:extension base="xs:dateTime"/>`
`  </xs:simpleContent>`
`</xs:complexType>`	

Representation Term: Time	
Complex Type Name: Time.CT	**Schema Primitive Datatype:** Time

Code:
`<xs:complexType name="Time.CT">`
`  <xs:simpleContent>`
`  <xs:extension base="xs:time"/>`
`  </xs:simpleContent>`
`</xs:complexType>`	

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-IDENTIFIER	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000005	
Dictionary Entry Name: Identifier. Type	**Version:** 1.0
Definition: A character string to identify and distinguish uniquely, one instance of an object in an identification scheme from all other objects in the same scheme together with relevant supplementary information.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: Identifier		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Identifier	String	Same as above.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Agency ID	The identification of the agency that maintains the identification scheme.	Optional
Agency Name	The name of the agency that maintains the identification scheme	Optional
Scheme Id	The identification of the identification scheme, e.g. the URL of a source that publishes the identification scheme.	Optional
Scheme Name	The name of the identification scheme.	Optional
Scheme Version	The version of the identification scheme.	Optional

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
agencyId	normalizedString	optional
agencyName	normalizedString	optional
schemeId	normalizedString	optional
schemeName	normalizedString	optional
schemeVersion	token	optional

F. XML Schema Code

Representation Term: Identifier

Complex Type Name: Identifier.CT | **Schema Primitive Datatype:** String

Code:

```
<xs:complexType name="Identifier.CT">
   <xs:simpleContent>
      <xs:extension base="xs:string">
         <xs:attribute name="agencyId" type="xs:normalizedString"
use="optional"/>
         <xs:attribute name="agencyName" type="xs:normalizedString"
use="optional"/>
         <xs:attribute name="schemeId" type="xs:normalizedString"
use="optional"/>
         <xs:attribute name="schemeName" type="xs:normalizedString"
use="optional"/>
         <xs:attribute name="schemeVersion" type="xs:token" use="optional"/>
      </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-INDICATOR	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000006	
Dictionary Entry Name: Indicator. Type	**Version:** 1.0
Definition: A list of two mutually exclusive Boolean values that express the only possible states of a Property.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: Indicator		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Indicator	String	A list of two mutually exclusive Boolean values expressed as string.
Boolean	Boolean	Binary-valued logic of true or false.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Nil		

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
Nil		

F. XML Schema Code	
Representation Term: Indicator	
Complex Type Name: Indicator.CT	**Schema Primitive Datatype:** String
Code: <xs:complexType name="Indicator.CT"> <xs:simpleContent> <xs:extension base="xs:string"/> </xs:simpleContent> </xs:complexType>	
Representation Term: Boolean	
Complex Type Name: Boolean.CT	**Schema Primitive Datatype:** Boolean
Code: <xs:complexType name="Boolean.CT"> <xs:simpleContent> <xs:extension base="xs:boolean"/> </xs:simpleContent> </xs:complexType>	

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-MEASURE	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000007	
Dictionary Entry Name: Measure. Type	**Version:** 1.0
Definition: A numeric value determined by measuring an object along with the specified unit of measure.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: Measure		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Measure	Decimal	Same as above.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Code List Version	The version of the UN/EXE Rec. 20 measure unit code list.	Optional
Unit Code	The unit code as defined in the UN/ECE Rec. 20.	Mandatory

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
codeListVersion	token	optional
unitCode	token	required

F. XML Schema Code

Representation Term: Measure

Complex Type Name: Measure.CT | **Schema Primitive Datatype:** decimal

Code:

```
<xs:complexType name="Measure.CT">
   <xs:simpleContent>
      <xs:extension base="xs:decimal">
         <xs:attribute name="codeListVersion" type="xs:token"
use="optional"/>
         <xs:attribute name="unitCode" type="xs:token" use="required"/>
      </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-NUMERIC	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000008	
Dictionary Entry Name: Numeric. Type	**Version:** 1.0
Definition: Numeric information that is assigned or is determined by calculation, counting, or sequencing. It does not require a unit of quantity or unit of measure.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation

Type Name: Numeric

Representation Term	*Primitive Data Type of Content Component*	*Definition*
Numeric	Decimal	A piece of numeric information.
Percent	Decimal	Percentage.
Rate	Decimal	Rate.
Value	Decimal	Value.

D. Supplementary Components

Supplementary Component Name	*Definition*	*Mandatory/ Optional*
Nil		

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
Nil		

F. XML Schema Code	
Representation Term: Numeric	
Complex Type Name: Numeric.CT	**Schema Primitive Datatype:** Decimal
Code: <xs:complexType name="Numeric.CT"> <xs:simpleContent> <xs:extension base="xs:decimal"/> </xs:simpleContent> </xs:complexType>	
Representation Term: Percent	
Complex Type Name: Percent.CT	**Schema Primitive Datatype:** Decimal
Code: <xs:simpleContent name="Percent.CT"> <xs:extension base="xs:decimal"/> </xs:simpleContent>	
Representation Term: Rate	
Complex Type Name: Rate.CT	**Schema Primitive Datatype:** Decimal
Code: <xs:complexType name="Rate.CT"> <xs:simpleContent> <xs:extension base="xs:decimal"/> </xs:simpleContent> </xs:complexType>	
Representation Term: Value	
Complex Type Name: Value.CT	**Schema Primitive Datatype:** Decimal
Code: <xs:complexType name="Value.CT"> <xs:simpleContent> <xs:extension base="xs:decimal"/> </xs:simpleContent> </xs:complexType>	

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-QUANTITY	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000009	
Dictionary Entry Name: Quantity. Type	**Version:** 1.0
Definition: A number of non-monetary units possibly including fractions.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation

Type Name: Quantity

Representation Term	*Primitive Data Type of Content Component*	*Definition*
Quantity	Decimal	A quantity possibly including fractions.
Count	Integer	An integral count.

D. Supplementary Components

Supplementary Component Name	*Definition*	*Mandatory/ Optional*
Agency ID	The identification of the agency which maintains the quantity unit code list.	Optional
Agency Name	The name of the agency which maintains the quantity unit code list	Optional
Code List ID	The identification of the quantity code list, e.g. the URL of a source that publishes the code list.	Optional
Code List Version	The version of the quantity code list.	Optional
Unit Code	The quantity unit code.	Optional

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
agencyId	normalizedString	optional
agencyName	normalizedString	optional
codeListId	normalizedString	optional
codeListVersion	token	optional
unitCode	token	optional

F. XML Schema Code

Representation Term: Quantity

Complex Type Name: Quantity.CT | **Schema Primitive Datatype:** Decimal

Code:

```
<xs:complexType name="Quantity.CT">
   <xs:simpleContent>
      <xs:extension base="xs:decimal">
         <xs:attribute name="agencyId" type="xs:normalizedString"
   use="optional"/>
         <xs:attribute name="agencyName" type="xs:normalizedString"
   use="optional"/>
         <xs:attribute name="codeListId" type="xs:normalizedString"
   use="optional"/>
         <xs:attribute name="codeListVersion" type="xs:token"
   use="optional"/>
         <xs:attribute name="unitCode" type="xs:token" use="optional"/>
      </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: Count

Complex Type Name: Count.CT | **Schema Primitive Datatype:** Integer

Code:

```
<xs:complexType name="Count.CT">
   <xs:simpleContent>
      <xs:extension base="xs:integer">
         <xs:attribute name="agencyId" type="xs:normalizedString"
   use="optional"/>
         <xs:attribute name="agencyName" type="xs:normalizedString"
   use="optional"/>
         <xs:attribute name="codeListId" type="xs:normalizedString"
   use="optional"/>
         <xs:attribute name="codeListVersion" type="xs:token"
   use="optional"/>
         <xs:attribute name="unitCode" type="xs:token" use="optional"/>
      </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-TEXT	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000010	
Dictionary Entry Name: Text. Type	**Version:** 1.0
Definition: A character string (i.e. a finite set of characters) generally in the form of words of a language.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: Text		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
Name	String	A name.
Text	String	A piece of textual information.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Language Code	The code of the language used in the corresponding text.	Optional

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
language Code	language	optional

F. XML Schema Code

Representation Term: Text

Complex Type Name: Text.CT | **Schema Primitive Datatype:** String

Code:

```
<xs:complexType name="Text.CT">
   <xs:simpleContent>
     <xs:extension base="xs:string">
        <xs:attribute name="languageCode" type="xs:language"
   use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: Name

Complex Type Name: Name.CT | **Schema Primitive Datatype:** String

Code:

```
<xs:complexType name="Name.CT">
   <xs:simpleContent>
     <xs:extension base="xs:string">
        <xs:attribute name="languageCode" type="xs:language"
   use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-ELECTRONIC ADDRESS	**Project ID:** XMLGL
Technical Contact Josia Chan / CECID	**Administrative Contact:** Thomas Lee / CECID

B. Dictionary Entry Information	
Dictionary Entry UID: CCT000011	
Dictionary Entry Name: ElectronicAddress. Type	**Version:** 1.0
Definition: An address for electronic communication.	
Business Terms: N/A	
Usage Rules: Nil	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name: ElectronicAddress		
Representation Term	***Primitive Data Type of Content Component***	***Definition***
ElectronicAddress	String	Same as above.
URI	URI	A Uniform Resource Identifier Reference.

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***
Protocol Code	The code that specifies the communication protocol used. Reference Official IANA Registry of URI Schemes.	Optional

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***
protocolCode	token	optional

F. XML Schema Code

Representation Term: ElectronicAddress

Complex Type Name: ElectronicAddress.CT | **Schema Primitive Datatype:** String

Code:

```
<xs:complexType name="ElectronicAddress.CT">
   <xs:simpleContent>
     <xs:extension base="xs:string">
        <xs:attribute name="protocolCode" type="xs:token" use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Representation Term: URI

Complex Type Name: URI.CT | **Schema Primitive Datatype:** URI

Code:

```
<xs:complexType name="URI.CT">
   <xs:simpleContent>
     <xs:extension base="xs:anyURI">
        <xs:attribute name="protocolCode" type="xs:token" use="optional"/>
     </xs:extension>
   </xs:simpleContent>
</xs:complexType>
```

Appendix 4 Sample XML Schema Design Worksheets

BUSINESS COLLABORATION WORKSHEET

A. Worksheet Information	
Worksheet ID: BCWS-	**Project ID:**
Technical Contact:	**Administrative Contact:**

B. Business Collaboration Properties
Name:
Description:
Scope:
Pre-conditions:

C. Roles	
Name	***Description***

D. Business Transactions	
Name	***Description***

E. Business Documents	
Name	***Description***

1 **BUSINESS TRANSACTION WORKSHEET**
2

A. Worksheet Information	
Worksheet ID: BTWS-	**Project ID:**
Technical Contact:	**Administrative Contact:**

3

B. Business Transaction Properties	
Name:	**One/Two-Way:**
Description:	
Scope:	
Pre-conditions:	
Requesting Role:	**Responding Role:**

4

C. Request Document Flow		
Description:		
Non-Repudiation Required:	**Data Confidentiality Required:**	
C1. Request Documents		
No.	***Document Name***	***Business Information Carried***

5

D. Response Document Flow		
Description:		
Success Conditions:		
Non-Repudiation Required:	**Data Confidentiality Required:**	
D1. Positive Response Documents		
No.	***Document Name***	***Business Information Carried***
D2. Negative Response Documents		
No.	***Document Name***	***Business Information Carried***

6
7

BUSINESS DOCUMENT WORKSHEET

A. Worksheet Information	
Worksheet ID: BDWS-	**Project ID:**
Technical Contact:	**Administrative Contact:**

B. Dictionary Entry Information	
UID:	
Dictionary Entry Name:	**Version:**
Definition:	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Document Name
Document Name (Object Class Term of Root ABIE):
UID / Dictionary Entry Name of Root ABIE:

PART II – XML SCHEMA DEFINITION

D. XML Schema Code
Element Name:
Complex Type:

AGGREGATE BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: ABIEWS-	**Project ID:**
Technical Contact:	**Administrative Contact:**

B. Dictionary Entry Information	
UID:	
Dictionary Entry Name:	**Version:**
Definition:	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema / Referenced Schemas and Standards
Rused Common Schema:
Referenced Schemas and Standards:

D. Object Class
Object Class Term:

E. Aggregated BIEs					
Sequence Order or "Choice"	***UID***	***Dictionary Entry Name of the aggregated BIE***	***Dictionary Entry Name of the Representation ABIE or "External" (for ASBIE only)***	***Property Term***	***Cardinality***

F. Business Context	
Context Category	***Values***
Business Process Classification	
Service / Product Classification	
Industry Classification	
Geopolitical	
Official Constraints	

PART II – XML SCHEMA DEFINITION

G. Naming
Complex Type Name:

H. Child Elements				
Order	***Element Name or `xs:any`***	***Element Type or Element Reference or `xs:any`***	***minOccurs***	***maxOccurs***

I. XML Schema Code

ASSOCIATION BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: ASBIEWS-	**Project ID:**
Technical Contact:	**Administrative Contact:**

B. Dictionary Entry Information	
UID:	
Dictionary Entry Name:	**Version:**
Definition:	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema
Reused Common Schema:

D. Object Class
Object Class Term:

E. Property
Property Term:

F. Representation
Representation Term (Object Class Term of Representation ABIE):
UID / Dictionary Entry Name of the Representation ABIE:

PART II – XML SCHEMA DEFINITION

G. Child Element (Complex Type Name or Element Reference or `xs:any`)		
Element Name:	**Type:**	
Element Reference:		
`xs:any`	`namespace`:	`processContent`:

Note: this worksheet need not specify the XML Schema code. The XML Schema code should be specified in the aggregating ABIE's worksheet.

BASIC BUSINESS INFORMATION ENTITY WORKSHEET

A. Worksheet Information	
Worksheet ID: BBIEWS-	**Project ID:**
Technical Contact:	**Administrative Contact:**

B. Dictionary Entry Information	
UID:	
Dictionary Entry Name:	**Version:**
Definition:	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Reused Common Schema / Referenced Schemas and Standards
Reused Common Schema:
Referenced Schemas and Standards:

D. Object Class
Object Class Term:

E. Property
Property Term:

F. Representation	
Core Component Type:	**UID:**
Representation Term:	**Primitive Data Type:**

F1. Format Restrictions	
Restriction	***Value***
Expression	
Length	
Minimum Length	
Maximum Length	
Enumeration	
Total Digits	
Fractional Digits	
Minimum Inclusive	
Maximum Inclusive	
Minimum Exclusive	
Maximum Exclusive	

F2. Supplementary Components		
Supplementary Component	***Default Value***	***Other Possible Values***

G. Business Context	
Context Category	***Values***
Business Process Classification	
Service / Product Classification	
Industry Classification	
Geopolitical	
Official Constraints	

PART II – XML SCHEMA DEFINITION

H. Complex Type
Complex Type Name:

I. Facet of Simple Content	
Facet	***Value***
`pattern`	
`length`	
`minLength`	
`maxLength`	
`enumeration`	
`totalDigits`	
`fractionDigits`	
`minInclusive`	
`maxInclusive`	
`minExclusive`	
`maxExclusive`	

J. Enumerated Attribute Values		
Attribute	***Default Value***	***Enumerated Values (Including Default Value)***

K. XML Schema Code

CORE COMPONENT TYPE WORKSHEET

A. Worksheet Information	
Worksheet ID: CCTWS-	**Project ID:**
Technical Contact	**Administrative Contact:**

B. Dictionary Entry Information	
UID:	
Dictionary Entry Name:	**Version:**
Definition:	
Business Terms:	
Usage Rules:	

PART I – BUSINESS INFORMATION MODELLING

C. Representation		
Type Name:		
Representation Term	***Primitive Data Type of Content Component***	***Definition***

D. Supplementary Components		
Supplementary Component Name	***Definition***	***Mandatory/ Optional***

PART II – XML SCHEMA DEFINITION

E. Attributes		
Attribute Name	***Schema Primitive Datatype***	***Use (required/optional)***

F. XML Schema Code	
Representation Term:	
Complex Type Name:	**Schema Primitive Datatype:**
Code :	

Representation Term:	
Complex Type Name:	**Schema Primitive Datatype:**
Code :	

Appendix 5 Implementing eBusiness Solutions

5.1 Introduction

In general, to facilitate business partners to collaborate with each other, there are several aspects they need to agree upon. Usually they go through some negotiations with each other and come up with an agreed profile for each party. Each agreed profile consists of a bundle of agreements in all aspects of the collaboration. After that, the business partners can start to implement their solutions according to the agreed profile. Interoperability can be guaranteed if all the implementations conform to the agreed profile.

Within those aspects to be agreed by the business partners, document schema is one of the most important ones. Other issues include agreement on document flow sequence and the related aspects; agreement on messaging layer parameters, such as transport protocol and quality of service (QoS) needed; and agreement on security measures, etc.

This Appendix briefly describes those aspects upon which business partners need to agree when implementing an eBusiness solution.

5.2 Document Flow

A non-trivial e-business collaboration normally involves a sequence of document exchanges between two or more business partners. Therefore, in addition to the schemas of the documents for exchange, business partners must specify and agree upon other document exchange parameters, such as the sequence (or choreograph) and the directions of document flows, before they can conduct an e-business collaboration. Some of these typical parameters are discussed in the following sub-sections.

5.2.1. *Choreography*

Choreography describes the sequence of document exchanges between the business partners.

A simple example of document choreography is illustrated in a buying scenario. When a buyer wants to buy something from the supplier, the buyer will firstly send to the supplier a request for a quotation document. Then the supplier will send back a quotation document to the buyer. Next, the buyer will send a purchase order document to the supplier. Upon accepting this order, the supplier will send an invoice document to the buyer.

There are many ways to represent document exchange choreography. In a UML tool, this could be done using a UML activity diagram. Also, ebXML Business Process Specification Schema (ebBPSS) is an XML representation of the collaboration between business partners.

5.2.2. *Receipts and Acceptance Notices*

The immediate issue for managing document exchange choreography is the management of business process state. Business process state is determined by up to which document exchange is completed in the choreography. Typically, the business partners keep their own state individually in a distributed way. Therefore, it is important for the business partners to exchange signals from time to time to make sure that their business state is synchronous.

Although the transport layer may provide a reliable channel for delivering business documents between business partners, application level signals (also known as business signals) are needed to guarantee the complete synchronization of state. Together with the reliable messaging channel, the business signals provide guarantees that the corresponding business documents have been processed by the respective applications.

In general, business signals can be divided into two categories: receipts and acceptance notices. A receipt signal tells that a business document has been properly received by the underlying messaging software component. An acceptance notice signal tells that a business document has been accepted for business processing by the receiving application.

5.2.3. *Time-Out Mechanism*

A business process normally has to be completed within a time limit. Therefore, the business partners should agree on a time-out value for each of the business documents and business signals to be exchanged. Typically, the time-out value specifies the maximum time the recipient of the business document can take to process the document before it sends out the required receipts, acceptance notices or responding business documents.

In operation, all business partners should keep their own timers. Failure to send or receive a business document or business signal within a specified time-out value will result in the abortion of current business process.

5.2.4. *Exception*

There may be many unexpected cases that will cause the current business process to abort. As discussed above, the business partners may decide to abort the current business process in case of failure of receiving a business document or a signal within a specified time. Also, internal error happened in the system of a business partner can fail the current business process.

The mechanism for aborting the current business process should span across all business partners. This is essential for all parties to be aware of the abortion and thus they can perform their own clean-up mechanisms individually. Therefore, the exception mechanism should include exchanges of exception messages so that all business partners can be informed when exceptions occur.

5.3 Messaging

Messaging involves the methods on sending and receiving business documents between business partners. At the minimum level, the business partners have to agree on the basic transport method of the business documents. On top of that, they can decide on the add-on services that provide different quality of service (QoS). Below, various issues related to messaging, on which the business partners may need to agree, are discussed.

5.3.1. *Transport Protocol*

The transport protocol is the most basic parameter the business partners have to agree on. The choice of transport protocol affects the software implementation that links up the systems of the business partners. There are many open transport protocols commonly used on the Internet. Most of these open protocols are mature so that many ready-to-use solutions are available, both commercially and in the open-source community. Three common transport protocols are discussed here.

Hyper-Text Transfer Protocol (HTTP) is the most commonly used protocol on the Internet. The popularity of the World Wide Web makes HTTP widely accepted by most corporations. HTTP is firewall-friendly and has many existing applications built on top of it. HTTP is usually used to implement synchronous messaging.

Simple Mail Transfer Protocol (SMTP) is primarily used by email applications. It is also firewall-friendly and it is particularly useful to support asynchronous applications, as SMTP is less system-interactive compared with HTTP.

File Transfer Protocol (FTP) is well known for its simplicity to transfer a file over a network. It is still the dominant protocol used for file upload and download on the Internet. Compared with HTTP, it is less system-interactive and is quite limited to file transfers only.

5.3.2. *Reliability*

Most open protocols commonly used on the Internet nowadays are best-effort protocols. That means the sender software will try to deliver the messages to the receiver software only once. If, for any reason, the messages cannot reach the receiver software, the sender software will give up and report error.

Reliable messaging is a technology that provides mechanism for the sender software to retry message deliveries. The sender and receiver software should be implementing a common reliable messaging protocol. The basic idea is simple. Upon receiving a business message, the receiver software will send an acknowledgement message, corresponding to the received business message, back to the sender software. This tells the sender software that the business message is received successfully. In operation, the sender software will retry sending the business message several times until the acknowledgement message is received.

Therefore, to implement reliable messaging, both business partners should co-operate to generate and process acknowledgement messages. There are ready-to-use reliable messaging products available. Usually, different vendors implement their own versions of reliable messaging protocols, e.g. IBM MQ-Series, Microsoft Message Queue (MSMQ), etc.

Recently, some initiatives have tried to standardize the reliable messaging protocols, like ebXML Message Service (ebMS) and Web Services Reliable Messaging (WS-RM). Theoretically, software products conforming to these open standards are interoperable with each other.

In any case, if the business partners want to collaborate through a reliable message channel, they should agree on the reliable messaging protocol to be used. With the protocol chosen, they can find a suitable product individually.

5.3.3. *Duplicate Detection and Elimination*

If reliable messaging protocol is used, there are chances for the sender software to send the same message several times. Therefore, there are chances for the receiver software to receive the same message several times. In this case, duplicate detection and elimination techniques can be employed to make sure that the message is processed by the application only once.

Usually, this can be done by adding unique keys to the messages sent. Since this issue is rooted from the use of reliable messaging, all reliable messaging protocols should have addressed this issue. The business partners may need to agree on whether the duplicate elimination feature in the software should be turned on or not.

5.3.4. *Security*

Security on messaging is important. Exchange of business document essentially exposes business information to the outside world. Obviously, the security measures should be agreed and conformed by all business partners so that the information exchanged is properly protected.

Here, we discuss four security areas, which are common concerns when exchanging information on the Internet.

5.3.4.1. Confidentiality

Confidentiality ensures that only the intended recipient sees the business messages, but nobody else. Normally, this is done by encrypting the messages. The business partners should agree on the method to be used, out of many possibilities available.

Briefly, encryption can be performed on two different layers: transport layer and message layer. HTTPS, the secure flavour of HTTP, is an example of a transport layer encryption. The setup of HTTPS server is relatively straightforward. There is no security information that the business partners have to exchange beforehand.

PKI encryption is an example of a message layer encryption. In order to exchange messages with PKI encryption, the business partners should exchange their public keys at setup time. In operation, the messages exchanged are encrypted by the recipient's public key, and as a result, only the intended recipient can decrypt and understand the messages.

5.3.4.2. Authentication

Authentication is the measure for the business partners to ensure the real identities of each other. Digital signature is one way to authenticate business partners. Using PKI digital signature, the sender must use its private key to sign the outgoing message so that the recipient can use the sender's public key to verify the signature in the message. This way, the recipient can prove the message is actually sent by the sender as claimed by the message.

There are some other standards that facilitate specification of authentication information. As an example, OASIS[4] Security Assertion Markup Language (SAML) is a commonly recognized standard.

[4] Organization for the Advancement of Structured Information Standards

5.3.4.3. Authorization

Authorization is about what a business partner can do against the others. Usually this is specified using a set of policies, and is closely related to authentication. After the recipient has authenticated the sender, the recipient can decide to permit the request based on the set of policies.

Same as authentication, there are a number of standards that facilitate specification of authorization information, e.g. eXtensible rights Markup Language (XrML) and OASIS eXtensible Access Control Markup Language (XACML).

5.3.4.4. Data Integrity

It is important to make sure the messages received have not been modified by third parties. Digital signature is the mainstream method to ensure message integrity. In a signed message, if the content is modified by someone other than the sender during transmission, the signature verification by the recipient will tell that the content is not original.

5.3.5. *Message Order*

The business partner who receives business documents may require that messages be delivered in the order in which the sender has sent them out. However, there is no guarantee that the sending order can always be preserved on the receiving side when messages are transmitted asynchronously over the Internet. Normally this problem can be resolved by adding sequence number information to the messages. In operation, the receiving software only delivers the messages with linearly-increasing sequence numbers to the backend business application.

Like the reliable messaging, whether the message order needs to be preserved is one of the QoS parameters that the business partners should agree upon before they implement their eBusiness solutions.

5.3.6. *Auditing*

In some cases, the business partners may need to keep the audit trails of what messages have been exchanged. The audit trails can provide non-repudiation of the sending and receiving of business messages.

Auditing is done individually on each side of the business partners. However, the business partners have to cooperate to help the others keep useful audit trails. The measures taken by the business partners should be agreed beforehand. For example, the receiving software may be required to sign all the acknowledgement messages digitally to ensure non-repudiation of receiving the messages.

5.4 Conclusion

There are open and commercial eBusiness frameworks that provide different modules to address the above issues. Common frameworks include ebXML, Web Services, RosettaNet, BizTalk, etc. For example, in the ebXML framework, ebXML Message Services is an open standard for messaging reliability and security, and the Business Process Specification Schema (BPSS) provides a language to specify business processes in terms of document exchange choreography.

It is recommended that open standards be followed to develop eBusiness solutions instead of implementing the above mechanisms in a proprietary way. The reasons are two-fold. Firstly, the eBusiness implementations based on open standards are usually more interoperable with other systems than proprietary implementations. Secondly, most open standards are developed by business and technical experts in different industry domains and have captured important best practices and extensive deployment experiences; therefore, an open-standards-based technology can usually address the requirements more completely than a proprietary technology.

Appendix 6 Intellectual Property Rights of Registry Artefacts

The Common Schemas are developed with collaborative efforts of all B/Ds and the copyright of the Common Schemas belongs to the Government of the Hong Kong Special Administrative Region (HKSARG). In order to prevent external parties from overriding the HKSARG's copyright over the Common Schemas, a copyright statement should be published on the Central Registry. Users of the Central Registry should be notified of the copyright statement before they access the content of the Central Registry.

To facilitate the use of Common Schemas, all parties should be allowed to copy and use the Common Schemas published in the Central Registry. To make this explicit, a copyright licence should be granted to all users by posting it on the Central Registry.

The copyright statement of other public schema standards like UBL have been studied before proposing the copyright statement / licence below.

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Appendix 7 Glossary

Aggregate Business Information Entity (ABIE) – A model that represents an object class and aggregates Basic and Association Business Information Entities as the properties.

Association Business Information Entity (ASBIE) – A model that represents a complex property in an object class.

Basic Business Information Entity (BBIE) – A model that represents a singular property in an object class.

Business Analyst – Project members who analyze the requirements on business process and information gathered from domain experts and business users.

Business Context – The description of business situation which is specified through assigning values to a set of Context Categories.

Business Collaboration (BC) – a business process in which a series of activities are conducted between two or more business partners.

Business Document – A model that represents an electronic document for exchange; a root Aggregate Business Information Entity is identified to provide the representation of the document.

Business Information Entity (BIE) – A piece of business data or a group of pieces of business data with a unique business semantic definition.

Business Process – the means by which one or more activities are accomplished in operating business practices.

Business Process Modelling – A process to model a Business Process.

Business Process Specification Schema (BPSS) – A specification schema in the ebXML framework for specifying a Business Process in an XML document.

Business Information Model (BIM) – A syntactic neutral model capturing the business information requirements of business information. The model can be represented in the form of Business Information Entity worksheet or a spreadsheet derived from the worksheet.

Business Information Modelling – A process to model business information that business partners exchange to transact business.

Business Transaction (BT) – A one-way or two-way flow of Business Documents between a Requesting Role and a Responding Role.

Candidate Common Schema – The information model and XSD which has been created in the Common Schema Management Process and is pending for review and approval.

Central Registry – A registry which stores all the approved Common Schemas for reference by project teams.

Common Schema – The information model and XSD of the concertedly-aligned data elements. A Common Schema is designed for reuse in different projects.

Common Schema Creation / Change Request – A request submitted by business analysts for creating a new Common Schema or for changing a Common Schema. Business analysts can raise Common Schema Creation / Change Requests if they find the proposed information model has reuse potential in government joined-up projects.

Common Schema Liaison Officers – The body which reviews and comments candidate Common Schemas. They also recommend the maturity level of Common Schemas.

Common Schema Retirement Request – A request to retire a Common Schema. It is raised if project teams find that the Common Schema is not appropriate for reuse in new joined-up projects.

Common Schema Task Force – A task force formed to handle a Common Schema creation or change request on a case-by-case basis.

Context Category – A group of one or more values used to express a characteristic of a business situation.

Core Components Technical Specification (CCTS) – CCTS provides the approach to document the information about the object class, the property, and the representation of data elements as Business Information Entities.

Core Component – A building block for creating a semantically correct and meaningful information exchange package. It contains only the information pieces necessary to describe a specific concept.

Core Component Type (CCT) – A model that provides the basic data structure to realize the representation of a singular property in an object class.

Data Dictionary – A database for storing the information models that defines all relevant data elements for specific use and within a specific scope. A Data Dictionary is either part of the project registry for Project Schema development or part of the Central Registry for Common Schema Development.

Document Flow (DF) – A Document Flow transmits an electronic message, which packages one or more Business Documents, between the Requesting Activity and the Responding Activity.

Electronic Business XML (ebXML) – A set of modules that forms a complete electronic business framework. Derived from the XML, ebXML is the joint initiative of United Nations body for Trade Facilitation and Electronic Business Information Standards (UN/CEFACT) and the Organization for the Advancement of Structured Information Standards (OASIS) to standardize the secure exchange of business data.

Extensible Markup Language (XML) – XML is a formal recommendation from the World Wide Web Consortium. It is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere.

Format Restriction – A set of constraints on the value domain of the Content Component of a CCT that provides the representation in the BBIE.

IFCG Standing Office – Interoperability Framework Coordination Group Standing Office is involved in the operation management of Common Schemas.

Information Model – An information model specifies the definition, representation, etc. of a data element to reflect the data element's attributes.

ISO 11179 – The ISO 11179 standard, specification and standardization of data elements, serves as the framework for the methodology to describe data elements in a consistent way.

Joined-up Project – IT project which aims at joining up government services. It may involve multiple Bureaus/Departments or parties outside government hierarchy.

Maturity Level – A scheme which defines the reusability and maturity of Common Schemas. It consists of 3 possible levels: 0, 1, and 2. The higher the level number, the more mature the Common Schema.

Object class – A set of ideas, abstractions, or things in the real world that can be identified with explicit boundaries and meaning and whose properties and behaviour follow the same rules.

Project Registry – A Project Registry is used to store the XSDs together with the process and information models for Project Schemas.

Project Schema – A set of related XSDs together with the information models that the project team develop for a specific joined-up service project.

Promotion – to raise the Maturity Level of a Common Schema if the perceived reusability and maturity of the schema is elevated.

Property – A peculiarity common to all members of an object class.

Registry – The Registry provides an organized way to store information. In the context of enhancing data interoperability, the Registry serves to organize information models and XSDs for reference by project teams.

Representation – A description of how the data is represented, i.e. the combination of a value domain, data type, and, if necessary, a unit of measure or a character set.

Retired Common Schema – The Common Schema which has become inactive meaning that new joined-up projects are no longer recommended to use it.

Supplementary Component – A Supplementary Component gives additional meaning to the Content Component in the Core Component Type. Supplementary Components shall be stored as part of the Core Component Type to which they belong.

UID – Unique identifier of a dictionary entry in the data dictionary.

Universal Business Language (UBL) – UBL envisions a world where all companies, large and small, can interact seamlessly with their trading partners as if they were part of the same virtual enterprise. It achieves that goal by standardizing the form of information exchange.

UN/CEFACT Modelling Methodology (UMM) – It uses UML as the modelling technique to specify business requirements and data so that they can be shared internally and provided externally in a consistent manner.

Unified Modelling Language (UML) – A standard notation for the modelling of real-world objects as a first step in developing an object-oriented design methodology.

XML – Please refer to Extensible Markup Language.

XML Schema- An XML Schema expresses shared vocabularies and allows machines to carry out rules made by people. It provides a means for defining the structure, and content of an XML document.

XML Schema Definition (XSD) – XSD specifies how to formally describe the elements in an Extensible Markup Language (XML) document. This description can be used to verify that each item of content in a document adheres to the description of the element in which the content is to be placed.

XMLCG – XML Coordination Group supervises the Common Schema Management Process and directs the policy enforcement. It also makes approval decision to all requests related to Common Schemas and the management process.